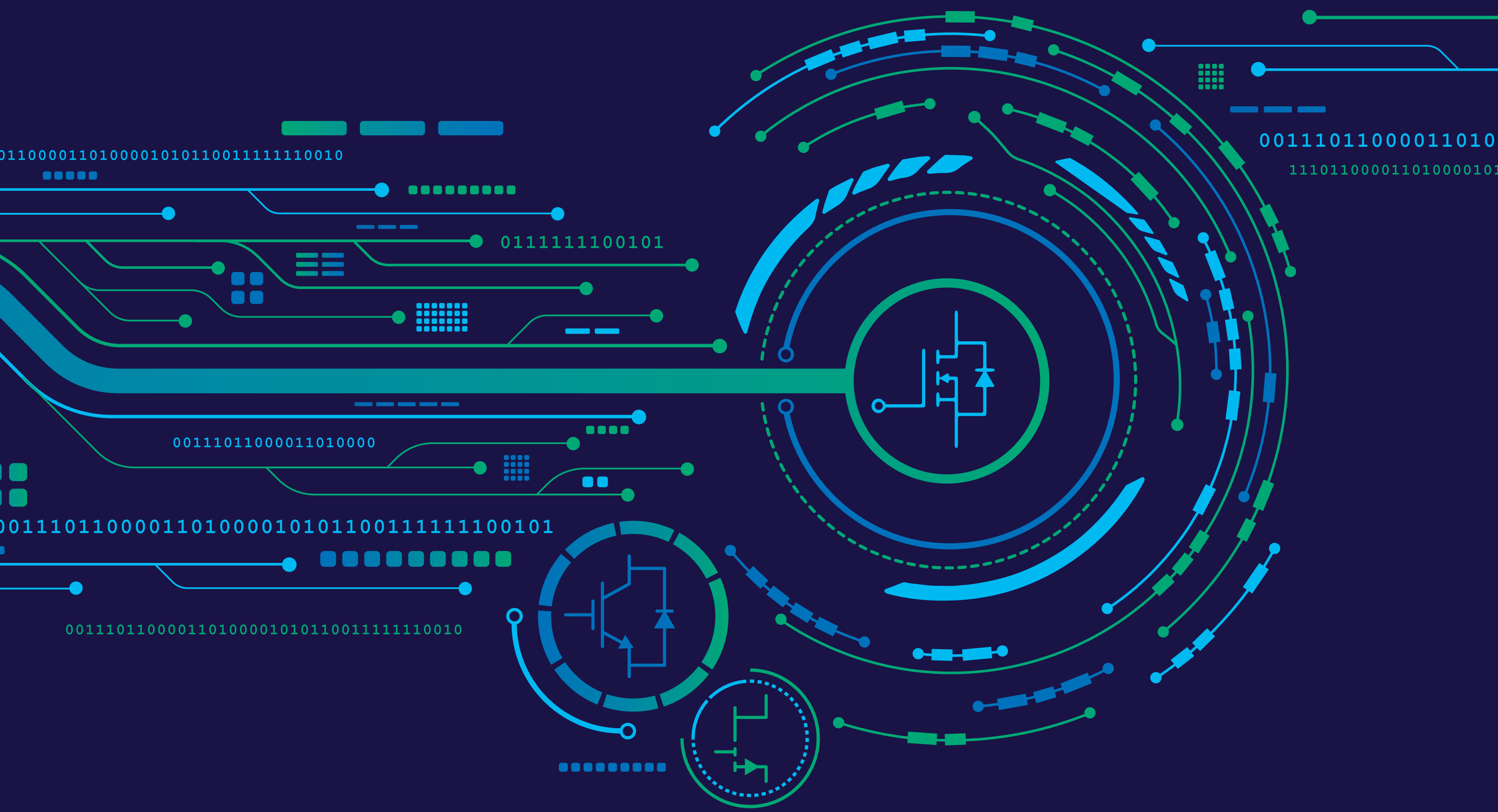

APEC 2026

MARCH 22-26 | SAN ANTONIO, TEXAS

HENRY B. GONZÁLEZ CONVENTION CENTER

THE PREMIER GLOBAL EVENT IN POWER ELECTRONICS

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PSMA

CALL FOR PAPERS

APEC 2027

For APEC 2027, we are offering an extended submission window, giving you more time to craft and submit your digests and proposals. View the submission windows below and save the dates so you don't miss the opportunity to share your valuable insights and experiences!

Technical Sessions:
Open Date: **May 21, 2026**
Close Date: **August 14, 2026**

Industry Sessions:
Open Date: **May 28, 2026**
Close Date: **August 14, 2026**

Professional Education Seminars:
Open Date: **June 11, 2026**
Close Date: **August 14, 2026**

Plenary Suggestions:
Open Date: **June 22, 2026**
Close Date: **July 19, 2026**

TO KEEP UP TO DATE ON ALL THINGS APEC, including call for papers announcements, scan the QR code and subscribe to the APEC email list.

Dates are subject to change.

TABLE OF CONTENTS

STAY CONNECTED

MOBILE APP INFORMATION

Download the APEC 2026 mobile app to access the latest event updates and details, including session and speaker information. The app is accessible through Google Play (Android) and Apple Store (iOS devices) by searching 'Eventscribe', downloading, then searching **'APEC 2026'**.

APEC SOCIAL MEDIA INFORMATION

- X: @APEC_CONF | #APEC2026
- Instagram: @APEC_CONF | #APEC2026
- Facebook: APEC: Applied Power Electronics Conference
- LinkedIn: APEC: Applied Power Electronics Conference

WIFI INFORMATION

WiFi Network: APEC2026

WiFi Password: SanAntonio26 *(case sensitive)*

EMAIL apec@apec-conf.org

WEBSITE https://www.apec-conf.org

PROGRAM KEY

PROFESSIONAL EDUCATION SEMINARS

APEC's Professional Education Seminars are three-hour presentations from the leading experts from industry and academia. Each year these seminars cover a wide range of topics in levels ranging from introductory to expert. A key feature of APEC's Professional Seminars is that one seminar registration fee offers access to all the seminars and includes the slides from all seminars. Registrants for the Professional Seminars are free to go to any seminar and even get up and roam from seminar to seminar at will.

PLENARY SESSION

The APEC Plenary Session is a long-standing tradition of addressing topics of immediate and long-term interest to the practicing power electronics engineer. The on-trend topics featured during the plenary session are brought to you by invited distinguished professionals followed by an interactive Q&A session.

TECHNICAL SESSIONS

The Technical Sessions are the heart of the APEC Technical Program. Papers presented in the Technical Sessions have been selected through a rigorous peer review process and cover all areas of interest to the practicing power electronics professional. All digests submitted to APEC are reviewed and scored to the same selection criteria. The digests selected for presentation at the conference may be presented in one of two different formats. All papers presented at APEC in either format of Technical Session are published in the IEEE Xplore digital library.

Papers in **Lecture Sessions** are presented in traditional oral presentations. Papers are selected for the Lecture Sessions for their interest to a broad range of APEC attendees.

Papers in **Dialogue Sessions** are presented in poster format. Papers selected for the Dialogue Session are generally intended for a narrower audience with a scope for more in-depth exploration. The big advantage to the Dialogue Sessions is that attendees interested in the paper can have an extended, in-person discussion with the paper's author.

INDUSTRY SESSIONS

Industry Session presentations allow authors, particularly those from industry, to share their latest work without needing to prepare a formal manuscript. They can publish current information more quickly from a wide range of topics and areas of interest that appeal not just to design engineers but other power electronics professionals including systems and applications engineers, component suppliers, procurement, manufacturing, and business-oriented professionals in technical sales and marketing.

DEBATE SESSIONS

Every year, the APEC Committee handpicks a handful of hot topics and brings together a panel of distinguished experts to engage in a dynamic exchange of views. The Debate Sessions are structured around pivotal questions designed to spark debate, ensuring a representation of diverse perspectives. Kickstarting the session with introductory remarks from our panelists, we then open the floor to you—our audience of specialists—to weigh in with your insights, challenge the experts, and steer the conversation with your questions. Get ready for an invigorating exchange of ideas that is as informative as it is animated and walk away with a deeper understanding of the latest trends and controversies in power electronics.

EXHIBITOR PRESENTATIONS

APEC 2026 Exhibitor Presentations will address the modern challenges facing the power electronics industry and review how these challenges have been approached in the past. Presenting companies will then showcase how their products and services deliver superior solutions compared to previous methods. These sessions offer valuable industry insight into the latest innovations and cutting-edge offerings from leading suppliers in the power electronics sector.

FOREWORD

Dear Colleagues,

It is my great honor to welcome you to San Antonio for the 41st IEEE Applied Power Electronics Conference and Exposition (APEC). Serving as the General Chair of APEC 2026 is both a privilege and a personal milestone in my journey in the power electronics community.

My first APEC was in 2003 when I was a Ph.D. student, presenting my first conference paper at an international venue. I still remember the excitement of meeting researchers, engineers, and industry leaders who shaped the field. That experience inspired me to continue my path in power electronics and has guided my career ever since. After becoming a professor myself, I have encouraged my students to present their work at APEC, and I am especially proud that they have received 12 Outstanding Presentation Awards. These achievements reflect both their dedication and the supportive environment of the conference. Together, these experiences have deepened my connection to APEC and strengthened my belief in its role in nurturing talent and advancing the field.

After 41 years, APEC has grown into one of the largest technical conferences in North America, with more than 5,000 participants from over 50 countries each year. The scale of the conference reflects the energy and innovation of the power electronics community. Here, engineers, researchers, students, and business leaders come together to learn, share, and build the future of power electronics.

The technical and expostition programs at APEC span the entire landscape of power electronics, from milliwatts to megawatts, and from low voltage to high voltage. Applications range from consumer electronics to data centers, electric vehicles, the modern power grid, electrified aircraft, space exploration, and many more.

- The Technical Sessions at APEC feature more than 570 high-quality papers, making the APEC Proceedings the most valuable conference collection in power electronics, as reflected in the SJR rankings.
- The Industry Sessions are a unique strength of APEC. With more than 170 presentations, they provide insights from industry researchers and leading academic experts, bridging the gap between research and practice and highlighting the real-world impact of power electronics.
- The Exposition at APEC is the largest power electronics showcase in North America, featuring over 310 companies as exhibitors in 2026. It offers an unmatched opportunity to explore the latest products, solutions, and technologies shaping the future of our field.
- The plenary keynotes at APEC deliver vision and inspiration from global leaders who are shaping the future of the field.
- APEC also offers 18 in-depth, 3.5-hour Professional Education Seminars, delivered by renowned speakers who are leading researchers in both academia and industry.

This year we have invested significantly in student activities. The Student Travel Award, Student Mentorship Program, the Student Job Fair, and the Student Session Assistance Program will provide opportunities for students to grow and engage. We are also excited to introduce the Student Demonstration Competition for the first time at APEC, creating a new platform for students to showcase their talents and connect with industry.

At APEC 2026, we continue to support professional development for all. The Young Professionals program, Mentorship Roundtable, and the Women in Engineering events provide valuable opportunities to learn, connect, and grow.

I invite you to take full advantage of all that APEC 2026 offers, whether it is the technical sessions, the industry presentations, the exhibition, or the networking opportunities. I hope you will leave San Antonio with new ideas, new collaborations, and renewed energy for the work ahead.

Thank you for being part of APEC 2026. Together, we will continue to advance the field of power electronics.

Sincerely,

Jin Wang
General Chair, APEC 2026
IEEE Fellow, Distinguished Professor of Engineering
The Ohio State University

APEC 2026 CONFERENCE COMMITTEE & MANAGEMENT

CONFERENCE COMMITTEE

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GlobalSpec

How2Power.com Answering Your Questions About Power Design

IAS IEEE Industry Applications Society Linking Research to Practice

IEEE Electrification Magazine

IEEE Power Electronics Magazine

Magnetics Business & Technology

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Power Electronics Europe

Power Electronics News

PEI Power Electronics International Design • Materials • Packaging • Performance

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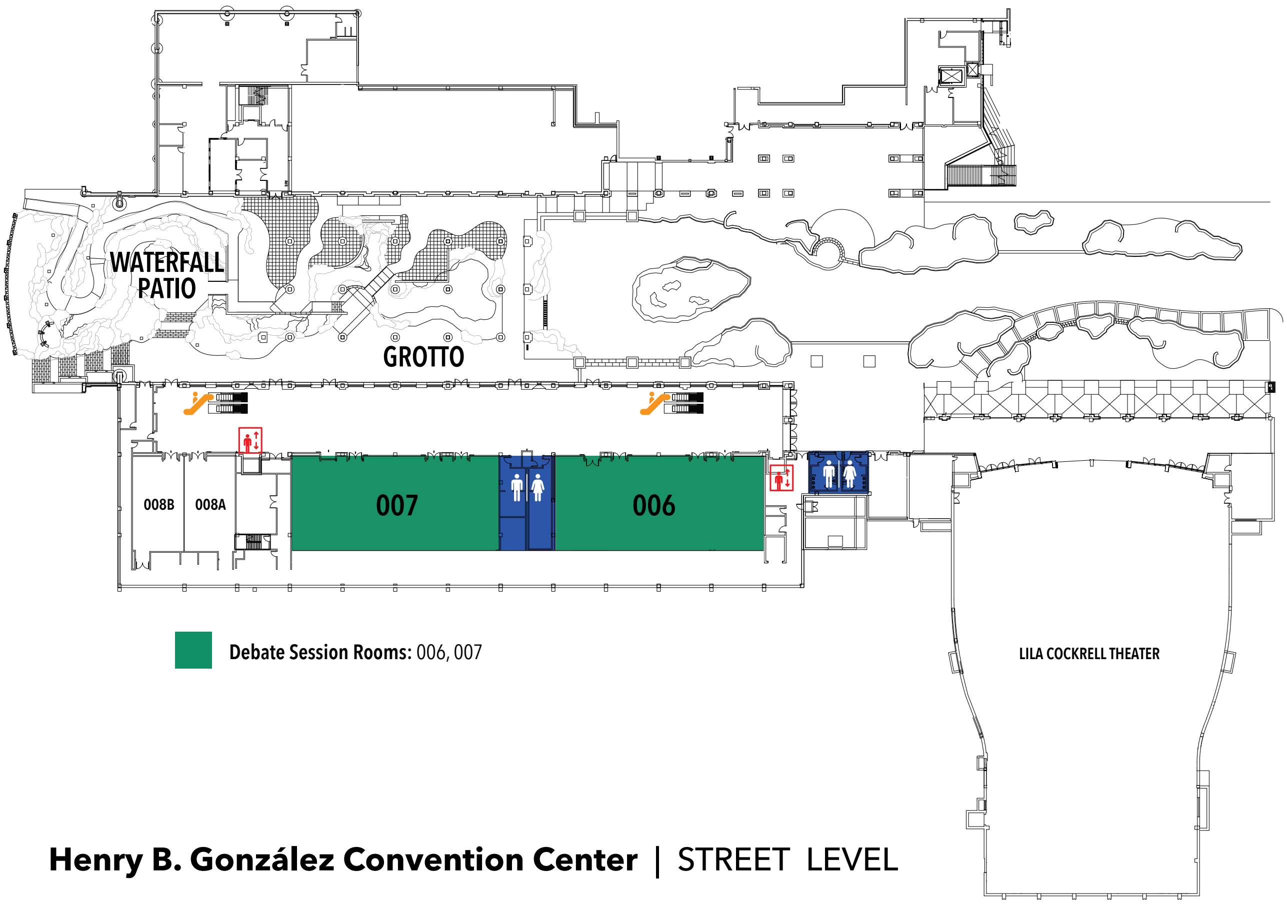
CONFERENCE-AT-A-GLANCE

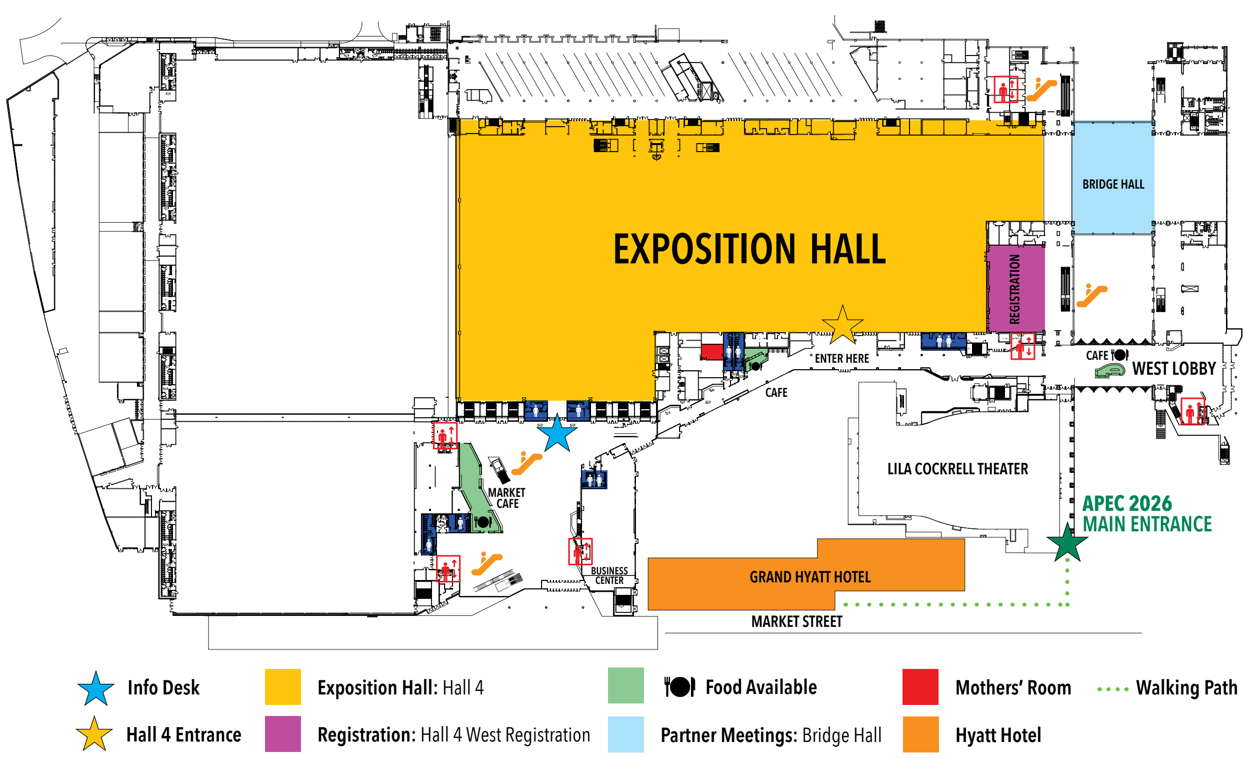
	Saturday, March 21	Sunday, March 22	Monday, March23	Tuesday, March 24	Wednesday, March 25	Thursday, March 26
Plenary Session			✓			
Technical Lecture Sessions				✓	✓	✓
Technical Dialogue Sessions			✓ *Dialogue Preview Session*			✓
Industry Sessions				✓	✓	✓
Professional Education Seminars		✓	✓			
Debate Sessions				✓		
Exhibitor Presentations				✓	✓	
Exposition Hall Open			✓	✓	✓	
Student Demonstrations				✓	✓	
Sponsor Meetings	✓	✓	✓	✓	✓	✓

HENRY B. GONZÁLEZ CONVENTION CENTER FLOOR PLAN

Henry B. González Convention Center | RIVER LEVEL

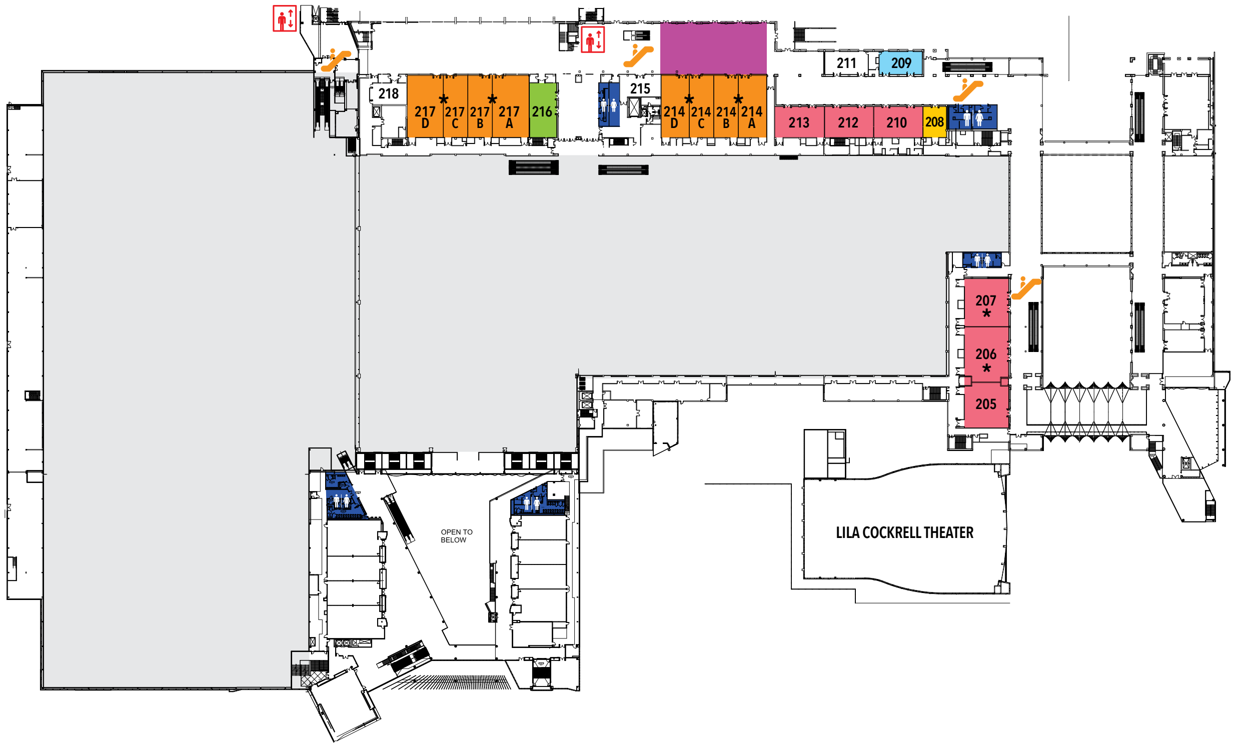


Henry B. González Convention Center | STREET LEVEL



HENRY B. GONZÁLEZ CONVENTION CENTER FLOOR PLAN

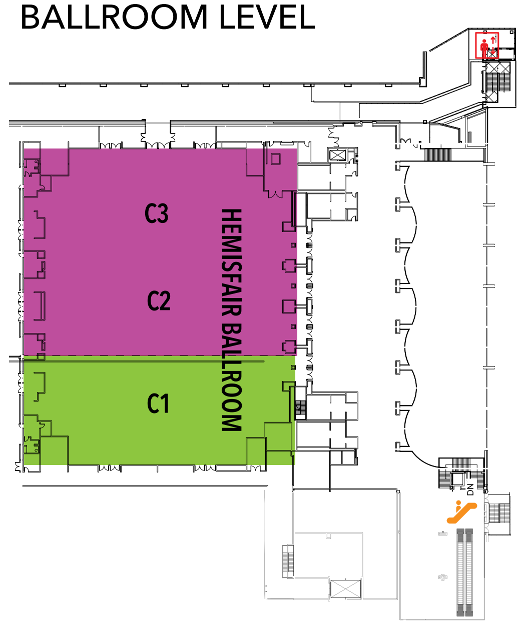
Henry B. González Convention Center | MEETING ROOM LEVEL



- **Industry Session Rooms:** 205, 206, 207, 210, 212, 213
- **Technical Session Rooms:** 214A, 214B, 214C, 214D, 217A, 217B, 217C, 217D
- * **Seminar Rooms** *(Sun & Mon Only):* 206, 207, 214AB, 214CD, 217AB, 217CD
- **Speaker Ready Room:** 216
  Speaker Breakfast: 216 *(Sun & Mon Only)*
- **Mentorship Room:** 209
- **Press Room:** 208
- **Dialogue Preview Session:** Park View Foyer *(Mon Only)*

Henry B. González Convention Center | BALLROOM LEVEL

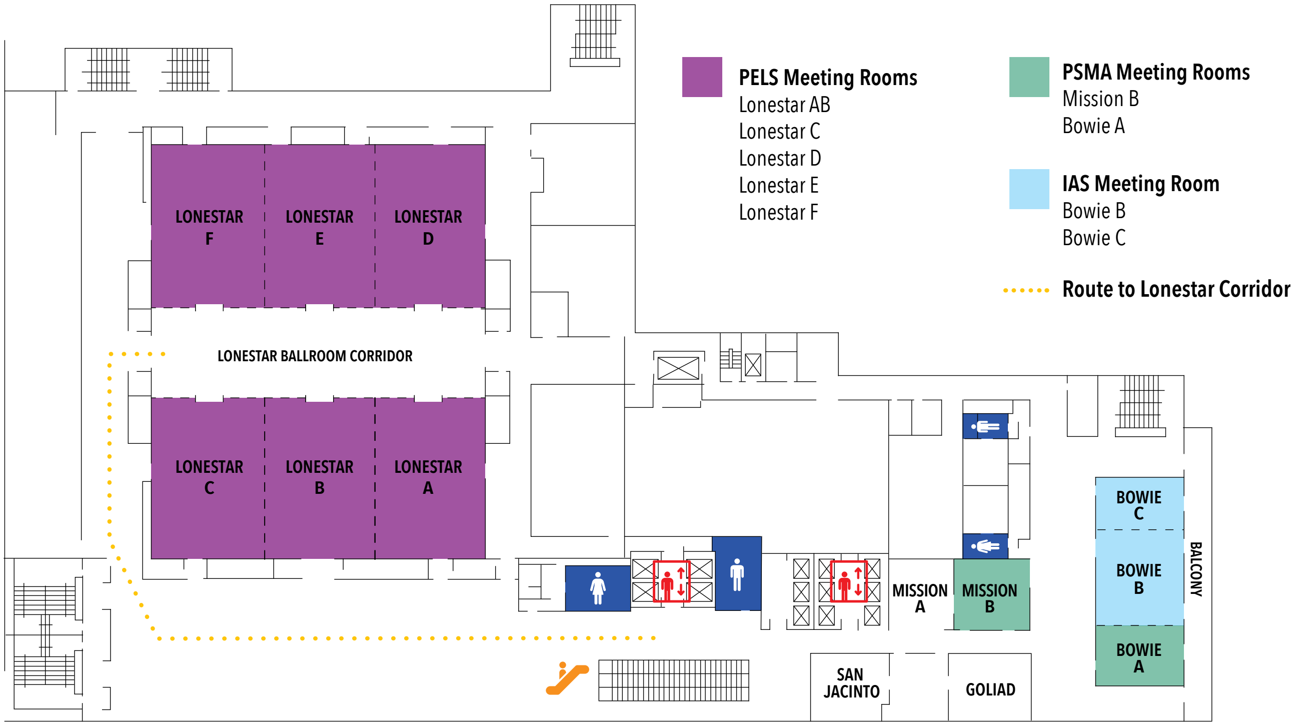
- **Plenary:** Hemisfair Ballroom C2/C3 *(Mon)*
  Student Job Fair: Hemisfair Ballroom C2 *(Tues)*
  Dialogue Sessions: Hemisfair Ballroom C2/C3 *(Thurs)*
- **Speaker Breakfast:** Hemisfair Ballroom C1 *(Tues, Wed, Thurs)*



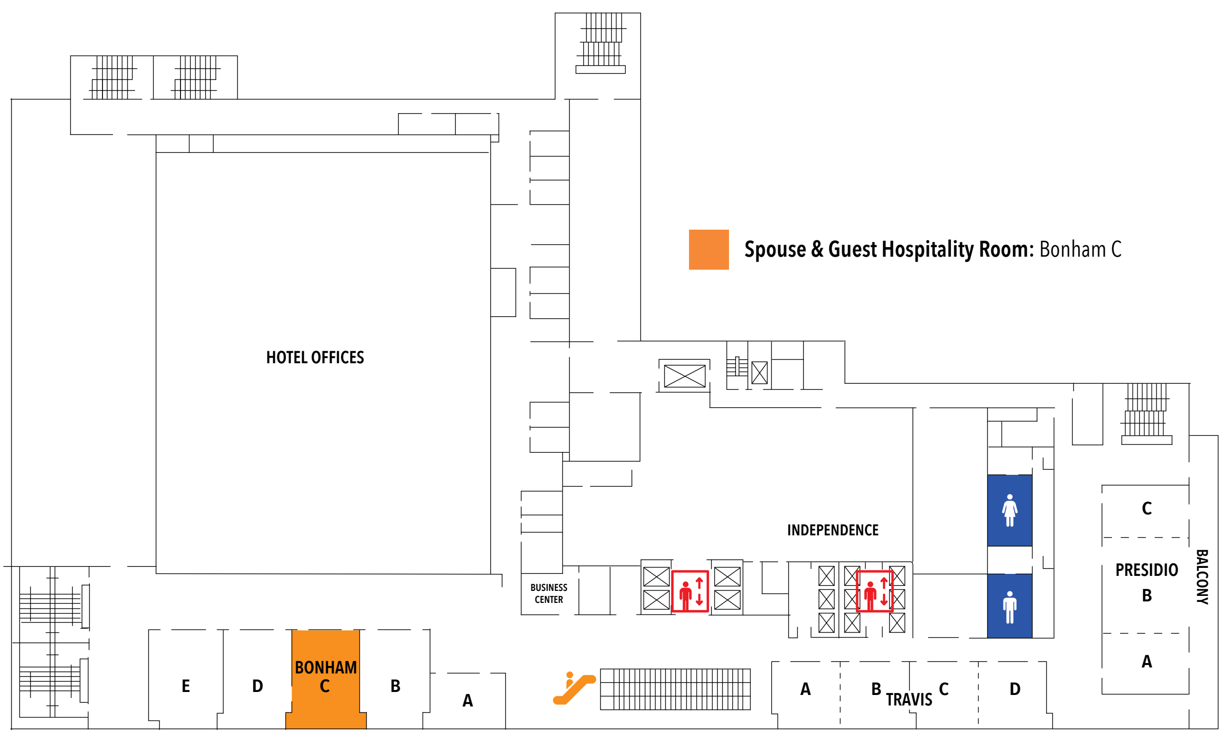
GRAND HYATT FLOOR PLAN

Grand Hyatt | LEVEL 2

See sponsor meeting schedules for daily locations & meeting times.



Grand Hyatt | LEVEL 3



SCHEDULE-AT-A-GLANCE

*Note: All events will be held in the Henry B. González Convention Center unless otherwise mentioned

SATURDAY, MARCH 21

7:00 AM – 6:00 PM	**PSMA Power Magnetics @ High Frequency Workshop**	Meeting Level, Room 214
7:00 AM – 5:00 PM	**PSMA Capacitor Workshop**	Meeting Level, Room 213
4:00 PM – 7:00 PM	**Registration Open**	Street Level, Hall 4 West Registration

SUNDAY, MARCH 22

8:00 AM – 9:00 AM	**Professional Education Seminar Speaker Breakfast** *(Seminar Speakers and Chairs Only)*	Meeting Room Level, Room 216
8:00 AM – 4:30 PM	**Speaker Ready Room Open**	Meeting Room Level, Room 216
8:00 AM – 5:00 PM	**Registration Open**	Street Level, Hall 4 West Registration
9:30 AM – 1:00 PM	**Professional Education Seminars, S01 – S06**	Various – *See pages 39-41 for specific locations*
1:00 PM – 2:30 PM	**Lunch on Your Own**	
2:30 PM – 6:00 PM	**Professional Education Seminars, S07 – S12**	Various – *See pages 41-43 for specific locations*

MONDAY, MARCH 23

7:00 AM – 8:00 AM	**Professional Education Seminar Speaker Breakfast** *(Seminar Speakers and Chairs Only)*	Meeting Room Level, Room 216
7:00 AM – 1:30 PM	**Speaker Ready Room Open**	Meeting Room Level, Room 216
7:00 AM – 7:00 PM	**Registration Open**	Street Level, Hall 4 West Registration
8:00 AM – 3:00 PM	**Spouse and Guest Hospitality Room Open** *(Registered Spouses and Guests Only)*	Grand Hyatt, Level 3, Bonham C
8:30 AM – 12:00 PM	**Professional Education Seminars, S13 – S18**	Various – *See pages 44-45 for specific locations*
9:00 AM – 10:30 AM	**Spouse and Guest Welcoming Breakfast/ Meet and Greet** *(Registered Spouses and Guests Only)*	Grand Hyatt, Level 3, Bonham C
12:00 PM – 1:30 PM	**Lunch on Your Own**	
12:00 PM – 1:30 PM	**APEC 2026 Dialogue Preview Session**	Meeting Room Level, Park View Foyer

MONDAY, MARCH 23 *(Continued)*

1:45 PM – 2:15 PM	**Plenary Session Opening and Welcome**	Ballroom Level, Hemisfair Ballroom
2:15 PM – 4:45 PM	**Plenary Session**	Ballroom Level, Hemisfair Ballroom
4:45 PM – 7:45 PM	**Welcome Reception, Exposition Hall Open**	Street Level, Hall 4
7:00 PM – 9:00 PM	**MicroMouse Competition**	Street Level, Hall 4
7:45 PM – 9:45 PM	**Young Professionals Networking Reception** *(Pre-Registration Required)*	Grand Hyatt, Level 2, Lonestar A

TUESDAY, MARCH 24

7:00 AM – 8:00 AM	**Technical and Industry Sessions Speaker Breakfast** *(Speakers, Session Chairs, and Student Session Assistants Only)*	Ballroom Level, Hemisfair Ballroom C1
7:00 AM – 4:00 PM	**Speaker Ready Room Open**	Meeting Room Level, Room 216
8:00 AM – 3:00 PM	**Registration Open**	Street Level, Hall 4 West Registration
8:00 AM – 3:00 PM	**Spouse and Guest Hospitality Room Open** *(Registered Spouses and Guests Only)*	Grand Hyatt, Level 3, Bonham C
8:30 AM – 11:55 AM	**Industry Sessions, IS01 – IS06**	Various – *See pages 59-61 for specific locations*
8:30 AM – 12:00 PM	**Technical Sessions, T01 – T08**	Various – *See pages 52-58 for specific locations*
9:00 AM – 4:30 PM	**Exposition Hall Open**	Street Level, Hall 4
10:10 AM – 10:40 AM	**Break**	
12:00 PM – 1:30 PM	**Lunch in the Exposition Hall**	Street Level, Hall 4
1:00 PM – 3:30 PM	**Student Demonstration Competition**	Exposition Hall, Street Level, Hall 4
1:30 PM – 4:15 PM	**Exhibitor Presentations**	Various – *See pages 44-45 for specific locations*
1:30 PM – 4:30 PM	**Student Job Fair**	Ballroom Level, Hemisfair Ballroom C2
2:45 PM – 3:00 PM	**Break**	
4:15 PM	**Exposition Hall Raffle Drawing in APEC Hub**	Street Level, Hall 4
4:30 PM – 6:00 PM	**Debate Sessions**	River Level, Rooms 006 and 007

WEDNESDAY, MARCH 25

7:00 AM – 8:00 AM	**Technical and Industry Sessions Speaker Breakfast** *(Speakers, Session Chairs, and Student Session Assistants Only)*	Ballroom Level, Hemisfair Ballroom C1
7:00 AM – 4:00 PM	**Speaker Ready Room Open**	Meeting Room Level, Room 216
8:00 AM – 2:00 PM	**Registration Open**	Street Level, Hall 4 West Registration
8:00 AM – 3:00 PM	**Spouse and Guest Hospitality Room Open** *(Registered Spouses and Guests Only)*	Grand Hyatt, Level 3, Bonham C
8:30 AM – 11:55 AM	**Industry Sessions, IS07 – IS12**	Various – *See pages 77-79 for specific locations*
8:30 AM – 12:00 PM	**Technical Sessions, T09 – T16**	Various – *See pages 64-70 for specific locations*
9:00 AM – 2:30 PM	**Exposition Hall Open**	Street Level, Hall 4
10:10 AM – 10:40 AM	**Break**	
11:45 AM – 1:30 PM	**Lunch in the Exposition Hall**	Street Level, Hall 4
12:00 PM – 1:15 PM	**Exhibitor Presentations**	Various – *See pages 52-58 for specific locations*
12:00 PM – 1:30 PM	**Student Demonstration Competition**	Exposition Hall, Street Level, Hall 4
1:15 PM	**Exposition Hall Raffle Drawing in APEC Hub**	Street Level, Hall 4
1:30 PM – 4:55 PM	**Industry Sessions, IS13 – IS18**	Various – *See pages 80-82 for specific locations*
1:30 PM – 5:00 PM	**Technical Sessions, T17 – T24**	Various – *See pages 70-76 for specific locations*
3:10 PM – 3:40 PM	**Break**	
6:30 PM – 9:30 PM	**Wednesday Night Social Event** *(Ticket Required)*	Offsite Location – The Espee

THURSDAY, MARCH 26

7:00 AM – 8:00 AM	**Dialogue, Technical and Industry Sessions Speaker Breakfast** *(Speakers, Session Chairs, and Student Session Assistants Only)*	Ballroom Level, Hemisfair Ballroom C1
7:00 AM – 12:00 PM	**Speaker Ready Room Open**	Meeting Room Level, Room 216
8:00 AM – 1:00 PM	**Spouse and Guest Hospitality Room Open** *(Registered Spouses And Guests Only)*	Grand Hyatt, Level 3, Bonham C
8:00 AM – 2:00 PM	**Registration Open**	Street Level, Hall 4 West Registration
8:20 AM – 10:00 AM	**Industry Sessions, IS19 – IS24**	Various – *See pages 92-93 for specific locations*
8:20 AM – 10:00 AM	**Technical Sessions, T25 – T32**	Various – *See pages 84-87 for specific locations*
10:00 AM – 10:20 AM	**Break**	
10:20 AM – 12:00 PM	**Technical Sessions, T33 – T40**	Various – *See pages 88-91 for specific locations*
10:20 AM – 12:00 PM	**Industry Sessions, IS25 – IS30**	Various – *See pages 93-95 for specific locations*
12:00 PM – 1:45 PM	**Dialogue Sessions & Lunch**	Ballroom Level, Hemisfair Ballroom

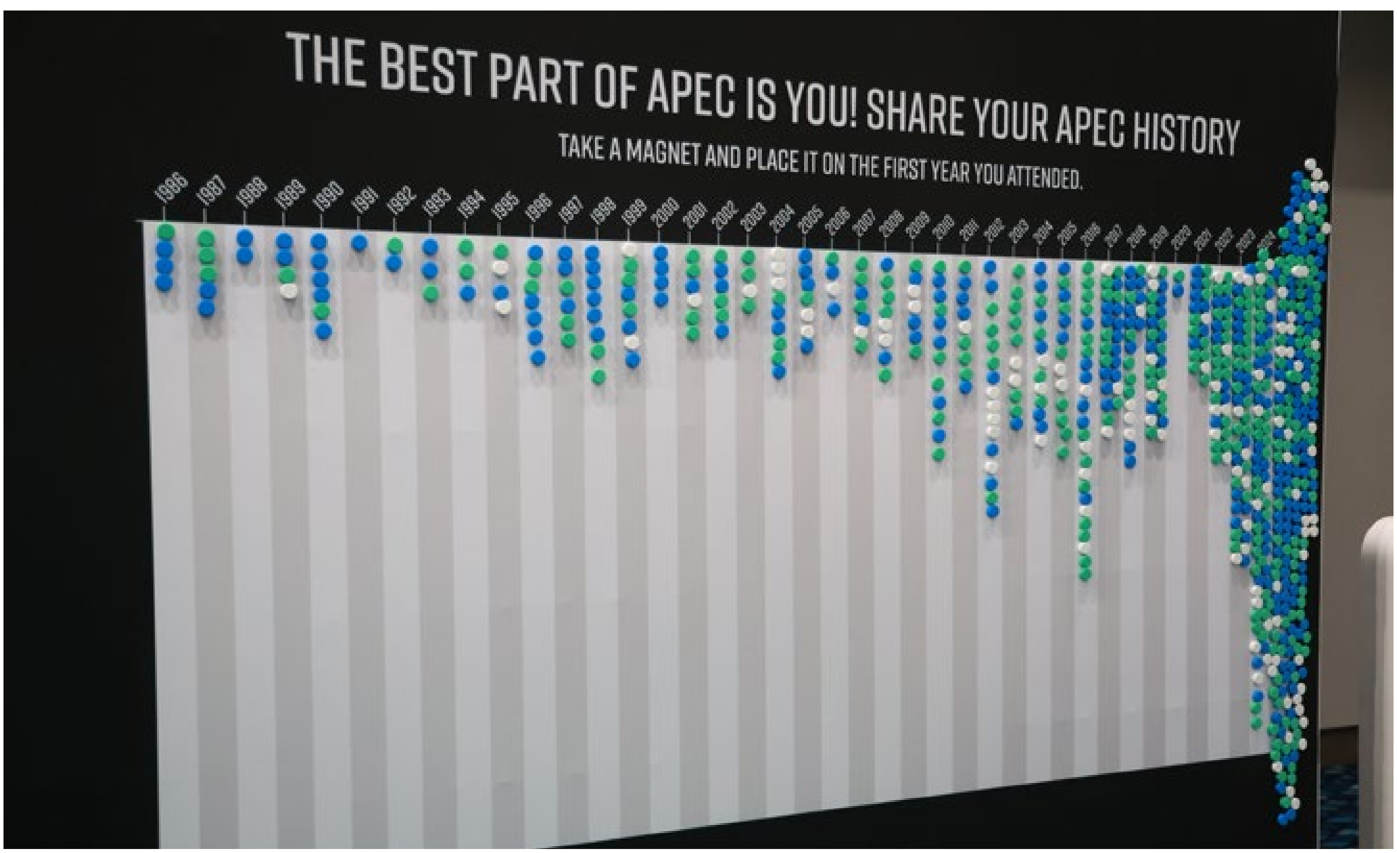
IN MEMORY OF
DR. AENGUS MURRAY
1958 – 2025

Dr. Aengus Murray was a pillar of our professional community, a world-renowned power electronic and motor drive/control expert whose career spanned continents and decades. To his colleagues at Analog Devices, International Rectifier, and Infineon, and to his colleagues on the APEC committee where he served as the Co-Chair of the Industry Sessions, he was far more than a brilliant engineer. Aengus was a wise, knowledgeable, and curious leader who approached every challenge with humility.

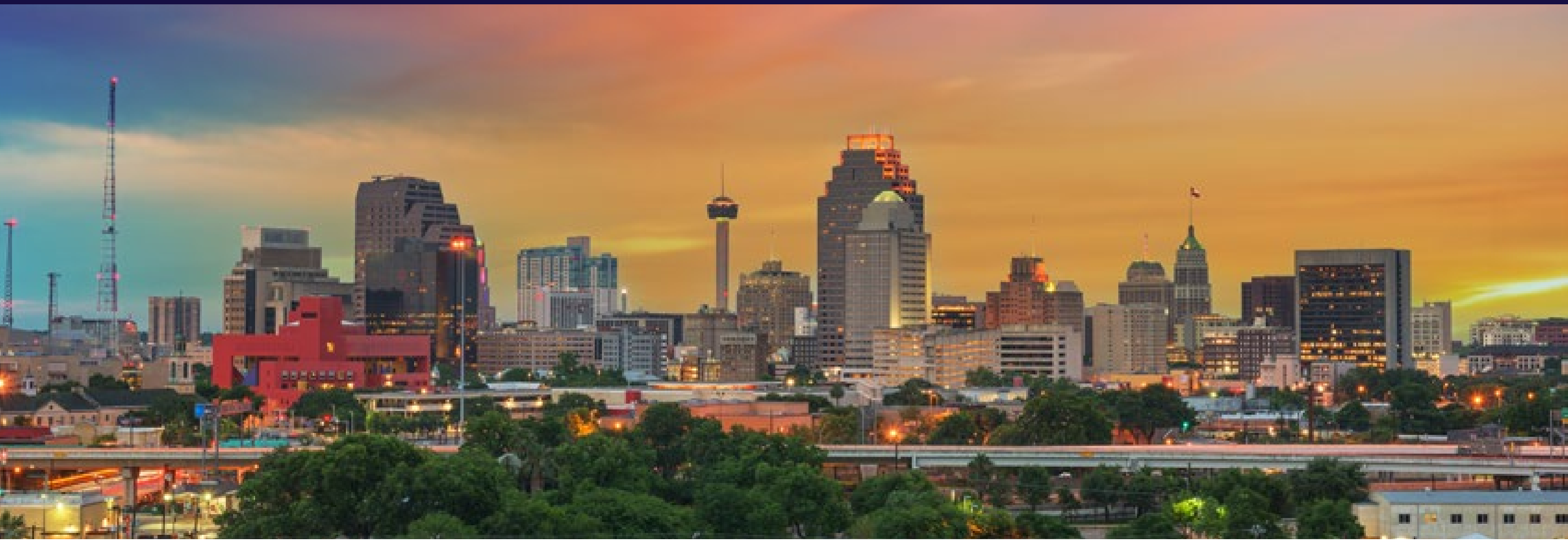
Aengus received his PhD from University College in Dublin, Ireland where he was a professor for a few years teaching Electrical Engineering Courses for undergraduates. He has five U.S. patents all in the areas of motion control and automation. He passed away a few weeks after his birthday in a tragic auto accident while he was a pedestrian near his home in the Los Angeles area. He is survived by his wife, Dr. Simin Rachel Khoshbin, his stepson Dr. Brian Siegel, and his seven siblings.

Aengus possessed a rare quiet strength, balancing dedication with a gentle and modest nature that put everyone at ease. He was an avid windsurfer and skier and whether he was “nerding out” over motor drives or sharing a laugh over rugby and Irish or Persian food, Aengus was consistently trustworthy, caring, and helpful. Above all, he was a true gentleman whose optimistic attitude and genuine kindness left an indelible mark on our industry and our hearts.

Aengus will be greatly missed by all of us.



GENERAL INFORMATION



ABOUT SAN ANTONIO

Discover the heart and soul of Texas in San Antonio — a city where centuries of history come alive around every corner. Step back in time at the Alamo and the city's Spanish colonial missions, and see how the past blends seamlessly with a thriving, modern culture. Stroll along the iconic River Walk, filled with music, dining, and vibrant local flavor, or explore the city's diverse neighborhoods that celebrate art, heritage, and community. With its rich history, warm hospitality, and unforgettable charm, San Antonio is a destination that truly captures the spirit of Texas.

LUNCH INFORMATION

Lunch will be available at the following dates, times and locations for all attendees:

Tuesday, March 24 | 12:00 PM – 1:30 PM
STREET LEVEL, EXPOSITION HALL (HALL 4)

Wednesday, March 25 | 11:45 AM – 1:30 PM
STREET LEVEL, EXPOSITION HALL (HALL 4)

Lunch will be available at the following date, time and location for attendees with Full Conference or Technical/Industry Session badges only:

Thursday, March 26 | 12:00 PM – 1:45 PM
BALLROOM LEVEL, DIALOGUE SESSION, HEMISFAIR BALLROOM

Additional concessions will be available for purchase and can be found throughout the Henry B. González Center. The below areas can be found on the Street Level of the building. Please refer to the APEC mobile app for when these areas are open.

- El Puente Café
- Market Café
- Broken Crust

ACCESSIBILITY

The Henry B. González Convention Center and APEC strive to provide an accessible event for all. The convention center is designed with wheelchair ramps, automatic doors, passenger elevators and handicap accessible restroom facilities. All passenger elevators are clearly marked. Please visit the information desk on the Street Level for additional accessibility questions and information.

Mothers' Room

The Henry B. González Convention Cener offers two dedicated private rooms for nursing mothers. They are located in the East Wing, Room 1212 and West Wing, Room 2137. The rooms can be secured if necessary. Restrooms are located nearby.

REGISTRATION INFORMATION

Location: STREET LEVEL, HALL 4 WEST REGISTRATION

All attendees must be registered for the conference. For registration or general conference questions, please visit APEC Registration.

Registration Category	Technical Sessions	Industry Sessions	Professional Education Seminars	Plenary Session	Expo Hall	Wednesday Night Social	Debate Sessions	Exhibitor Presentations
Full Conference	✓	✓	✓	✓	✓	✓	✓	✓
Technical & Industry Sessions Only	✓	✓		✓	✓	✓	✓	✓
Professional Education Seminars Only			✓	✓	✓	✓	✓	✓
General Attendee				✓	✓		✓	✓
Spouse/Guest Pass				✓	✓		✓	✓
Press Pass	✓	✓	✓	✓	✓	✓	✓	✓

REGISTRATION HOURS

Saturday, March 21 . . . 4:00 PM – 7:00 PM
Sunday, March 22. . . . . 8:00 AM – 5:00 PM
Monday, March 23 . . . . 7:00 AM – 7:00 PM
Tuesday, March 24 . . . . 8:00 AM – 3:00 PM
Wednesday, March 25. . 8:00 AM – 2:00 PM
Thursday, March 26 . . . 8:00 AM – 2:00 PM

Badge Holder Types:

Full Conference
BADGE COLOR: **Green**

Technical & Industry Sessions
BADGE COLOR: **Orange**

Professional Education Seminars
BADGE COLOR: **Blue**

General Attendee
BADGE COLOR: **White**

Exhibitor Booth Personnel
BADGE COLOR: **Yellow**

Guest
BADGE COLOR: **Gray**

EXPOSITION HALL INFORMATION

STREET LEVEL, HALL 4

Explore the latest innovations in power electronics from over 300 exhibitors showcasing their cutting-edge technologies, products, and solutions.

Exposition Hall Hours*

Monday, March 23 | 4:45 PM – 7:45 PM

Tuesday, March 24 | 9:00 AM – 4:30 PM

Wednesday, March 25 | 9:00 AM – 2:30 PM

**Hours are subject to change*

Exposition Admission Information

Entry to the Exposition Hall is limited to **registered and badged attendees**. Minors may enter the Exposition Hall with a signed waiver, and only if accompanied by an adult. Please visit the APEC Registration Desk to complete the waiver.

Exposition Hall Raffle

Join the fun at the APEC Raffle, located inside the APEC Hub in the Exposition Hall!

Drawing Times:

Tuesday, March 24 | 4:15 PM

Wednesday, March 25 | 1:15 PM

How to Participate:

- Raffle tickets are attached to your registration badge.
- Drop your ticket at the APEC Hub before the drawing.
- You must be present in the Exposition Hall to win.

Exposition Hall SWAG

All attendees with a Full Conference registration are invited to select a SWAG item of their choice from inside the APEC Hub. Please visit the SWAG stand inside the APEC Hub and cash in the voucher attached to your registration badge.

PSMA Passport to Prizes

PSMA Passport to Prizes is on the Mobile App!

BON VOYAGE!

Visit participating PSMA member company booths, scan the QR code, answer the question and see your name rise to the top! You will find QR Codes to scan dotted around the Exposition Hall. Participants who visit PSMA member booths by Wednesday, March 25 at 12:00 PM will automatically be entered into the prize drawing. Winners will be randomly selected from all eligible participants and announced through the mobile app Wednesday, March 25 at 12:45 PM. Prizes must be claimed by 1:15 PM or a runner up will be selected. Prize pick up is at the PSMA Booth #625. All attendees (except exhibitors) can play to win one of 4 great prizes. More information on the prizes and the Passport game is available at the PSMA Booth and in the APEC app.

New for APEC 2026

Instagram Raffle

We're on Instagram! Come to the APEC Hub and show us that you follow us on Instagram and enter a raffle for an exclusive prize!

Drawing Time:

Wednesday, March 25 | 1:15 PM

How to Participate:

- An Instagram Raffle ticket is attached to your registration badge.
- Visit the Instagram Raffle Desk in the APEC Hub and show us you follow us on Instagram.
- Once confirmed, drop your ticket at the APEC Hub before the drawing.
- You must be present in the Exposition Hall to win.

Scan Me!

Instagram: @apec_conf

SPEAKER READY ROOM & BREAKFAST

Speaker Ready Room Location and Hours

MEETING ROOM LEVEL, ROOM 216

- Sunday, March 22 | 8:00 AM – 4:30 PM
- Monday, March 23 | 7:00 AM – 1:30 PM
- Tuesday, March 24 | 7:00 AM – 4:00 PM
- Wednesday, March 25 | 7:00 AM – 4:00 PM
- Thursday, March 26 | 7:00 AM – 12:00 PM

Speaker Breakfast Room Locations and Hours

Sunday/Monday Room:
MEETING ROOM LEVEL, ROOM 216

- Sunday, March 22 | 8:00 AM – 9:00 AM
- Monday, March 23 | 7:00 AM – 8:00 AM

Tuesday/Wednesday/Thursday Room:
BALLROOM LEVEL, HEMISFAIR BALLROOM C1

- Tuesday, March 24 | 7:00 AM – 8:00 AM
- Wednesday, March 25 | 7:00 AM – 8:00 AM
- Thursday, March 26 | 7:00 AM – 8:00 AM

SPOUSE AND GUEST INFORMATION

The APEC 2026 Spouse and Guest Co-Chairs are excited for APEC to return to San Antonio, Texas! The week will start off with a Monday morning welcome breakfast and meet and greet. Reconnect with old friends or make new ones as you make your plans for the week. Continue the week with a luncheon at a favorite Tex-Mex dining spot, the Iron Cactus!

Spouse and Guest Hospitality Room

GRAND HYATT, LEVEL 3, BONHAM C

The spouses and guests of registered APEC attendees are invited to the APEC Spouse and Guest Hospitality room to meet up with old and new friends, make plans, catch up with each other, or just hang out and relax. A light breakfast with coffee and tea will be served each day when the room opens.

Open Times *(subject to change)*

- Monday, March 23 | 8:00 AM – 3:00 PM
- Tuesday, March 24 | 8:00 AM – 3:00 PM
- Wednesday, March 25 | 8:00 AM – 3:00 PM
- Thursday, March 26 | 8:00 AM – 3:00 PM

Monday Morning Meet and Greet

Monday, March 23 | 8:00 AM – 9:30 AM
GRAND HYATT, LEVEL 3, BONHAM C

The APEC Spouse and Guest Co-Chairs encourage you to join us to kick off the week's spouse and guest activities. A speaker from the San Antonio convention and visitor's bureau will give an introduction to San Antonio and share nearby attractions and activities. This is a great opportunity to get oriented to the city, plan your week, and get your questions about the area answered.

Tuesday Lunch

Tuesday, March 18 | 12:30 PM – 2:30 PM
OFFSITE – THE IRON CACTUS

APEC Spouses and Guests are invited to join us for lunch at the Iron Cactus. Located in the middle of the San Antonio River Walk, the Iron Cactus has been voted "Best of the River Walk" for the last 6 years running. Join the Spouse and Guest chairs for lunch and enjoy a Mexican dining experience you'll never forget. ***RSVP and ticket purchase required to participate. Only those with a Spouse/Guest badge are eligible to attend.***

IMPORTANT RULES, NOTICES, AND CONFERENCE POLICIES

Badges Required for Admission

Badges are required for admission to all APEC events and activities. Badges are obtained by registering with the conference. APEC reserves the right to deny admission to any APEC event or activity to any person not showing an appropriate badge for that activity or event.

Recording and Photography

Attendee Recording/Photography: Video and audio recording may be conducted in the Exposition Hall area, and public areas of APEC, but nowhere else except with written permission from the Conference Chair. Still photography at APEC is permitted, but with limitations. The general principle is that people may be photographed but photographing presentations and other content is prohibited by all attendees except for the professional APEC photographer. For more details, please see Show Management.

APEC Photography for Marketing Purposes: By registering for APEC 2026, you agree that any photos taken of you while at the conference by our professional photographer may be used by APEC in the future.

Showcasing/Suitcasing Policy

Please note that while all meeting attendees are invited to the showcase, any attendee who is observed to be soliciting business in the aisles or other public spaces, in another company's booth, or in violation of any portion of the Exhibition Policy, will be asked to leave immediately. Additional penalties may be applied. Please report any violations you may observe to Show Management. Show Management recognizes that suitcasing may also take the form of commercial activity conducted from a hotel guest room or hospitality suite; a restaurant, club, or any other public place of assembly. For the purposes of this policy, suitcasing violations may occur at venues other than the Exposition Hall floor and at other events. Show Management must be informed of any hospitality suites, and expressed consent must be received prior to the event.

Recruitment Policy

IEEE Policy #10.1.25 requires a publicly stated policy concerning recruiting at IEEE sponsored conferences. Consequently, recruiters and recruiting advertisements will not be permitted in the APEC hotel space, meeting facilities or Exposition Hall. Also, ads or postings seeking positions are not permitted.

APEC reserves the right to remove without notice any materials in violation of this policy.

APEC does allow for the facilitation of a student job fair that is organized by the conference. Only students registered for the conference may participate. Only companies that have registered for the student job fair and paid any required participation fees may recruit at the job fair. Companies participating in the student job fair do not need to be exhibitors in the APEC exposition. The APEC Conference Committee will determine and communicate the procedures and requirements of the student job fair. Violation of the established policies and procedures of the student job fair may result is disciplinary action.

APEC also reserves the right to organize and list job postings on its platforms to provide additional service to APEC attendees.

Distribution of Commercial Material at APEC

Rules for Non-Exhibitors: Distribution of commercial material in the APEC 2026 venue space(s) (including directly to the hotel rooms of APEC participants), meeting space and Exposition Hall by people or organizations not participating in the Exposition is prohibited. APEC reserves the right to remove without notice any materials not in compliance with this policy.

Rules for Exhibitors: Exhibitors may only distribute commercial materials in their booth, at Exhibitor Presentations they are conducting and at press conferences they are holding. APEC reserves the right to remove without notice any materials not in compliance with this policy.

Privacy Policy

Information Provided During Registration: Contact information, which includes your name, affiliation, and mailing address, may be provided upon request to any partners and/or supporting publication participating in the APEC 2026 Exposition. In addition, APEC may use the information you provide to contact you with information about APEC 2026 or any future APEC events. Upon your selection to opt-in during registration, APEC will send you membership information on behalf of our sponsors (PSMA, IEEE IAS, IEEE PELS). Your information will not be shared directly with them. No other use will be made of the information you provide. Your information will not be sold, distributed, leased or provided to any other person or organization except as described above.

Information Provided Other than Through Registration: People who provide their names to APEC through the APEC website, direct contact, digest submission, volunteering to review, or in any way other than registering for the conference, will not have their names and contact information distributed to anyone or any organization, including APEC's sponsors. APEC will use the contact information only for transmitting information related to APEC. Conference registrants' names and contact information, including name, affiliation, and mailing address will be provided to exhibitors and media partners. Emails will only be provided to exhibitors through the Lead Retrieval systems used on the Exposition Hall floor. Registering for APEC gives permission for your name and contact information to be provided to exhibitors and media partners and for exhibitors and media partners to contact you during or after the conference. APEC will not otherwise distribute names and contact information received through the registration process.

Minimum Age Policy

Registration and Entrance to APEC events, except for "Future Professionals" is restricted to those 18 years of age or older. When chaperoned by parent or guardian, guests under 18 are allowed access to the Plenary Sessions, Exposition Hall, Debate Sessions, and Exhibitor Presentations. This includes (whether co-located with Exposition Hall or not) Micromouse and Student Demonstrations. At the time of his or her registration, parent or guardian must select for Future Professionals registration and provide all required information including submission of an IEEE Minor Release Form. All Future Professionals must wear their APEC badge or wristband clearly stating their registration category. Wednesday Night Social is not included in this registration class but can be purchased separately.

MATERIALS PURCHASE

Purchasing through the IEEE

Post conference APEC Proceedings may be purchased through the IEEE.

IEEE Single Copy Sales

> 445 Hoes Lane, Piscataway, New Jersey 08854, USA

> PHONE: (800) 678-4333 (USA & Canada) or (732) 981-0060

> WEBSITE: https://ieeexplore.ieee.org/xpl/conhome/1000047/all-proceedings

STUDENT MENTORSHIP ROOM

Courtesy of PSMA

MEETING ROOM LEVEL, ROOM 209

The Student Mentorship Room is a gathering place for student mentees and their mentors to meet each other and fellow mentees/mentors in person. Open to the current APEC 2026 class and previous APEC classes. Learn about various generic career options as each company will have their own specific requirements. Student mentees were invited to join the student mentorship program prior to APEC depending on the number of mentors available. For questions or to participate as a mentor in future APECs, please email mentors@psma.com. This mentorship program supports the IEEE PELS Mentorship Roundtables, but it is a separate program designed for APEC student mentees.

Hours

- Monday March 23 | 8:00 AM – 5:00 PM
- Tuesday, March 24 | 8:00 AM – 6:00 PM
- Wednesday, March 25 | 8:00 AM- 6:00 PM
- Thursday, March 26 | 8:00 AM – 1:45 PM

STUDENT JOB FAIR

Tuesday, March 24 | 1:30 PM – 4:30 PM

BALLROOM LEVEL, HEMISFAIR BALLROOM C2

Looking for a career in power electronics? Connect with leading companies and universities in power electronics at APEC's Student Job Fair. A premier opportunity for students and employers to meet in a friendly, professional setting.

Why Attend:

- Meet hiring managers and technical recruiters who know their business inside and out
- Learn about job openings, internships, and company culture
- Network with professionals and make connections that could launch your career in power electronics

Thank you to our Student Job Fair Partner

AMPERESAND

New for APEC 2026

STUDENT DEMONSTRATION COMPETITION

STREET LEVEL, EXPOSITION HALL (HALL 4)

Demonstration Sessions:

- Tuesday, March 24 | 1:00 PM – 3:30 PM
- Wednesday, March 25 | 12:00 PM – 1:30 PM

APEC 2026 is excited to announce the inaugural Student Demonstration Competition, inviting student teams from universities worldwide to showcase their innovative research in power electronics and related fields.

Judging Criteria:

Each demonstration will be evaluated by a panel of experts from both industry and academia.

- Originality and creativity
- Engineering design
- Practical impact and applicability
- Presentation quality
- Audience engagement

The **top three teams** will be recognized with **certificates and cash prizes**:

- **1st Place** | Certificate and $1,000 cash award
- **2nd Place** | Certificate and $600 cash award
- **3rd Place** | Certificate and $400 cash award

STUDENT DEMONSTRATION COMPETITION

Competing Universities:

University Name	Team Lead's Full Name	Advisor's Full Name	Demonstration Title
Indian Institute of Technology Delhi	Adnan Farooq Khan	Soumya Shubhra Nag	A PCB-Embedded SiC Half-Bridge Module-Based 22 kW Ultra-Efficient Interleaved DC-DC Converter for EV Applications
Mississippi State University	Md Abdul Kium Hridoy	Seungdeog Choi	A Compact, Medium-Voltage (> 1kV), High Power Line Impedance Stabilization Network Module
University of Arkansas	Cheng Tang	Alan Mantooth	High-Power-Density Inverter Prototype Using a Double-Sided Microchannel Liquid-Cooled 6-in-1 SiC Power Module
Texas A&M University	Seyed Mehdi Seyedi	Hamid A. Toliyat	Rare-Earth Free electric Motor (REFeM) with Embedded Wireless Rotor Excitation
University of Cambridge	Wei Mu	Teng Long	StructureScope: A Scalable Platform for Power Cycling and High-Precision Transient Thermal Characterization of Power Semiconductor Packages
Zhejiang University	Yanqing Wu	Yenan Chen	High Peak Current xPU Power Supply Solution: Topology and Soft-Switching Technique
University of Maryland	Temiladeola Oladugba	Xin Zan	Wide-Range Current-Mode Class-D Power Amplifier
National Sun Yat-sen University	Sung-Ping Chen	Tzung-Lin Lee	A 500kHz 48V-to-3V DC-DC Converter Based on Paralleled GaN FETs
Dartmouth College	Bahlakoana Mabetha	Jason Stauth	Integrated Hybrid SC Converter for Autonomous Micro-robots
University of California, Berkeley	Syed Tahmid Mahbub	Robert Pilawa-Podgurski	A Novel Multi-Kilowatt Thermal Test Vehicle Utilizing Off-the-shelf Power Transistors
University of Pittsburgh	Joaquin Tristan	Brandon Grainger	Automated Characterization of Medium FrequencyMagnetic Cores
Rensselaer Polytechnic Institute	Tian Qiu	Zheyu Zhang	Generic Characterization Platform for Evaluating Dynamic ON-resistance of Gallium Nitride HEMTs
ShanghaiTech University	Zehui Li	Haoyu Wang	Single-Stage High Efficiency AI Power Supply
Virginia Tech	Zhengming Hou	Jih-Sheng Lai	A High Frequency, High Power-Density Reconfigurable Resonant Converter with 50–1000 V Output for EV Fast Charging
Georgia Institute of Technology	Hannah Xiao	Mike Tinskey	Compact High Efficiency Maximum Power Point Tracker for Solar Cars
University of California, Berkeley	Brycen Halfmann	Jessica Boles	Modular Piezoelectric Components for High-Performance Power Conversion

DIALOGUE PREVIEW SESSION

Monday, March 23 | 12:00 PM – 1:30 PM
MEETING ROOM LEVEL, PARK VIEW FOYER

Get Ready for Thursday's Conversations – It All Starts Here!

Join us for a poster session that offers a preview of the dialogue sessions taking place on Thursday. A curated set of posters will highlight a range of topics and industry perspectives, giving you the chance to explore ideas, ask questions, and connect with others ahead of the main discussions. It's a great way to kick off the conversations to come later in the week.

YOUNG PROFESSIONALS NETWORKING EVENT

Monday, March 23 | 7:45 PM – 9:45 PM
GRAND HYATT, LEVEL 2, LONESTAR A

The IEEE Young Professional (YP) networking Event at the 2026 IEEE APEC provides a dedicated platform for growth, networking, and collaboration. With a focus on professional excellence and personal growth, this year's session highlights the importance of networking and connecting with other YPs. As young professionals, continuous learning and adaptability are key. This session encourages attendees to engage, reflect, and discover practical strategies for advancing their careers while nurturing personal fulfillment and resilience.

MICROMOUSE CONTEST

Monday, March 23 | 7:00 PM – 9:00 PM
STREET LEVEL, EXPOSITION HALL (HALL 4)

Enter the annual APEC MicroMouse contest or join us as a spectator for this exciting event. Participants design, build, and program robotic mice and compete to see who can navigate their way through the maze in the shortest time. The rules for the contest use a scoring system with a penalty for the time taken to map and run the maze, and a bonus for not touching the mouse. They are similar to those used at the IEEE World Final held in London in 1987 except that the touch penalty has been reduced from 10 seconds to 2 seconds. The time for each contestant has also been reduced from 15 to 7 minutes. Within this time limit, the MicroMouse may make up to five runs. Only one mouse per handler will be allowed this year.

Trophies and cash prizes will be awarded in the following categories based on score:

- **1st Place | $500**
- **2nd Place | $250**
- **3rd Place | $125**

Additional trophies and cash prizes will be awarded to students in the following categories:

- **Best Student** *(based on score)* | **$500**
- **Fastest Run** *(based on run time)* | **$150**

PELS WOMEN IN ENGINEERING (WIE) BREAKFAST

Elevated Engineer Series: "From Doubt to Drive: Career Confidence for a Fast-Changing World" by Seema Bakshi

Wednesday, March 25 | 7:00 AM – 8:00 AM (Breakfast) | 8:00 AM – 9:00 AM (Session)

GRAND HYATT, LEVEL 2, LONESTAR C

Transform hesitation into momentum in 60 minutes — this high-impact session helps you clarify your leadership purpose, measure progress against your own standards, and embrace strategic risk-taking so you leave with a focused, personalized plan and the confidence to step into greater responsibility. Drawing from the speaker's core lessons, expect insightful stories, practical prompts, and a clear next step to accelerate your leadership readiness – you'll gain simple, repeatable habits to accelerate growth and celebrate each milestone. Walk away energized, with a roadmap to build skills, gather courage, and make bold moves in your career. This event is open to all and is hosted by IEEE PELS Women in Engineering (WIE), IAS WIE, and PSMA WIE.

Bio – Seema Bakshi is a Principal Engineer at USAA, bringing over two decades of extensive experience to her role. She holds a unique position as one of only three Principal Engineers across the entire organization and is the sole Principal Engineer within USAA's Property & Casualty division. Seema's career began in software development in India before she relocated to the United States. Throughout her tenure, she has successfully led significant architectural and transformation initiatives, nurtured high-performing teams, and consistently driven measurable business results.

Seema has graced stages at prominent events such as the Grace Hopper Celebration and Guidewire Connections. She delivered a Women's History Month keynote for Confluent and regularly facilitates Employee Inclusion Groups and technical/leadership sessions at USAA. A first-generation immigrant and a dedicated working mother of two, Seema embodies resilience and empathy. Her lifelong passion for teamwork, honed by captaining state and college soccer teams in India, complements her professional achievements. Furthermore, Seema is a certified IamRemarkable facilitator, frequently conducting workshops to empower professionals in celebrating their accomplishments.

This event is open to everyone. Pre-register by scanning the QR code below.

New for APEC 2026

WOMEN IN ENGINEERING (WIE) NETWORKING EVENT

Wednesday, March 25 | 10:10 AM – 10:40 AM

STREET LEVEL, EXPOSITION HALL (HALL 4), APEC HUB

Join fellow women engineers and allies for an engaging drop-in networking event at the APEC Hub in the Expo to celebrate innovation, leadership, and community in the engineering profession. This gathering offers an opportunity to connect with peers, share experiences, and discuss career growth within the power electronics industry. This event is open to all and hosted by IEEE PELS Women in Engineering (WIE), IEEE IAS WIE, and PSMA WIE.

PELS MENTORSHIP ROUNDTABLES

Tuesday, March 24 | 6:30 PM – 8:30 PM

GRAND HYATT, LEVEL 2, LONESTAR C

Since 2017, the PELS Mentorship RoundTables event has been facilitating access to distinguished leaders from research and industry. Covering non-technical topics essential for professional and personal growth, RoundTables is an intimate setting comprised of a mentor who leads the topical discussion and a small group of mentees. Mentors may come from diverse fields, not only power electronics. The RoundTables event is open to all engineers at any stage of their career.

For more information, visit:
www.ieee-pels.org/membership/mentorship

EMPOWERING ENGAGEMENT:

Learn More about PELS Leadership, Elevation, & Volunteering

Wednesday, March 25 | 2:30 PM – 3:30 PM

LOCATION: GRAND HYATT, LEVEL 2, LONESTAR E

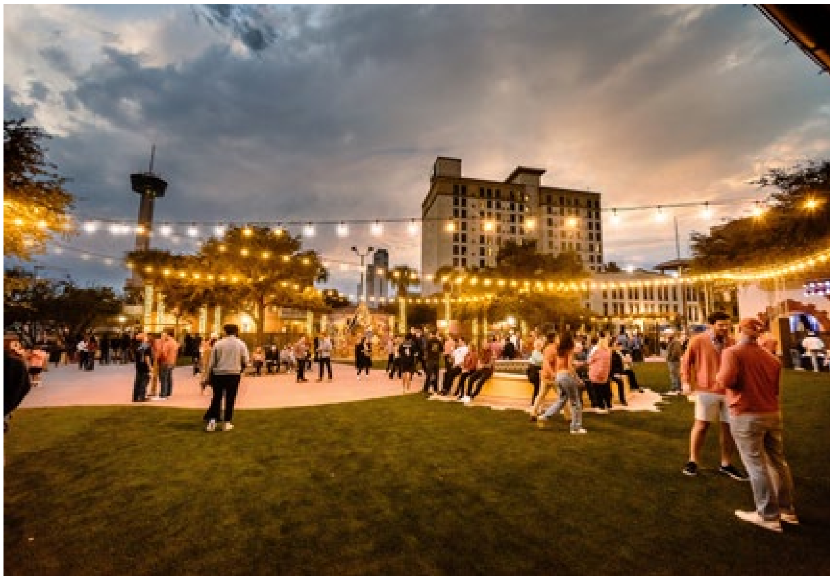
This session aims to open up a discussion about the multifaceted opportunities to volunteer and get involved within the IEEE Power Electronics Society (PELS). Together, we will explore pathways for participation – including volunteer roles, leadership positions, and networking opportunities. Involvement in IEEE PELS offers a variety of network, professional and technical development opportunities to support your long-term growth within the Power Electronics community. Join the PELS Access, Collaboration, & Engagement (ACE) committee for an enriching conversation that paves the way for future contributions in the field of power electronics.

WEDNESDAY NIGHT SOCIAL

Wednesday, March 25 | 6:30 PM – 9:30 PM

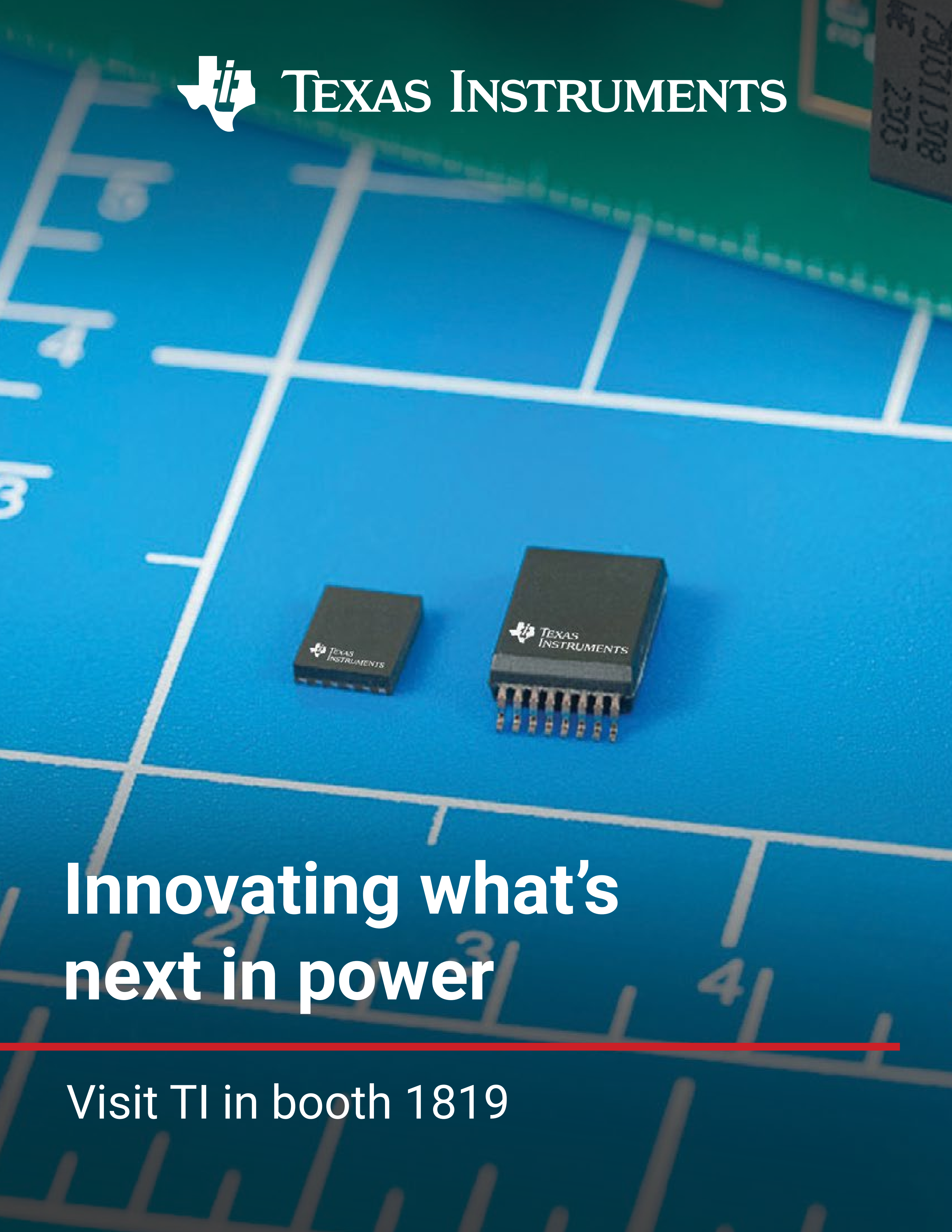
THE ESPEE, 1174 E COMMERCE ST,
SAN ANTONIO, TX 78205

Saddle up and mosey on over to **The Espee** in San Antonio for a western-inspired evening of fun! Guests are welcome to dress the part for a night packed with great food, games & entertainment, and plenty of Texas charm. Unwind and celebrate with us at our lively Wednesday Night Social, designed to bring everyone together! There's something for everyone, so grab your boots (or your party spirit) and join us for our western celebration!



This social event is included for all full conference and technical/industry session attendees with their registration. Attendees can purchase social event tickets for guests at the conference help desk for $150 during registration hours. Tickets are not sold at the door and cannot be replaced or reprinted.

Shuttles will be provided to and from the Henry B. González Convention Center to The Espee between 6:15 PM – 10:00 PM.


Texas Instruments
Innovating what's next in power
Visit TI in booth 1819

SPONSOR MEETINGS

IAS MEETINGS

SUNDAY, MARCH 22

8:00 AM – 9:00 AM	**IAS Breakfast**	Grand Hyatt, Level 2, Bowie B
9:00 AM – 6:00 PM	**IEEE IAS Q1 Board Meeting**	Grand Hyatt, Level 2, Bowie B

MONDAY, MARCH 23

8:00 AM – 9:00 AM	**IAS Breakfast**	Grand Hyatt, Level 2, Bowie B
9:00 AM – 6:00 PM	**IEEE IAS Q1 Board Meeting**	Grand Hyatt, Level 2, Bowie B

PSMA MEETINGS

SATURDAY, MARCH 21

7:00 AM – 6:00 PM	**PSMA Power Magnetics @ High Frequency Workshop**	Meeting Level, Room 214
7:00 AM – 5:00 PM	**PSMA Capacitor Workshop**	Meeting Level, Room 213

MONDAY, MARCH 23

7:00 AM – 11:00 AM	**PSMA Annual Committee Meeting**	Grand Hyatt, Level 2, Lonestar A
12:00 PM – 1:00 PM	**PSMA Board Meeting**	Grand Hyatt, Level 2, Lonestar A
6:00 PM – 6:15 PM	**Global Energy Efficiency Award Presentation**	Convention Center, Exposition Hall, PSMA Booth

TUESDAY, MARCH 24

8:30 AM – 10:00 AM	**Energy Harvesting Meeting**	Grand Hyatt, Level 2, Bowie A
8:30 AM – 10:00 AM	**Industry Education Meeting**	Grand Hyatt, Level 2, Mission B
8:30 AM – 11:55 AM	**IS01: What Is the Next Killer Application for Wide Bandgap Semiconductors?**	Convention Center, Meeting Room Level, Room 212
8:30 AM – 11:55 AM	**IS02: AI and Digital Twins Transforming Power Device Innovation**	Convention Center, Meeting Room Level, Room 213
8:30 AM – 11:55 AM	**IS03: Capacitor Circuit Design Essentials for Modern Challenges**	Convention Center, Meeting Room Level, Room 205
8:30 AM – 11:55 AM	**IS04: 3D-Power Packaging for AI and its Application in Power Systems Optimization**	Convention Center, Meeting Room Level, Room 206
10:30 AM – 12:00 PM	**Energy Management Meeting**	Grand Hyatt, Level 2, Bowie A
12:30 PM – 2:00 PM	**Energy Storage Meeting**	Grand Hyatt, Level 2, Bowie A
12:30 PM – 2:00 PM	**AI Meeting**	Grand Hyatt, Level 2, Mission B
2:30 PM – 4:00 PM	**Semiconductor Meeting**	Grand Hyatt, Level 2, Bowie A
2:30 PM – 4:00 PM	**Magnetics Meeting**	Grand Hyatt, Level 2, Mission B

PSMA MEETINGS *(Continued)*

WEDNESDAY, MARCH 25

8:30 AM – 10:00 AM	**Capacitor Meeting**	Grand Hyatt, Level 2, Bowie A
8:30 AM – 10:00 AM	**APEC Student Support Meeting**	Grand Hyatt, Level 2, Mission B
8:30 AM – 11:55 AM	**IS07: Beyond Silicon: Integrated Wide Bandgap Power Solutions for Next-Generation Systems**	Convention Center, Meeting Room Level, Room 206
8:30 AM – 11:55 AM	**IS08: AI Tools for More Efficient Power Electronics Design**	Convention Center, Meeting Room Level, Room 207
8:30 AM – 11:55 AM	**IS11: Overcoming Technical and Manufacturing Challenges to Meet Market Demands**	Convention Center, Meeting Room Level, Room 212
10:30 AM – 12:00 PM	**Packaging Meeting**	Grand Hyatt, Level 2, Bowie A
10:30 AM – 12:00 PM	**Transportation Meeting**	Grand Hyatt, Level 2, Mission B
12:30 PM – 2:00 PM	**Power Technology Roadmap Meeting**	Grand Hyatt, Level 2, Bowie A
1:30 PM – 4:55 PM	**IS13: New Era of Power Technologies, Devices, Topologies and Applications**	Convention Center, Meeting Room Level, Room 205
2:30 PM – 4:00 PM	**Reliability Meeting**	Grand Hyatt, Level 2, Bowie A

THURSDAY, MARCH 26

8:20 AM – 10:00 AM	**IS19: Improving Energy Efficiency and Availability Part 1**	Convention Center, Meeting Room Level, Room 212
8:20 AM – 10:00 AM	**IS20: Magnetic Materials for Existing and Emerging Applications Part 1**	Convention Center, Meeting Room Level, Room 213
8:20 AM – 10:00 AM	**IS23: Reliability: From Stress to Strength: Physics-Based Reliability for Next-Generation GaN Power Systems**	Convention Center, Meeting Room Level, Room 210
8:20 AM – 10:00 AM	**IS24: Pairing Capacitors with Inductors to Create Better Solutions**	Convention Center, Meeting Room Level, Room 205
10:20 AM – 12:00 PM	**IS25: Improving Energy Efficiency and Availability Part 2**	Convention Center, Meeting Room Level, Room 212
10:20 AM – 12:00 PM	**IS26: Magnetic Materials for Existing and Emerging Applications Part 2**	Convention Center, Meeting Room Level, Room 213

SPONSOR MEETINGS

IEEE PELS MEETINGS

SUNDAY, MARCH 22

8:00 AM – 5:00 PM	**International Future Energy Challenge (IFEC) Information Session**	Grand Hyatt, Level 2, Lonestar F
11:00 AM – 4:00 PM	**International Technology Roadmap for High Power Electronics for the Modern Energy Grid (ITRG) – Working Group Workshop**	Grand Hyatt, Level 2, Lonestar E
2:00 PM – 5:00 PM	**Executive Committee Meeting** *(Invite Only)*	Grand Hyatt, Level 2, Lonestar B
5:00 PM – 6:00 PM	**Board Member Orientation**	Grand Hyatt, Level 2, Lonestar B
5:30 PM – 7:30 PM	**International Future Energy Challenge (IFEC) Reception**	Grand Hyatt, Level 2, Lonestar C

MONDAY, MARCH 23

7:00 AM – 1:00 PM	**Electronics Transformers Technical Committee (ETTC) Meeting**	Grand Hyatt, Level 2, Lonestar B
8:00 AM – 9:00 AM	**eGrid Steering Committee Meeting**	Grand Hyatt, Level 2, Lonestar D
8:00 AM – 9:30 AM	**TC 1: Control and Modeling of Power Electronics**	Grand Hyatt, Level 2, Lonestar E
9:00 AM – 10:30 AM	**TC 8: Electronic Power Grid Systems**	Grand Hyatt, Level 2, Lonestar D
9:00 AM – 12:00 PM	**VP of Membership Meeting**	Grand Hyatt, Level 2, Lonestar F
9:30 AM – 10:30 AM	**PELS Industry Forum**	Grand Hyatt, Level 2, Lonestar E
10:30 AM – 12:00 PM	**TC 7: Critical Power and Energy Storage Systems**	Grand Hyatt, Level 2, Lonestar D
10:30 AM – 12:00 PM	**TC 3: Electrical Machines, Drives and Automation**	Grand Hyatt, Level 2, Lonestar E
12:00 PM – 1:30 PM	**Chapter Chair Forum**	Grand Hyatt, Level 2, Lonestar F

IEEE PELS MEETINGS *(Continued)*

TUESDAY, MARCH 24

9:00 AM – 10:00 AM	**TC 12: Energy Access and Off-Grid Systems**	Grand Hyatt, Level 2, Lonestar E
9:00 AM – 10:30 AM	**TC 6: Emerging Power Electronic Technologies**	Grand Hyatt, Level 2, Lonestar D
9:00 AM – 11:00 AM	**Education & Digital Media Scholarship & Fellowship Committee**	Grand Hyatt, Level 2, Lonestar F
9:00 AM – 12:00 PM	**VP of Products Meeting**	Grand Hyatt, Level 2, Lonestar C
10:00 AM – 11:00 AM	**International Technology Roadmap for High Power Electronics for the Modern Energy Grid (ITRG)**	Grand Hyatt, Level 2, Lonestar B
10:00 AM – 11:00 AM	**TC 11: Aerospace Power**	Grand Hyatt, Level 2, Lonestar D
10:30 AM – 11:30 AM	**TC 10: Design Methodologies**	Grand Hyatt, Level 2, Lonestar D
11:00 AM – 12:00 PM	**International Technology Roadmap for Wide-Band Gap Power Semi-Conductors (ITRW)**	Grand Hyatt, Level 2, Lonestar B
11:00 AM – 12:00 PM	**TC 9: Wireless Power Transfer Systems**	Grand Hyatt, Level 2, Lonestar E
1:30 PM – 3:00 PM	**MagNet Challenge**	Grand Hyatt, Level 2, Lonestar C
1:00 PM – 2:30 PM	**Standards Committee Meeting**	Grand Hyatt, Level 2, Lonestar B
1:30 PM – 3:00 PM	**TC 4: Electrified Transportation Systems**	Grand Hyatt, Level 2, Lonestar D
1:30 PM – 3:00 PM	**TC 2: Power Components, Integration, and Power ICs**	Grand Hyatt, Level 2, Lonestar E
1:30 PM – 3:00 PM	**WIE Committee Meeting**	Grand Hyatt, Level 2, Lonestar F
2:30 PM – 3:30 PM	**Industry Committee Meeting**	Grand Hyatt, Level 2, Lonestar B
3:00 PM – 4:00 PM	**TC 5: Sustainable Energy Systems**	Grand Hyatt, Level 2, Lonestar D
3:00 PM – 4:00 PM	**ACE Committee Meeting**	Grand Hyatt, Level 2, Lonestar F
3:00 PM – 5:00 PM	**VP of Industry and Standards Meeting**	Grand Hyatt, Level 2, Lonestar E
4:00 PM – 5:30 PM	**SPEC Steering Committee Meeting**	Grand Hyatt, Level 2, Lonestar D
4:00 PM – 5:30 PM	**Region 1-6 Chairs Meeting**	Grand Hyatt, Level 2, Lonestar F
6:30 PM – 8:30 PM	**PELS Mentorship Roundtables** *(Registration Required)*	Grand Hyatt, Level 2, Lonestar C

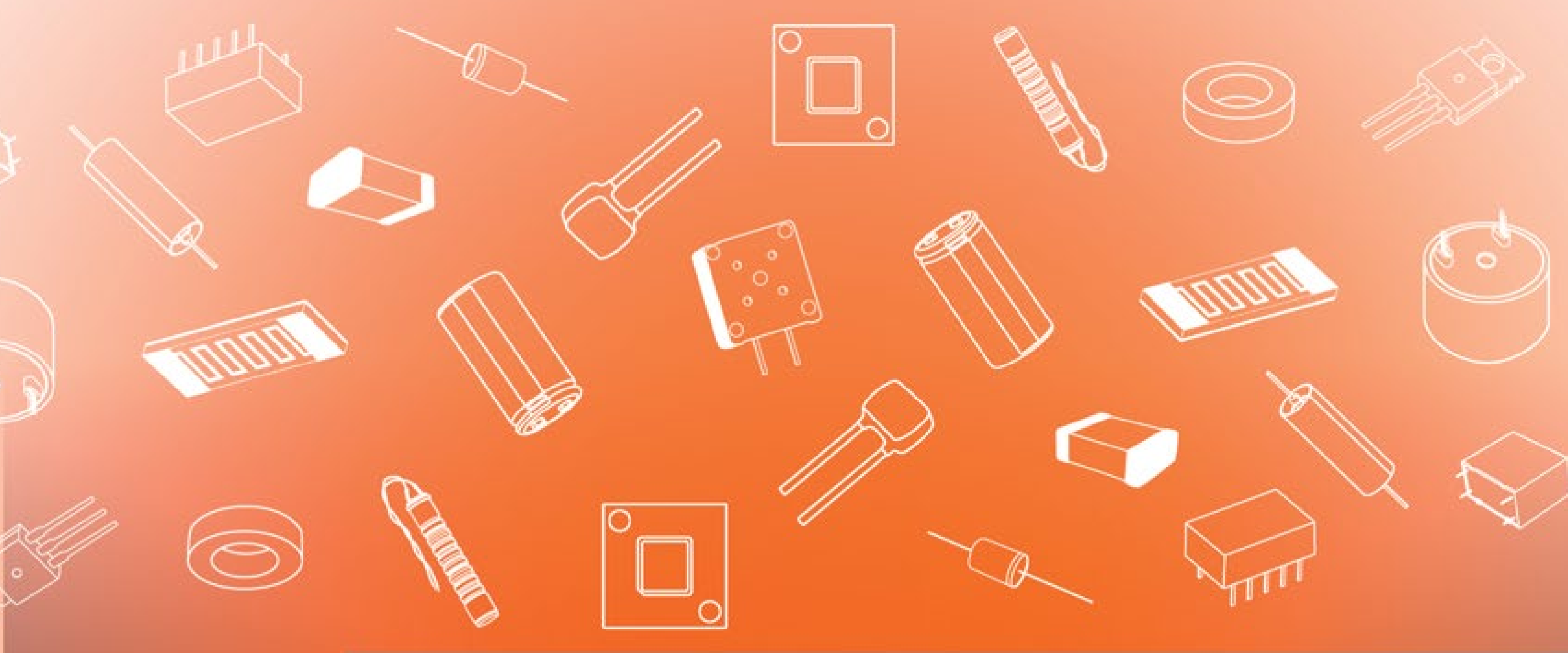
IEEE PELS MEETINGS *(Continued)*

WEDNESDAY, MARCH 25

7:30 AM – 9:00 AM	**WIE Breakfast** *Sponsored by* **PELS, IAS, and PSMA**	Grand Hyatt, Level 2, Lonestar C
9:00 AM – 11:00 AM	**Mentorship Committee Meeting**	Grand Hyatt, Level 2, Lonestar E
9:00 AM – 12:00 PM	**VP of Technical Operations Meeting**	Grand Hyatt, Level 2, Lonestar F
10:30 AM – 11:30 AM	**Nominations Committee Meeting** *(Members Only)*	Grand Hyatt, Level 2, Lonestar D
1:00 PM – 5:00 PM	**VP of Conferences Meeting**	Grand Hyatt, Level 2, Lonestar F
2:00 PM – 3:30 PM	**Empowering Engagement: Learn More about PELS Leadership, Elevation, & Volunteering**	Grand Hyatt, Level 2, Lonestar E
2:00 PM – 5:00 PM	**P3105 Working Group Meeting**	Grand Hyatt, Level 2, Lonestar D
3:30 PM – 5:00 PM	**Global Intersociety Relations Committee Meeting**	Grand Hyatt, Level 2, Lonestar E

THURSDAY, MARCH 26

10:00 AM – 6:00 PM	**PELS Administrative Committee (AdCom) Meeting**	Grand Hyatt, Level 2, Lonestar AB



PROFESSIONAL EDUCATION SEMINARS *as of February 4, 2026*

APEC's Professional Education Seminars are three-hour presentations from the leading experts from industry and academia. Each year these seminars cover a wide range of topics in levels ranging from introductory to expert. A key feature of APEC's Professional Education Seminars is that one seminar registration fee offers access to all the seminars and includes the slides from all seminars. Registrants for the Professional Education Seminars are free to go to any seminar and even get up and roam from seminar to seminar at will.

SEMINAR 01

9:30 AM – 1:00 PM

S01: Devices, Converters, and Motors for Modern Automotive Applications: Design, Testing, and Reliability

ROOM 207AB

Devices

Francesco Iannuzzo, *Politecnico di Torino*

Radu Bojoi, *Politecnico di Torino*

Gianmario Pellegrino, *Politecnico di Torino*

The ongoing electric transition in the automotive sector is universally recognized as a key driving force toward zero CO2 emissions. Leading car and truck manufacturers worldwide are heavily investing in Electric Vehicles (EVs), creating a growing demand for new, highly qualified professionals in this field.

Politecnico di Torino, Italy, plays a prominent role on both the national and European stage. The Department of Energy "Galileo Ferraris" and the Power Electronics Innovation Center (PEIC) engage in advanced research in collaboration with several automotive leaders and offer top-tier education. Innovation is integral to our work, especially in driving the adoption of wide-bandgap semiconductors within the automotive industry. This seminar offers a comprehensive, design-oriented journey through modern automotive powertrains. Starting from the fundamentals of machine design and its challenges, we move through motor drive development, modern control strategies, and conclude with semiconductor technologies and reliability considerations. The content is enriched with practical case studies based on real-world experiences from PEIC.

The material is tailored for beginner to intermediate participants, ensuring accessibility while maintaining depth.

SEMINAR 02

9:30 AM – 1:00 PM

S02: Practical Design Considerations for Isolated DC/DC Converters

ROOM 214AB

Converters

Mark Scott, *Miami University*

Alexander Isurin, *Power Converters Future, LLC*

High-power isolated DC–DC converters play a critical role in modern power electronics systems, providing reliable energy transfer across automotive, aerospace, and renewable energy applications. This seminar presents a practical methodology for estimating and comparing isolated DC–DC converter topologies based on electrical parameters and final system cost. The presented approach equips design engineers with tools to select the most appropriate architecture for their application.

The speakers will introduce a design methodology rooted in first principles, emphasizing strategies to avoid common pitfalls, improve design predictability, enhance long-term reliability, and shorten development time. Special focus is placed on converters operating at 2 kW or higher, especially those with low-voltage terminals conducting several hundred amperes. These scenarios challenge traditional approaches to magnetics, layout, and thermal management.

Topics include selecting isolated DC–DC topologies by application type, evaluating and procuring components for high-performance operation, and designing high-frequency, high-current magnetics. Several converter topologies will be compared across real-world use cases in transportation and renewable energy environments.

The seminar concludes with a case study demonstrating how these strategies were applied to develop a novel, patent-pending bidirectional converter. The content complements the authors' recent book, commissioned to fill a critical gap in advanced power conversion literature.

SEMINAR 03

9:30 AM – 1:00 PM

S03: Advanced Gate Driver Technologies: Integrated, Resonant, Self-Powered, and Optical Solutions

ROOM 214CD

Control

Lei Gu, *University of Pennsylvania; NVIDIA*

Brian Ma, *University of Texas at Dallas*

Pengkun Liu, *Texas Instruments*

Driving wide-bandgap (WBG) devices is challenging due to high dv/dt, short short-circuit withstand time and EMI issues. This seminar provides in-depth coverage of both the fundamentals of gate drivers for power semiconductor devices and the latest advanced gate driving technologies from industry and academia that address these challenges.

The seminar begins with an introduction to the fundamental aspects of Si-MOSFET, GaN and SiC devices, along with traditional gate drive methods for WBG devices and their associated challenges. It then covers integrated gate driver technology developed in industry, as well as energy-efficient solutions such as resonant and switched-cap approaches explored in academia. In addition, the seminar highlights recent advancements including optical gate driver, self-powered gate drivers, and RF-based gate drivers. Finally, it concludes with a discussion on protection strategies and in-situ, AI- based health monitoring.

This seminar is well-suited for electrical engineers and researchers developing low-cost reliable gate drivers, not only for low-voltage but also for medium-voltage power semiconductor devices to achieve low-EMI, low-loss and PD-free operation.

SEMINAR 04

9:30 AM – 1:00 PM

S04: AI-Driven Evolution of Datacenter Power Supply: Architecture, Topology, and Control

ROOM 217AB

Applications

Haoyu Wang, *ShanghaiTech University*

This tutorial presents advanced solutions for high-performance data center power supplies addressing ultra-high step-down ratios, high currents, and fast dynamics.

Part I covers the paradigm shift from 12V to 48V and 800V with reduced distribution losses. It examines single-stage conversion challenges, topologies like switched capacitors and hybrid designs, and key factors including efficiency, power density, transient response, and integration for AI-era power delivery.

Part II focuses on resonant switched-capacitor circuits for high power density. Although capacitors offer high energy density, they suffer from charging and switching losses. Integrating inductors enables hybrid or resonant topologies that significantly reduce these losses. The session covers operating principles, analyzes a two-stage cascaded structure, and proposes a voltage gain adjustment method for closed-loop control.

Part III reviews trans-inductor voltage regulator (TLVR) converters for data center point-of-load applications. A multi-phase series-capacitor TLVR with constant on-time control is introduced. This design splits the input voltage across Buck cells, halving the voltage stress while doubling the step-down ratio and duty cycle. Its indirectly coupled output inductors and low transient inductors enable ultra-fast dynamic response. Small-signal modeling using the describing function method accurately predicts system behavior, validated by SIMPLIS simulations and experimental results, guiding controller optimization.

SEMINAR 05

9:30 AM – 1:00 PM

S05: 3D FEM Simulation for Magnetic Component Design: From Paradigm and Methods, to Pitfalls and Future Applications

ROOM 217D

Magnetics & EMI/EMC & Utility Grid

Juris Vencels, *TRAFOLO Engineering*

Magnetic component design increasingly relies on 3D Finite Element Method (FEM) simulations, yet many engineers approach FEM as a "black box" that either gives them numbers or gives them headaches. This seminar demystifies the process. Aimed at magnetic design engineers ranging from no prior FEM experience to intermediate level.

We start with the core paradigm: understanding what FEM actually computes, how advanced numerical methods can improve it, and why mesh quality, material data, and modeling choices shape results far more than the choice of tool. From there, we move on to numerical limitations, common pitfalls, and best practices. A "Simulation Wizard" framework will be introduced – a structured guide for selecting the right models based on design intent, accuracy needs, and available data. Participants will then see simulation results benchmarked against validation studies, followed by a discussion of discrepancies and how to interpret them constructively.

The seminar concludes with a pragmatic discussion on when FEM is worth the effort (and when it's not), and a forward-looking look at emerging applications such as integrated magnetics for power supply on chip (PwrSoC) technologies. Attendees will leave with sharper intuition, practical workflows, and a healthier respect for what FEM can and cannot deliver.

SEMINAR 06

9:30 AM – 1:00 PM

S06: Residential DC Microgrid: State of Art and Challenges

ROOM 217C

Magnetics & EMI/EMC & Utility Grid

Oleksandr Husev, *Warsaw University of Technology*

Dmitri Vinnikov, *Tallinn University of Technology*

Andrii Chub, *Tallinn University of Technology*

This tutorial is devoted to the state-of-the-art dc microgrids, their structure, challenges and perspectives. First of all, possible architectures of dc microgrids, along with standardization efforts, will be discussed. The key power electronics topologies used as bidirectional interface converters between ac and dc parts will be reviewed, followed by the state of the art in dc microgrid protection and grounding approaches. Due to the absence of zero-current crossing, an arc that appears upon breaking dc current cannot be extinguished naturally, making the protection of dc microgrids a challenging problem. Concerning this, a comprehensive overview of protection schemes will be provided along with the design of practical protective devices and their integration into overall protection systems. Main features of control structure of dc microgrids will be explained and categorized with special focus on the droop control. Real cases of residential DC microgrids and DC buildings will be presented.

Finally, the prospects, main challenges, research gaps, trends in the dc microgrid architectures, hidden advantages, and nearest implementation fields will be reviewed and summarized.

SEMINAR 07

2:30 PM – 6:00 PM

S07: Radiation Effects in Power Electronics

ROOM 217C

Devices

Jason Neely, *Sandia National Labs*

Albert Colon, *Sandia National Labs*

Robert Kaplar, *Sandia National Labs*

Radiation environments pose significant challenges for power electronics, introducing effects and failure mechanisms not normally considered. Key environments include medical facilities, where X-ray machines and radiation therapy equipment expose devices to ionizing photons and electrons. Nuclear power plants present additional hazards, with gamma rays, neutrons, and beta particles encountered during operations or accidents. Research facilities, such as particle accelerators, expose electronics to high-energy protons, pions, and secondary particles generated in collisions. Space radiation presents unique difficulties, as electronics in satellites and spacecraft must withstand cosmic rays, solar particle events, and trapped protons, electrons, and heavy ions in radiation belts. Other settings include industrial processes involving radioactive materials and environmental monitoring stations.

This seminar will provide a broad introduction to radiation effects on semiconductor power devices and circuits. Topics include the range of radiation environments, particles such as photons, electrons, protons, and cosmic rays, and their impacts on different semiconductors. We will address degradation and failures from total ionizing dose damage, dislocation damage, and single-event effects. The seminar will highlight why wide-bandgap devices offer greater resilience in some cases, and how testing is conducted using specialized facilities matched to specific mechanisms. Results from select studies will also be presented.

SEMINAR 08

2:30 PM – 6:00 PM

S08: Modern Technologies for Medium and Low Power AC-DC Converters

ROOM 214AB

Converters

Ionel Jitaru, *Rompower Energy Systems Inc.*

This seminar will deliver a comprehensive overview of cutting-edge advancements in AC-DC power conversion technologies. The technologies presented in the seminar will equip participants with strategies to optimize both conversion efficiency and power density in AC-DC converter designs of power levels from 65W to 500W/1000W.

In recent years, significant research and development initiatives have been dedicated to identifying and implementing the most suitable technologies for the low power (65W) AC-DC adapters and later for AC-DC adapters of medium power with PD 3.1 (up to 250W). Most recently the demand for output power increased substantially such as (330W-500W) and the interest went even higher for extreme gaming desktops/laptops.

The seminar will introduce advanced technologies to achieve exceptional operational efficiency and superior power density metrics. The seminar will present the most advanced topologies such as ZVS flyback, Hybrid Flyback, ZVS Two Transistor Flyback, and ultra-high-efficiency dual-stage configurations. This seminar will present advanced magnetic technologies optimized for these applications such as magnetic technologies for zero common mode noise and ultra-high density. The seminar will examine in detail the latest technologies used in these applications and will be substantiated through experimental results.

The intended audience level for this seminar should be intermediate to advanced.

SEMINAR 09

2:30 PM – 6:00 PM

S09: Digital Power Control Introduction

ROOM 207AB

Control

Sumit Patil, *Texas Instruments*

Brent McDonald, *Texas Instruments*

Bosheng Sun, *Texas Instruments*

This presentation will introduce the audience to digital power control in switched mode power supplies (SMPS). The presentation will begin with showing the limitation of analog power control and then how to overcome those using micro-controller unit (MCU) based digital control along with its associated challenges. It will begin with explaining essential digital blocks for digital control including analog to digital converter (ADC), digital pulse width modulator (DPWM) and digital compensators. It will also present four different design examples to showcase those advantages and challenges in digital control. First, it will start with commonly known buck converter with voltage mode control (VMC). In the second example, it will showcase multimode operation of 4-switch buck-boost converter (FSBB) with peak current mode control (PCMC). In third example, we will showcase variable frequency control (VFC) using hybrid hysteretic control (HHC) of half bridge LLC (HB-LLC). In fourth and last example, it will showcase totem-pole bridgeless PFC (TPPFC) example to showcases average current mode control based dual loop implementation. While presenting these examples, we will show various challenges in specific topologies and MCU based methodologies to overcome those challenges.

SEMINAR 10

2:30 PM – 6:00 PM

S10: Python For Power Electronics: From Zero To AI

ROOM 214CD

Applications

Alfonso Martínez, *Würth Elektronik*

Software tools are indispensable in development of modern power supplies, from simple calculations, like the estimation of core losses with the Steinmetz equation, to advanced simulation tools, like thermal simulations in Finite Elements software, including magnetic design automation or circuit simulation in LTspice.

Many of these calculations can be implemented on Excel spreadsheets, which are widely used for the early design stages of many custom power components. While being quite flexible and its learning curve quite low, these spreadsheets often fail at more complex tasks, like advanced modeling.

This seminar proposes Python as a tool for Power Engineer, which expands the limit of things that can be modeled, and works a glue between different tools already used, providing the possibility of high automation.

SEMINAR 11

2:30 PM – 6:00 PM

S11: Grid Forming Power Converters: Controls, Capabilities, and Operational Requirements

ROOM 217D

Magnetics & EMI/EMC & Utility Grid

Rolando Burgos, *Virginia Tech*

Pedro Rodriguez, *Luxembourg Institute of Science and Technology*

Fred Wang, *University of Tennessee Knoxville*

The increasing penetration of inverter-based resources (IBR) demands grid support capabilities beyond those possible with conventional grid-following (GFL) control. Grid-forming (GFM) converters have emerged and positioning themselves as key enablers of future stable and resilient power grids; yet their practical design and implementation remain a critical challenge for electrical engineers. To this end, this tutorial will first provide a concise overview of the GFM principles, highlighting its differences from GFL control, current trends, and evolving grid code and operational requirements. Building on this foundation, the focus will shift to:

How grid-forming functionality is implemented in practice.

Converter behavior under challenging operating conditions.

GFM converter impact on the grid, and the capabilities that can be attained by them.

Design considerations to enhance robustness, ensure internal stability, and safelyImplementation approaches to improve fault response, thermal utilization, and overall converter reliability.

Through case studies and design-oriented discussions, the tutorial will present practical methods that engineers can apply when developing GFM converters. The session is intended for professionals and researchers with an intermediate or advanced background in power electronics who are interested in bridging the gap between GFM theory and its practical implementation.

SEMINAR 12

2:30 PM – 6:00 PM

S12: Practical Design Strategies & Practice for EMI management when designing with Si, SiC and GaN Devices in Power Electronics

ROOM 217AB

Magnetics & EMI/EMC & Utility Grid

Kaushik Basu, *Indian Institute of Science (IISc) Bengaluru*

Supratim Basu, *Bose Research Pvt. Ltd,*

This Seminar is a very comprehensive presentation for both engineers wanting to get an overall fundamental understanding of EMC and also for practicing engineers wanting to get an in-depth understanding of design strategies & practical design solutions/fixes for EMI management in Power Electronics Design, including switch mode converters.

While Si switches are used widely today at all power levels, today's demand for power converters having higher power densities and higher efficiencies, require the need for increased switching frequency and minimizing switching losses – which makes SiC & GaN devices the ideal choice. However, as higher switching speeds of WBG devices conflict with the general rules of EMI management, an in-depth understanding of generation of EMI and its reduction at source during design, is the key to controlling EMI.

This Seminar will begin with a refresh on EMI basics followed by an in-depth treatment of various topics like heat-sink grounding, transformer screens, using ferrite beads, filter design, PCB layout, switching of Si & WBG devices, etc. Many practical EMI reduction techniques, construction methods and examples from three real converter designs shall be presented.

SEMINAR 13

8:30 AM – 12:00 PM

S13: Bidirectional Switches: Everything You Need to Know to Apply Them in Your Future Products

ROOM 214AB

Devices

Thomas Jahns, *University of Wisconsin-Madison*

Victor Veliadis, *PowerAmerica*

Johann Kolar, *Swiss Federal Institute of Technology (ETH)*

2026 will be a landmark year in the history of solid-state power electronics when commercial monolithic bidirectional (BD) switch devices become available from several power semiconductor manufacturers, offering opportunities to revolutionize several major classes of power converters. The purpose of this seminar is to introduce intermediate/advanced power electronics engineers who are new to BD switch devices to their basic operating principles and electrical characteristics as well as their use in real-world power converter applications.

The seminar will begin by reviewing the semiconductor technology of bidirectional switches in both lateral and vertical device topologies, including their impact on the device performance characteristics. Next, attention will be turned to the application of BD switch devices in a variety of power converter topologies that are most likely to benefit from their availability ranging from matrix converters to T-type 3-level inverters. Prospects for applying BD switches in future machine drives using current-source inverters will also be explored.

Finally, practical information about implementing BD switches in real circuits including their 4 switching states and gate drive implementations will be presented. Take advantage of this opportunity to learn the basics of BD switch devices from the experts in preparation for applying them in your products!

SEMINAR 14

8:30 AM – 12:00 PM

S14: High Efficiency and High Power Density 48V to 1V / 2,000A Voltage Regulator Module (VRM) Technologies for AI GPU Application

ROOM 217AB

Converters

Yan-Fei Liu, *Queen's University*

Don Tan, *E2 Systems*

This seminar discusses the challenges in achieving efficiency and power density 48V to 1V, 2,000A Voltage Regulator Module (VMR) for AI GPU application. It covers the technologies for both two-stage and single-stage 48V to 1V / 2,000 VRM application. Based on a brief review of losses in DC-DC converters and the methods to minimize them, the seminar introduces the technologies for 48V to 12V conversions. The focus of the seminar is on the single stage 48V to 1V conversion. The seminar first introduces various topologies that can achieve efficient 48V to 1V power conversion. In addition, the seminar also discusses the topologies optimized for practical PCB layout consideration, (which is extremely important considering the very tight PCB area); control and topological methods are introduced to improve the load transient performance to minimize the requirement for decoupling capacitor. The seminar also introduces the topologies optimized for Fully Integrated Voltage Regulator and comments on the possibility of using these topologies in discrete AI GPU VRM applications.

SEMINAR 15

8:30 AM – 12:00 PM

S15: Theory and Practice of Advanced Power Factor Control Techniques, From Analog to Digital

ROOM 217C

Control

Francesco Gennaro, *STMicroelectronics*

Claudio Adragna, *STMicroelectronics*

Marco Torrisi, *STMicroelectronics S.r.l.*

The tutorial starts with a refresh of the basics of ac power line rectification and the technical issues that lead to the need for high-quality rectification, aka power factor correction (PFC), touching on the regulatory aspects as well.

Then a quick review of boost PFC pre-regulators, the most common PFC solution, will address its standard control methodologies and the main design challenges. The Total Harmonic Distortion (THD) as Key Performance Indicator (KPI) of a PFC pre-regulator will be introduced.

SEMINAR 16

8:30 AM – 12:00 PM

S16: Design of Bi-Directional DC-DC Converters for E-Mobility Systems: Integrating Energy Storage Units, Sources, and Dynamic Loads

ROOM 214

Applications

Faysal Hardan, *University of Birmingham – UK*

There are many types of DC-DC power electronic converters with simple to advanced topologies, such as the simple unidirectional flyback converter to the advanced ones as those used for robust bidirectional operation. The seminar will focus on the design procedures and calculation for high-power converters which have the capability of bidirectional power delivery and conditioning. At its intermediate level it will cover the common non-isolated and galvanically isolated converters, namely, the high-power buck-boost and chopper converters in addition to the DABs DC converters.

The seminar will start with a brief introduction to the most common DC-DC converters covering their characteristics and their cascaded and parallel structures for mobility systems. Then it will cover modelling aspects of the converters for design and calculation of their components step-by-step including power-loss evaluation for thermal management, based on analysis, specifications, and worst-case operational scenarios.

Finally, the presenter will demonstrate the stages for estimating the efficiencies of the considered converters with results, which help in the process of selecting the most favourable converters in terms of power-loss reduction and performances.

SEMINAR 17

8:30 AM – 12:00 PM

S17: EMI/EMC Debugging with Oscilloscopes

ROOM 207AB

Magnetics & EMI/EMC & Utility Grid

Arturo Mediano, *University of Zaragoza*

Electromagnetic Interference (EMI) debugging in electronics including localizing intermittent failures can be frustrating without an appropriate strategy.

This seminar covers the fundamentals of practical EMI/EMC design and troubleshooting of electronic circuits, using state-of-the-art scopes to analyze your circuits in both time and frequency domains.

The use of voltage, current, and near-field probes, Line Impedance Stabilization Network (LISN), and antennas, will be reviewed combined with some tips for best practice with state of the art oscilloscopes.

A practical demo using a product including a DC/DC converter and digital electronics will be used to demonstrate the effectiveness of these techniques.

Because of the practical orientation, the seminar will be interesting for electronic designers, especially for power electronic engineers who need to solve EMI/EMC problems every day in their labs to comply with Electromagnetic Compatibility (EMC) regulations.

SEMINAR 18

8:30 AM – 12:00 PM

S18: Optimal Design of Inductive Power Components Based on Accurate Loss and Thermal Models

ROOM 217D

Magnetics & EMI/EMC & Utility Grid

Jonas Muehlethaler, *Frenetic*

This presentation focuses on the optimal design of inductive components through accurate modeling of magnetic, winding, and thermal losses. It begins by analyzing challenges posed by non-sinusoidal and DC-biased waveforms and demonstrates advanced modeling techniques to address them. A reluctance-based magnetic circuit model is introduced, enabling precise inductance, saturation, and stray-field calculations, even for complex air gap geometries. For core losses, a hybrid method combining loss maps with the improved Generalized Steinmetz Equation (i2GSE) is presented, capturing effects of waveform shape, DC bias, and relaxation phenomena across a wide frequency and flux density range. Winding loss modeling addresses skin and proximity effects in various conductor types, including solid, foil, and Litz wires, with analytical and FEM-based approaches. Thermal modeling then links electrical losses to component temperature rise, forming the basis for multi-objective optimization where trade-offs between efficiency, volume, and cost are considered. Throughout the talk, real-world examples and experimental validations illustrate the effectiveness of these models, culminating in guidelines for achieving compact, efficient magnetic components in modern power electronics. To enhance the learning experience, interactive elements such as live calculations, waveform analysis, and design trade-off simulations will be integrated, encouraging active participation and practical understanding.

DIALOGUE PREVIEW SESSION *as of February 4, 2026*

Join us for a special poster session that's all about building excitement for the incredible dialogue sessions happening on Thursday! We've handpicked a selection of posters that showcase a diverse mix of topics and industry interests, all designed to spark lively discussions and fresh ideas. This is your chance to dive into thought-provoking conversations that will leave you buzzing with anticipation for the main event. Don't miss out on this vibrant preview, where dynamic exchanges set the stage for an unforgettable day of ideas and innovation!

12:00 PM – 1:30 PM

PARK VIEW FOYER

D01.14 Dm Conducted EMI Noise Prediction for Variable-Frequency, Variable-On-Time Interleaved iTCM Totem-Pole PFC Converters

Power Factor Correction

AUTHORS: Zhehui Guo, Yusheng Chen, Ripun Phukan, Misha Kumar, Peter Barbosa

D02.8 Comparative Efficiency Analysis of Full-Bridge and Half-Bridge Dab Converters Under Optimized Modulation Strategies

Bidirectional Converters (DC-DC Focus)

AUTHORS: Marina Vitali, Andrea Cervone, Wilmar Martinez

D04.3 First Demonstration of Buck Converter using Diamond MOSFET

Ultra-Wide Bandgap Devices

AUTHORS: Sora Kawai, Shunsuke Shoji, Nobutaka Oi, Ryo Yoshida, Kosuke Ota, Hiroyuki Uchida, Akihiko Watanabe, Kenji Ueda, Takanori Isobe, Hiroshi Kawarada, Ichiro Omura, Tatsuya Fujishima

D06.12 Investigation of Dm and CM Reflective Wave Overvoltages and Their Mutual Suppression Using an Optimized Dwell-Time Approach in SiC-Based Two-Level Interleaved Motor Drives

Power Quality and EMI for Motor Drives

AUTHORS: Ali Anwar, Abdul Basit Mirza, Abdul Muneeb, Shiyue Deng, Fang Luo

D07.1 A Data-Driven Algorithm for Estimating Battery State of Charge via Smart Plug-Based PCC Measurements

Smart Grid and Metering

AUTHORS: Abolfazl Najar, He Yang, Jin Ye, WenZhan Song

D08.3 A Unified Off-Board Charging System for Integrated Wired and Wireless EV Charging

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Cheol-Hee Jo, Subho Mukherjee, Mostak Mohammad, Omer Onar

D09.5 An Efficient Power Management Method for Limited-Power Systems Operating with Long Supply Cables

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Martin Plesnik, Gabriel Patulea

D10.2 Embeddable, affordable, 50 Ω Matched Contactless Sensors for Power Device Switching Characterization and Monitoring

Non-contact Sensors for Power Electronics

AUTHORS: Camille Gillot, Timothée Labau, René Escoffier, Bruno Allard

D10.7 Phase-Optimized Dual-Transmitter IPT System for Misalignment-Tolerant Constant Voltage Output

Wireless Charging

AUTHORS: Yihao Wu, Zongyang Zhu, Ziyang Xu, Haoyu Wang, Alex Hanson

D11.11 Flatwise Windings for Improved Thermal Management in High Power Transformer Applications

Winding Techniques

AUTHORS: Karl Raymond Roque, Itsuki Masuda, Sihoon Choi, Jun Imaoka, Masayoshi Yamamoto, Matti Kauhanen, Kengo Tashiro

D11.4 Comparison of DC Biased Inductances with Small- and Large-Signal AC-Excitation

Magnetics Modeling and Simulations

AUTHORS: Pierre Küster, Lennart Hoffmann, Jens Friebe

D12.3 A Novel Quasi-Five-Level Three-Phase Inverter

Multilevel Inverters

AUTHORS: Christoph Sachs, Fabian Stamer, Jan Allgeier, Martin Neuburger

D13.13 High-Density, High-Efficiency GaN-Based 800 V/50 V LLC Converter for Future Datacenters

Resonant Converters

AUTHORS: Pranav Raj Prakash, Qiang Li

D15.3 Series Grid Impedance Regulator Based on Impedance-Emulating Control

Control of Power Electronic Converters

AUTHORS: Ruisheng Shi, Li Zhang, Peng Jiang, Yuhang Zou, Kai Zhang, Jun Lei

D15.6 Characterization and Comparison of Isolated Gate Driver ICs Considering Diverse Techniques for Cryogenic Applications

Gate Drive Circuits and Fault Protection

AUTHORS: Tian Qiu, Zheyu Zhang, Dilip Rana, Purushottam Khadka

D15.7 Motor Ground Fault Protection via High-Side Current Sensing

Gate Drive Circuits and Fault Protection

AUTHORS: Aaron Clyde Dublin, Jhaebhee Mark Calderon, John Henry Puente, John Emmanuel Tan

D18.3 Online Full ZVS Optimization for Modular Multi-Active Bridge Converter in MV PET

Solid-State Transformers

AUTHORS: Haoyu Wang, Junwei Liu, Jialin Zheng, Yangbin Zeng, Di Mou, Zian Qin

D20.2 Thermal Design and Analysis of Phase Change Material Integrated SiC Based Solid State Circuit Breaker

Solid State and Hybrid Circuit Breakers

AUTHORS: Mohammad Dehan Rahman, Yannal Nawafleh, Cade Marcinkovich, Han Hu, Xiaoqing Song

D23.1 High-Density Packaging Structure Optimization with Embedded Gate Driver for 3.3 kV SiC MOSFETs

Power Modules / High Density Design

AUTHORS: Yuxiang Chen, Liyang Du, Xia Du, Alan Mantooth

D24.2 High-Bandwidth LLC Bus Converter with Direct Effective Power Control (D-EPC) for Power Delivery to Next-Generation Ai Processors

Resonant Converters

AUTHORS: Kenji Funatani, Toshiyuki Zaitsu, Kazuhiro Umetani, Kazuhito Kobayashi, Akito Nakagaki, Masataka Ishihara, Eiji Hiraki

D24.4 Monolithic C-L-C Hybrid DC-DC Converter for High Efficiency High-Density Direct 48V-sub1.8V Point-of-Load Applications

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Guozhen Chang, Winghung Ki

D25.3 Robustness of SiC and GaN Diodes Under Extreme dv/dt Stress Up to 980 V/Ns

GaN and SiC Devices and Modules

AUTHORS: Zineng Yang, Hongchang Cui, Xin Yang, Hehe Gong, Yuan Qin, Yuhao Zhang

D28.3 Novel Input Capacitance Extraction Method for Improved SiC MOSFET Modeling

Device and Component Modeling

AUTHORS: Manuel Horvath, Cristino Salcines, Steffen Beushausen, Karl Oberdieck

D30.4 Near-Field Coupling Analysis of Butterfly Layouts in Paralleled GaN Half-Bridges for Aerospace Applications

Power Electronics for Aerospace Including eVTOL and Electric Aircraft

AUTHORS: Abdul Muneeb, Ali Anwar, Abdul Basit Mirza, Yang Li, Shiyue Deng, Samuel Defaz, Fang Luo

PLENARY SESSION

The APEC Plenary Session continues the long-standing tradition of addressing issues of immediate and long-term interest to the practicing power electronic engineer. The APEC plenary presentations are delivered from invited distinguished professionals, followed by an interactive Q&A at the end of each presentation.

BALLROOM LEVEL, HEMISPHERE BALLROOM C2/C3

1:45 PM – 2:15 PM

APEC Opening & Plenary Welcome

Introduction

- **Stephanie Watts Butler**
  APEC 2026 Plenary Chair

Opening Welcome Message

- **Jin Wang**
  APEC 2026 General Chair

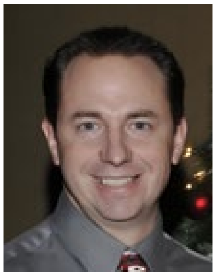
Plenary Introduction

- **Dhaval Dalal**
  APEC 2026 Program Chair

PLENARY PRESENTATIONS

2:15 PM – 2:45 PM

HVDC Distribution for Future AI Data Centers



SPEAKER:
Brian Heber
Director of Engineering,
Global Product Integrity
Vertiv

Artificial Intelligence is reshaping the data center landscape, driving unprecedented demands for power density and efficiency. This paradigm shift challenges traditional AC architectures and opens the door for High Voltage Direct Current (HVDC) distribution from grid to chip. With Solid-State Transformers (SST), HVDC offers compelling benefits—reduced conversion losses, improved efficiency, and higher power density—making it an attractive solution for next-generation AI data centers. However, the transition is far from simple. Protection, safety, and regulatory standards for DC systems remain complex, and the global supply chain for HVDC components is still evolving. This plenary session will explore the technical foundations of HVDC architectures, examine real-world deployment challenges, and discuss strategies to overcome barriers in protection, reliability, and safety. Join us for a forward-looking conversation on how HVDC can redefine data center power delivery and what it will take to make this vision a reality.

Brian Heber is an accomplished engineering leader with over 30 years of experience driving innovation in power electronics, embedded control, and power systems for the data center industry. As Director Advanced Technology at Vertiv, Brian has led global teams in the research and development of advanced control algorithms, including sliding mode control, fuzzy logic control, repetitive control, and state feedback controllers, enabling robust and high-performance solutions for critical infrastructure. He pioneered the adoption of software-in-the-loop (SIL) and hardware-in-the-loop (HIL) simulation tools using MATLAB and Simulink, accelerating the validation and deployment of complex control strategies. He is also dedicated to mentoring the next generation of engineers, serving as an adjunct professor of electrical engineering at The Ohio State University. Brian has a master's degree in electrical engineering from The Ohio State University. Brian is an inventor on over 25 patents. His career is defined by technical excellence, technology leadership, and a commitment to developing high-performing teams.

2:45 PM – 3:15 PM

Enabling Copernicus: Power Electronics at the Heart of Earth's Health Monitoring

SPEAKER:
Arturo Fernandez
Head of the Power Systems,
EMC and Space
Environments Division
European Space Agency

Copernicus is the Earth observation component of the European Union's Space programme. It provides accurate, timely and easily accessible information to improve the management of the environment, understand the effects of climate change and ensure civil security. Copernicus provides a unified system through which vast amounts of data from upwards of 30 satellites are fed into a range of thematic information services designed to benefit the environment, the way we live, humanitarian needs and support effective policy-making for a more sustainable future. This plenary speech will highlight current and future power technologies enabling Copernicus. Power electronics are essential for satellite energy management, battery health, and reliable power distribution. As avionics advance, they require lower voltages and higher currents, while scientific instruments need specialized supplies. The rise of large satellite constellations demands innovative solutions to cut costs and speed up delivery without sacrificing reliability. GaN switches and digital control are transforming space power electronics, enabling more efficient, robust systems for next-generation satellites.

Arturo Fernandez (IEEE SM'98) earned his M.Sc. and Ph.D. degrees in Electrical Engineering from the Universidad de Oviedo, Spain, in 1997 and 2000, respectively. He began his academic career at the Universidad de Oviedo as an Assistant Professor in 1998, advancing to Associate Professor in 2003. In 2007, he joined the European Space Agency (ESA) as a power conversion engineer, driving his research effort towards advancing power electronics for space missions. In 2015, Arturo was appointed Head of the Power Management and Distribution Section at ESA, where he coordinated the Agency's power conversion technology roadmaps and provided technical leadership across all satellite development programs. By 2025, he became Head of the Power Systems, EMC, and Space Environments Division, overseeing ESA's R&D efforts in solar generators, energy storage, electromagnetic compatibility, harness systems, and the effects of space environments on satellite platforms. Arturo's research interests span high-efficiency switching-mode power supplies, low output voltage converters, DC/DC converter modeling, and advanced power systems for space applications. He has authored more than 100 publications in leading power electronics conferences and journals, contributing significantly to the field's advancement.

3:15 PM – 3:45 PM

BREAK

3:45 PM – 4:15 PM

Why Now is the Time to Address Power Semiconductor Sustainability

SPEAKER:

Shiori Idaka
Head of European Research Cooperation Centre
Mitsubishi Electric Europe B.V

Sustainability integrates three critical elements—environmental protection, economic growth, and social welfare—to ensure enduring progress for future generations.

Today's challenge is clear: How can we address social needs, achieve economic growth, and improve quality of life, all simultaneously? Power electronics is emerging as a key solution, creating "trade-ons" rather than trade-offs. Sustainability policies for power electronics products are emerging from multiple fronts, now extending to power semiconductors as critical components. Yet precisely because these strategies are so vital, they must be pursued cautiously, avoiding hype and rushing into regulations. The industry is currently in a learning phase, but rushing leads to mistakes; hesitating leads to loss of precious time. The discussion on sustainability has only just started. The time is now to gather information, exchange ideas, and build a shared understanding and a common direction across the industry. This keynote will examine the current status, highlight the challenges, and present several examples of practical trials.

Shiori Idaka joined Mitsubishi Electric in Japan in 2002, working at the Advanced Technology R&D Center where she developed semiconductor packages including memory, MEMS, RF module and power modules. In 2008, she was appointed to lead the development of SiC power modules as a key member of the power module development project. In 2016, she moved to Mitsubishi Electric Europe B.V. in Germany, where she launched and now directs the European Research Cooperation Center, leading R&D projects focused on power module applications. To date, she has successfully managed over 90 collaborative projects with companies and research institutions across Europe and beyond. Shiori Idaka actively contributes to the power electronics academic community, serving on multiple prestigious committees including the ECCE Europe organizing committee, the PCIM Advisory board, the IWIPP organizing committee, and the TPC for the ISPS, CIPS, ICSCRM, and SMART conferences.

4:15 PM – 4:45 PM

MagNet Challenge: The Serendipity when Power Magnetics meet AI

SPEAKER:
Minjie Chen
Associate Professor
Princeton University

Magnetics play important roles in almost all power electronics systems. The multidimensional and interconnected complexities of material physics, geometric structure, operating conditions, and circuit functionality make magnetic components a major bottleneck in high-performance design. Data-driven methods and artificial intelligence (AI) techniques have demonstrated strong capabilities in modeling complex physical systems. Large-scale, high-quality, well-labeled data sources are the foundations of modern AI. A collaborative environment enables the community to break traditional knowledge barriers and unlock forward-looking breakthroughs. This presentation will explore the historical evolution and emerging intersections between power magnetics and artificial intelligence, and introduce the MagNet Challenge as an international collaborative research platform that bridges materials and design, data and algorithms, academia and industry, and the past and future of power electronics.

Minjie Chen is an Associate Professor of Electrical and Computer Engineering at Princeton University, where he leads the Princeton Power Electronics Research Group. He is currently on sabbatical from Princeton as a visiting professor at TSMC and Nvidia Research. He received his Ph.D. in EECS from MIT and his B.S. in Electrical Engineering from Tsinghua University. He is a recipient of the IEEE PELS Richard M. Bass Outstanding Young Engineer Award, a Princeton SEAS Junior Faculty Award, the NSF CAREER Award, the MIT Dimitris N. Chorafas Ph.D. Thesis Award, and more than 15 prize papers from top IEEE journals and conferences. He is a PELS Distinguished Lecturer, a co-Editor-in-Chief of IEEE Transactions on Power Electronics, and was listed multiple times on the Princeton Engineering Commendation List for Outstanding Teaching. He is currently chairing IEEE PELS Technical Committee 10: Design Methods and AI Tools, and has been leading the IEEE PELS International Challenge in Design Methods for Power Electronics – the MagNet Challenge – since 2023.

**speakers, times, and topics subject to change.*

TECHNICAL SESSIONS TRACK CHAIRS AND REVIEWERS

Thank you to our 804 reviewers for their valuable service (hope to see you back next year!) and special thanks to the APEC 2026 Technical Sessions Track Chairs!

- Adam Skorek
- Ali Safayet
- Ali Khajehoddin
- Arijit Banerjee
- Ayman Fayed
- Cahit Gezgin
- Dinesh Kumar
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- Erdem Asa
- Fei Yang
- Fei Gao
- George Slama
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- Mehdi Narimani
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- Qingyun Huang
- Raghav Khanna
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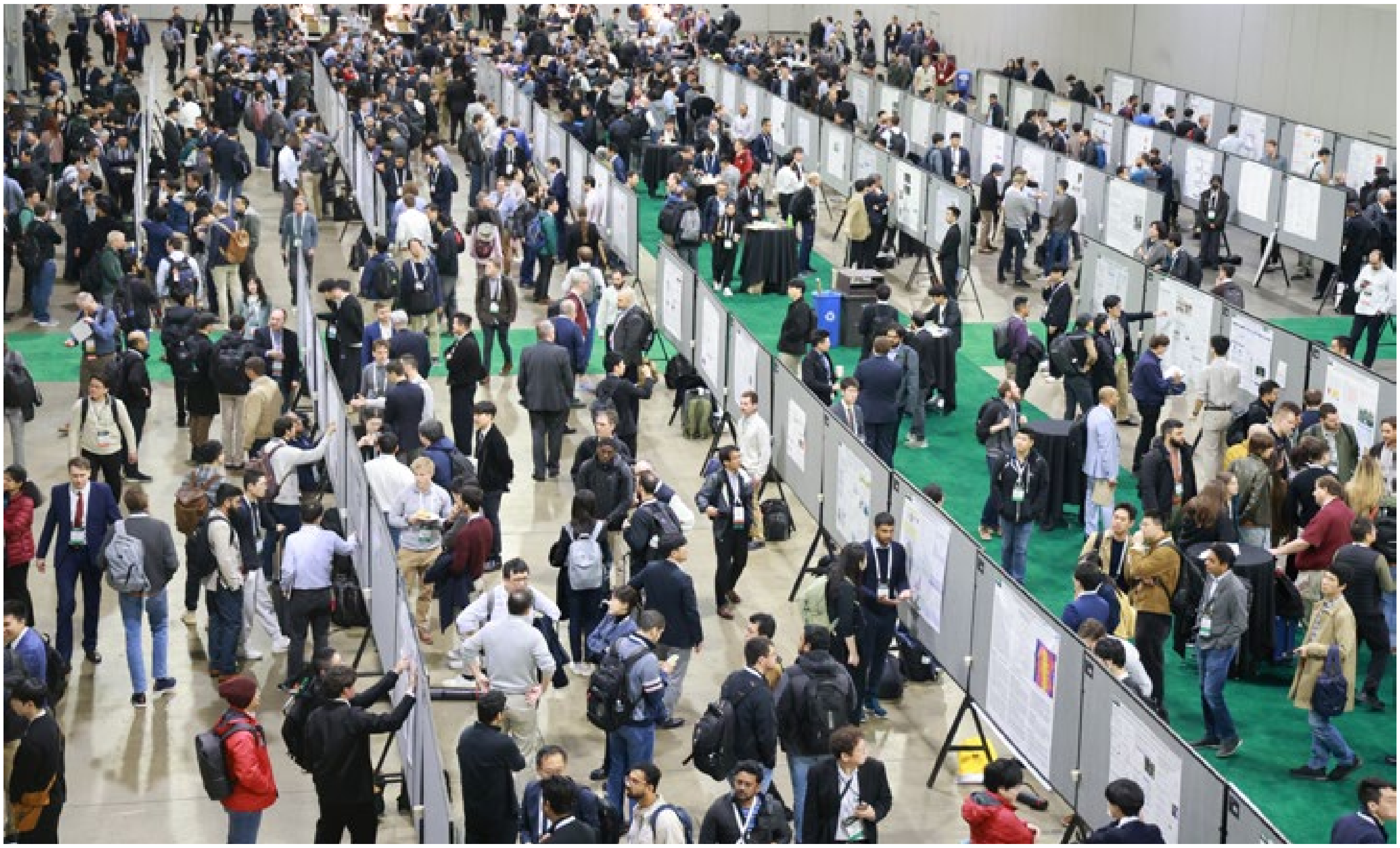


TECHNICAL LECTURES *as of February 4, 2026*

This part of APEC Technical Program features lecture presentations from authors of peer-reviewed papers that cover all areas of technical interest for the practicing power electronics professional. The rigorous review process ensures that only the most innovative technical solutions are highlighted to provide the highest quality possible. Papers selected for the Lecture Sessions are presented in traditional oral presentations. Papers are selected for the Lecture Sessions for their interest to a broad range of APEC attendees.

8:30 AM – 12:00 PM

T01: Bi-Directional DC-DC Converters

ROOM 214A

SESSION CHAIRS

Xugang Ke, *Zhejiang University*

Olivier Trescases, *University of Toronto*

8:30 AM

T01.1 High-Frequency DC-Transformer Design for High Power Density Phase-Modular On-Board Chargers

Bidirectional Converters (DC-DC Focus)

AUTHORS: Mattia Iurich, Zhen Huang, oberto Petrella

8:50 AM

T01.2 Optimized Design of a TAB-LCL DC-DC Converter for an Unfolding-Based Multiport System

Bidirectional Converters (DC-DC Focus)

AUTHORS: Aditya Zade, Shubhangi Gurudiwan, Regan Zane

9:10 AM

T01.3 Comprehensive Control of Bipolar DC Solid-State Transformers Based on ISOP-QAB Converters

Bidirectional Converters (DC-DC Focus)

AUTHORS: Jonghun Yun, Seongmin Moon, Jaesang Yoo, Giovanni De Carne, Shenghui Cui

9:30 AM

T01.4 A 5V-48V to 5V-48V Multi-Stage Asynchronous Hybrid Buck-Boost Converter for USB PD Bidirectional Conversion

Bidirectional Converters (DC-DC Focus)

AUTHORS: Yaoming Wang, Yichao Ji, Lin Cheng

9:50 AM

T01.5 Active Midpoint-Voltage Regulation for GaN-Based Active Neutral-Point-Clamped Three-Phase Dual-Active-Bridge Converters in 800-V Applications

Bidirectional Converters (DC-DC Focus)

AUTHORS: Satyam Sa, Mohammad Shawkat Zaman, Olivier Trescases

10:40 AM

T01.6 Closed-Form Solution for Conduction Loss Minimization in Dual-Active-Bridge Converter for Satellite Payload Application

Bidirectional Converters (DC-DC Focus)

AUTHORS: Hean Ming Kang, Jaydeep Saha, Yeh Ting, Sanjib Kumar Panda, Dipti Srinivasan

11:00 AM

T01.7 A Multistage Soft Start-Up Technique for SHB-FB Type DAB Converter Considering Precharge of DC Blocking Capacitors

Bidirectional Converters (DC-DC Focus)

AUTHORS: Yanda Lyu, Ziwei Liang, Fred Wang, Hua Bai, Zhou Dong, Debanjan Chatterjee

11:20 AM

T01.8 Optimized TPS with New Symmetric Mode Boundaries for Bidirectional DAB Converters in Ultra-Wide Range SiC EV Charging Applications

Bidirectional Converters (DC-DC Focus)

AUTHORS: Mahmoodreza Eskandarpour Azizkandi, Wensong Yu, Md Tanvir Ahammed, Liming Liu, Hongrae Kim

11:40 AM

T01.9 Reverse Control of the Phase-Shifted Full Bridge Converter for Minimum Voltage Stress

Bidirectional Converters (DC-DC Focus)

AUTHORS: Jiawen Fu, Wei Gao, Yupi Ji

8:30 AM – 12:00 PM

T02: Single-Phase AC-DC Converters

ROOM 214B

SESSION CHAIRS

Enver Candan, *IBM*

Logan Horowitz, *University of Colorado Boulder*

8:30 AM

T02.1 A Novel Control Method to Improve Totem-Pole Bridgeless PFC Efficiency

Power Factor Correction

AUTHORS: Bosheng Sun, Sheng-Yang Yu

8:50 AM

T02.2 A High-Performance 6-Level Flying Capacitor Multilevel Totem-Pole Bidirectional DC-AC Converter for Single-Phase Systems

Bidirectional Converters (AC-DC Focus)

AUTHORS: Yayun Zhao, Jack Armstrong, Francesca Giardine, Robert C.N. Pilawa-Podgurski

9:10 AM

T02.3 Deadbeat Current Control with Grid-Connected Single-Phase 3-Level Flying Capacitor Multilevel Totem-Pole PFC

Power Factor Correction

AUTHORS: Eunwoo Lee, Dongho Choi, June-Seok Lee

9:30 AM

T02.4 Efficiency Enhancement of Three-Level Flying Capacitor Totem-Pole PFC with Trapezoidal Current Mode Control

Power Factor Correction

AUTHORS: Bac-Bien Ngo, Zhigang Yao, Ziheng Xiao, Jingrui Liu, Yi Tang

9:50 AM

T02.5 Single-Stage Single-Phase AC-DC MMC with AC-Port-Following Submodule Capacitor Voltages

Bidirectional Converters (AC-DC Focus)

AUTHORS: Philippe Gray, Khai Huynh, Flavio Ramos

10:40 AM

T02.6 A New Single-Stage Bridgeless AC/DC Stacked-Switches Step-Up Converter Module with Input Synchronous Rectifier for MVdc System

Single-Phase and Three-Phase Input

AUTHORS: Kajanan Kanathipan, Mehdi Abbasi, Muhammad Ali Masood Cheema, John Lam

11:00 AM

T02.7 Active Power Decoupling Method Using a Center-Tap DAB Matrix Converter Without Additional Switches

Single-Phase and Three-Phase Input

AUTHORS: Kousei Irimura, Masamichi Yamaguchi, Hiroki Watanabe, Jun-Ichi Itoh

11:20 AM

T02.8 A 3.3kW OBC Design with 8.14kW/L Power Density and 97.97% Peak Efficiency Using an Integrated Transformer with Litz Wire

Bidirectional Converters (AC-DC Focus)

AUTHORS: Xuchen Sun, Hao Chu, Tianxi Li, Enyou Wu, Jiajia Guan, Cai Chen, Wei Jiang, Pengyang Wang, Bin Lai

11:40 AM

T02.9 Use of the Single Active Bridge as an Active Input Current Shaper for Power Factor Correction

Power Factor Correction

AUTHORS: Alexis A. Gómez, Alberto Rodríguez, Aitor Vázquez, Javier Sebastián

8:30 AM – 12:00 PM

T03: Data Centers

ROOM 214C

SESSION CHAIRS

Sounak Maji, *Texas Instruments*

Pedro Alou, *Universidad Politécnica de Madrid*

8:30 AM

T03.1 48V Power Delivery for AI Computing Systems: IVR-Oriented Architecture and Topology Selection

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Jingyi Yuan, Wen Sun, Zikang Wang, Yichao Ji, Zeguo Liu, Minghao Shang, Qingqing Min, Lin Cheng

8:50 AM

T03.2 10MHz 48V-12V DCX with 6100W/in³ Power Density for Future Data Center Applications

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Chaowei Fu, Xinke Wu, Junming Zhang

9:10 AM

T03.3 Inverse Class-H Power Supply Modulator for Envelope Tracking Applications

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Juan Ramon García-Meré, Juan Rodríguez, Diego González Lamar, Ignacio Castro, Douglas Pedroso

9:30 AM

T03.4 A 8kW, 97.7% Efficiency Three-Phase Isolated Buck-Matrix Rectifier with Active Regenerative Snubber for Datacenter Application

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Yuki Ishikura, Tomotaka Nagai

9:50 AM

T03.5 Multi-Model Embedded ML for Real-Time Fault Detection in Industrial Power Supplies

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Ba Vu Tran, Mohamed Youssef

10:40 AM

T03.6 Compact and Efficient 3kW 1MHz GaN LLC Converter Incorporating Matrix Transformer for Data Center Power Delivery

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Jai Aditya Chaudhary, Kamran Kamran, Rosario Attanasio, Andrea Russo, Nicola Tecli, Gianni Vitale

11:00 AM

T03.7 Active Power Buffer for Smoothing GPU Workload Transients in Data Center Power Delivery

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Lei Gu, Ahmed Nabih, Sudhir Kudva, Mostafa Mosa, Rose Abramson, Youssef Elasser, C. Thomas Gray

11:20 AM

T03.8 Short-Circuit Analysis of Solid-State Transformer-Based DC Distribution in Data Center

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Haiguo Li, Rudy Wang, Peter Barbosa

11:40 AM

T03.9 ISOP LLC Converter with Integrated Magnetics for Server Power Supplies

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Alejandro Pozo Arribas, Parinda Chantarasereekul, Michael de Rooij

8:30 AM – 12:00 PM

T04: GaN Devices

ROOM 214D

SESSION CHAIRS

Raghav Khanna, *UToledo*

Marie Lawson, *Huntington Ingalls*

8:30 AM

T04.1 Comparison of Dynamic ON-Resistance of E-Mode and D-Mode High-Voltage GaN HEMTs in Continuous-Run Operation

GaN and SiC Devices and Modules

AUTHORS: Behzad Poorali Riabi, Tiziano Pastore, Zhemin Zhang

8:50 AM

T04.2 Dynamic Threshold Voltage of Low-Voltage Schottky-Type p-GaN Gate HEMT in Soft-Switching Operation

GaN and SiC Devices and Modules

AUTHORS: Yuwei Wu, Longge Deng, Junting Chen, Zongjie Zhou, Ji Shu, Kevin Jing Chen

9:10 AM

T04.3 Dynamic On-Resistance and Dynamic Threshold Voltage of GaN-on-Si HEMTs with Varying Substrate Connections in Steady-State Hard Switching

GaN and SiC Devices and Modules

AUTHORS: Hongchang Cui, Xin Yang, Zineng Yang, Hengbo Zhang, Hehe Gong, Yuhao Zhang

9:30 AM

T04.4 Reliability Investigation of p-GaN Gates in GaN HEMTs Under Dynamic Switching Conditions

GaN and SiC Devices and Modules

AUTHORS: Ricardo Garcia, Angel Espinoza, Siddhesh Gajare, Shengke Zhang, Peter Tieu

9:50 AM

T04.5 **Novel Internal Gate-to-Gate Crosstalk Phenomenon in Monolithic Bidirectional GaN-on-Si HEMTs**

GaN and SiC Devices and Modules

AUTHORS: Hongchang Cui, Haozhe Jin, Jian Guo, Yuhao Zhang

10:40 AM

T04.6 **Eliminating Asynchronous Switching in Parallel GaN HEMTs Through Delay Compensation for Equal Current Sharing**

GaN and SiC Devices and Modules

AUTHORS: Harish S, Manish Mandal, Kaushik Basu

11:00 AM

T04.7 **Evaluation and Application of Kilovolt GaN-on-Sapphire Diode Ic**

GaN and SiC Devices and Modules

AUTHORS: Zineng Yang, Hengbo Zhang, Hehe Gong, Xin Yang, Hongchang Cui, Yuan Qin, Yuhao Zhang

11:20 AM

T04.8 **Design, Performance, and Htol Evaluation of a Monolithic 100 V / 25 A GaN IC Module**

WBG Integration and Reliability

AUTHORS: Öncü Benli-Marin-Palomo, Mert Önkol, Philippe Billet, Jef Thone, Olga Syshchyk, Ali Roshanghias, Kaneeze Noorul Ain, Mike Wens

11:40 AM

T04.9 **High-Frequency Characterization of Coss Loss and Dynamic Rdson in Gan**

GaN and SiC Devices and Modules

AUTHORS: Mansi Vipul Joisher, Matthew De Jesus, Carlos Sanchez, David Perreault

8:30 AM – 12:00 PM

T05: Inverter Modulation and Control

ROOM 217A

SESSION CHAIRS

Karun Potty, *Lucid Motor*

Sneha Narasimhan, *ABB*

8:30 AM

T05.1 **A Variable Switching Frequency DPWM with Leakage Current Suppression for ZVS Three-Phase Three-Level Inverter**

Multilevel Inverters

AUTHORS: Wenbo An, Li Zhang, Jianping Cheng, Xiaoqi Huang, Xinru Guo, Feiyang Ni, Ningxin Zhang, Zihan Yang

8:50 AM

T05.2 **Modulation Method for Reducing DC-Link Current Ripple in Open-End Winding Motor Drive Systems**

PWM Strategies

AUTHORS: Kota Sato, Ryusei Yamada, Kenta Emori

9:10 AM

T05.3 **Overvoltage Mitigation via Variable Switching Frequency Discontinuous PWM in SiC Inverter Systems**

PWM Strategies

AUTHORS: Min-Gi Kim, Kyo-Beum Lee

9:30 AM

T05.4 **Operation of Regenerative Cascaded Multicell Converter-Based Drive Under Fault Condition with Improved Input Current Distortion**

Multilevel Inverters

AUTHORS: Satyam Jha, Shambhu Sau

9:50 AM

T05.5 **EMI Mitigation in Six-Phase PMSM Drives Using Carrier Phase-Shifted PWM**

Power Quality and EMI

AUTHORS: Md Moniruzzaman, Md Zakir Hasan, Md Rashedur Rahman, Seungdeog Choi

10:40 AM

T05.6 **A Study of Zero Common-Mode Currents and Reduced Conducted Emissions in a Single-Stage Buck-Boost Inverter**

Power Quality and EMI

AUTHORS: Sahil Shingote, Mahima Gupta

11:00 AM

T05.7 **An Overmodulation Method for a Five-Leg Inverter Driving Dual-Motor**

Single and Multi-Phase Inverters

AUTHORS: Do-Hyeon Kim, Cheonsu Park, June-Seok Lee

11:20 AM

T05.8 **Rogowski Coil Array for High-Frequency Common-Mode Current Monitoring in MEA Propulsion Systems**

Power Quality and EMI

AUTHORS: Koutarou Oguchi, Ryosuke Ota, Keiji Wada

11:40 AM

T05.9 **Analytical Description and Voltage Accuracy Improvement for Natural Overmodulation Methods Applied on a Two-Level Voltage Source Inverter**

PWM Strategies

AUTHORS: Dominik Großmann, Jan Herold, Heiko Zatocil, Gerd Griepentrog

8:30 AM – 12:00 PM

T06: Control 1

ROOM 217B

SESSION CHAIRS

Xiaonan Lu, *Purdue University*

Cong Ma, *BorgWarner*

8:30 AM

T06.1 **State Feedback-Based Digital Voltage Mode Control Design in a Series Capacitor Buck Converter for Fast Transient Performance and Robust Stability**

Control of Power Electronic Converters

AUTHORS: Anirban Nanda, Santanu Kapat, Prantik Majumder, Mohd Ali Shamsi, Deepak Pullaguram

8:50 AM

T06.2 **EMI Reduction and Performance Assessment in a Multiphase Buck Converter Using Digital Current Control Techniques Under Periodic Frequency Modulation**

Control of Power Electronic Converters

AUTHORS: Teja Golla, Santanu Kapat, Philip Krein

9:10 AM

T06.3 **Active Damping Control for AC-DC Converters with Unfolder Plus T-Bridge Series Resonant Converter**

Control of Power Electronic Converters

AUTHORS: Dakota Goodrich, Shubhangi Gurudiwan, Aditya Zade, Regan Zane, Hongjie Wang

9:30 AM

T06.4 **A Unified Control Architecture for Multiport Resonant Converters with Independently Regulated Output Ports**

Control of Power Electronic Converters

AUTHORS: Arkadeb Sengupta, Waseah Anjum, Marco Liserre

9:50 AM

T06.5 **DC Bias Elimination in Multi-Active-Bridge Converters Using Dynamic Feedforward Decoupling**

Control of Power Electronic Converters

AUTHORS: Waseah Anjum, Arkadeb Sengupta, Marco Liserre

10:40 AM

T06.6 **Analysis and Evaluation of Optimal PWM Scheme for Integrated Three-Port DC-DC Converter for Bipolar Distribution Systems**

Control of Power Electronic Converters

AUTHORS: Kausik Biswas, Olive Ray, Chadrashekhar N. Bhende

11:00 AM

T06.7 **Novel Approach of Mobile Charger Utilizing Resonant Switched-Capacitor Converter**

Control of Power Electronic Converters

AUTHORS: Jongun Baek, Donghan Seo, Jong-Won Shin

11:20 AM

T06.8 **Implementation of Resonant Switched-Capacitor Converter in Discontinuous Conduction Mode**

Control of Power Electronic Converters

AUTHORS: Jongun Baek, Donghan Seo, Jong-Won Shin

11:40 AM

T06.9 **A Necessary and Sufficient Condition for Large-Signal Stability Analysis of Dispatchable Virtual Oscillator Control**

Control of Power Electronic Converters

AUTHORS: Zheran Zeng, Dongsheng Yang

8:30 AM – 12:00 PM

T07: Magnetics Application

ROOM 217C

SESSION CHAIRS

George Slama, *Wurth Elektronik*

Matt Wlkowski, *Wurth Elektronik*

8:30 AM

T07.1 **Low-Profile Embeddable Chip Inductors for 10 W, 40-50 MHz DC-DC Converters**

High-Frequency Magnetics

AUTHORS: Youssef Kandeel, Liang Ye, Yi Dou, Cian Ó Mathúna, Ranajit Sai, Séamus O'Driscoll, Takayuki Tsuchida, Sumiaki Kishimoto, Toshio Hiraoka, Masanori Nagano

8:50 AM

T07.2 **Extreme Temperature Nanocrystalline Inductor Design and Demonstration for Medium Frequency Applications**

Advanced Magnetic Materials and Geometries

AUTHORS: Veda Duppalli, Kevin Byerly, Brett Riale, Samuel Kernion, Tyler Paplham, Alex Leary, Baljit Riar, Jeffrey Ewanchuk, Lauren Wewer, Vladimir Keylin, Suman Dwari, Paul Ohodnicki Jr., Yuankang Wang, Ron Noebe

9:10 AM

T07.3 **A High-Frequency Planar Transformer with Medium-Voltage Isolation and Embedded Thermal Management**

High-Frequency Magnetics

AUTHORS: Shivangi Sinha, Zayed Ahmed, Jeffery Diebold, Dragan Maksimović

9:30 AM

T07.4 **Asymmetric Magnetic Integration for Three-Phase LLC with Improved Efficiency, Thermal, and Current Balancing**

High-Frequency Magnetics

AUTHORS: Dakai Wang, Chao-Fong Chang, Meng-Chi Tsai, Misha Kumar, Peter Barbosa

9:50 AM

T07.5 **Three-Winding HF Transformer Design for a Multiport System Integrating Battery Storage or Renewables with the Grid for EV Charging**

High-Frequency Magnetics

AUTHORS: Aditya Zade, Bryce Hesterman, Shubhangi Gurudiwan, Regan Zane

10:40 AM

T07.6 **Evaluation of Commercially Available MHz Magnetic Materials Using a Virtual Datasheet Framework**

High-Frequency Magnetics

AUTHOR: Burkhard Ulrich

11:00 AM

T07.7 **EMI Filter Performance Enhancement Through Novel Use of Multi-Material Magnetic Cores**

High-Frequency Magnetics

AUTHORS: Marcin Kącki, Adam Ruszczyk, Simon Round, Arne Schroeder

11:20 AM

T07.8 **Hybrid Planar Inductor with Thin-Film Magnetic Core and Homogeneous Current-Density Windings in MHz Power Converters**

Advanced Magnetic Materials and Geometries

AUTHORS: Raul Henares, Guannan Wei, Ranajit Sai, Cian Ó Mathúna, Yi Dou

11:40 AM

T07.9 **Advantageous Applications for Permanent Magnet Hybrid Core Inductors**

Advanced Magnetic Materials and Geometries

AUTHORS: Rachel Yang, Sarah Coston, Andrew Nadler, Thomas Guillod, Charles Sullivan, David Perreault

8:30 AM – 12:00 PM

T08: Power Electronics for Electric Vehicles and Aircrafts

ROOM 217D

SESSION CHAIRS

Yu Zou, *GE Aerospace*

Feng Guo, *University of Wisconsin, Milwaukee*

8:30 AM

T08.1 **A New Residue-Free Cyber-Attack Detection Framework for Traction Motor Drive in Autonomous E-Mobility Systems**

Vehicular Power Electronic Circuits and Systems

AUTHORS: Durga Prasad Pilli, Deepak Ronanki

8:50 AM

T08.2 Ipos LLC Resonant Converter with Reconfigurable Output for 400V and 800V Architectures in EV Charging

Vehicular Power Electronic Circuits and Systems

AUTHORS: Yu Zuo, Yang Li, Qingcheng Sui, Diego Gerardo Bernal Cobaleda, Bangli Du, Jiaze Kong, Xiaobing Shen, Wilmar Martinez

9:10 AM

T08.3 Characterization of Hybrid SiC/IGBT Switches for 800V Traction Inverters: Performance Comparison with 400V Systems

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Rosario Attanasio, Ryan Satterlee, Gianni Vitale

9:30 AM

T08.4 Current Ampacity Scaling of Automotive 750V Si/SiC Fusion Switch and Device Degradation Testing

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Tomas Reiter, Michael Niendorf, Sergio Elias, Spiridon Pappas, Cedric Ouvrard

9:50 AM

T08.5 Enhancement of Hybrid Energy Storage Dynamics Assisted by Battery Current Management

Power Electronics for Hybrid and Electric

AUTHORS: Ilya Zeltser, Michael Evzelman, Khalil Abo Yonis, Mor Peretz

10:40 AM

T08.6 An Isolated Soft-Switching DC-DC High-Frequency Link Converter for EV Chargers with Wide Voltage

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Gopi Reddy Chilukuri, Syamnaresh Garlapati, Chandrasekhar Reddy Thaniparthi, Nareshkumar Kummari, Inder Kumar Vedula

11:00 AM

T08.7 Online Capacitance Estimation Based on Sixth-Harmonic Power Ripples in Battery-Powered Motor Drive Systems

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Taewon Park, Younghoon Cho

11:20 AM

T08.8 Rotary Transformer for Wound Rotor Synchronous Motors

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Mostak Mohammad, Omer C. Onar, Shajjad Chowdhury, Emrullah Aydin, Jonathan Wilkins, Dmitry Semenov, Fred Huscher, Gabriel Domingues, David Fulton

11:40 AM

T08.9 An 8-Level Flying Capacitor Multi-Level Boost Converter for High-Voltage Power Distribution in Electric Aircraft

Power Electronics for Aerospace Including eVTOL and Electric Aircraft

AUTHORS: Syed Tahmid Mahbub, Dennis Woo, Rahul Iyer, Logan Horowitz, Robert C.N. Pilawa-Podgurski

INDUSTRY SESSIONS *as of February 4, 2026*

Industry Session presentations allow authors, particularly those from industry, to share their latest work without needing to prepare a formal manuscript. They can publish current information more quickly from a wide range of topics and areas of interest that appeal not just to design engineers but other power electronics professionals including systems and applications engineers, component suppliers, procurement, manufacturing, and business-oriented professionals in technical sales and marketing.

8:30 AM – 11:55 AM

▸ PSMA SESSION ◂

IS01: What Is the Next Killer Application for Wide Bandgap Semiconductors?

ROOM 212

SESSION CHAIRS

Timothy McDonald, *Power Q Consulting, Inc.*

Peter Di Maso

8:30 AM

IS01.1 Bi-Directional Switches (BDS): Enabling the Next Killer App for Wide Bandgap Semiconductors
Michael Harrison, *Enphase*

8:55 AM

IS01.2 Maximizing MVHV SiC Performance and Reliability with Advanced Power Device and Packaging Technologies for Mission-Critical Energy Infrastructure Applications
Sumit Jadav, *Navitas Semiconductor*

9:20 AM

IS01.3 Combo IceGaN (GaN-IGBT Hybrid) Revolutionizes Performance in EV Traction Inverters
David Miller, *Cambridge GaN Devices*

9:45 AM

IS01.4 Powering Precision: The Wide Bandgap Revolution in Electrosurgery
Phelim Bradley, *Advanced Energy Ltd.*

10:40 AM

IS01.5 New Killer App for Wide Bandgap: AI Datacenters
Chris Lee, *Power Integrations*

11:05 AM

IS01.6 IS01.6 The Role of SiC in Enabling Efficient and Compact Next-Generation Power Conversion Systems for PV and BESS Application
Suresh Thangavel, *Infineon Technologies AG*

11:30 AM

IS01.7 AI Datacenter Power Architecture with High-Voltage Bi-Directional and Low-Voltage GaN Devices
Marco Ruggeri, *Renesas*

8:30 AM – 11:55 AM

▸ PSMA AND PELS JOINT SESSION ◂

IS02: AI and Digital Twins Transforming Power Device Innovation

ROOM 213

SESSION CHAIRS

Jaume Roig, *onsemi*

Stephanie Watts Butler, *WattsButler LLC*

Kevin Hermanns, *PE-Systems GmbH*

8:30 AM

IS02.1 Advanced Analytics and AI to Improve Semiconductor Cost and Quality
Steve Zamek, *PDF Solutions INC*

8:55 AM

IS02.2 AI Assisted LDMOS Development for BCD Technology
Mark Griswold, *onsemi*

9:20 AM

IS02.3 Bridging Test and Design: How AI Accelerates Power Electronics
Tristan Evans, *PE-Systems*

9:45 AM

IS02.4 Automated Custom Thermal Model Generator: Seamless Integration of Compact Models in System-Level Simulation
Jaime Zapata-Amores, *Infineon Technologies*

10:40 AM

IS02.5 AI-Driven Digital Twins for Design, Characterization and Reliability of GaN and nm jjjSiC Power Devices and Systems
Dominik Koch, *University of Stuttgart*

11:05 AM
IS02.6 AI Driven Reduced Order Modeling for Power Electronics
Oliver Knaus, *AVL*

11:30 AM
IS02.7 Trends in Wide Bandgap Double Pulse Testing and the Role of AI in Accelerating Automation
Sathish Kumar Krishnananda, *Tektronix*

8:30 AM – 11:55 AM
▸ **PSMA SESSION** ◂

IS03: Capacitor Circuit Design Essentials for Modern Challenges

ROOM 205

SESSION CHAIRS

Alan Cooper, *YAGEO*

Frank Puhane, *Wurth Electronik*

8:30 AM
IS03.1 How Capacitors are Qualified and How to Interpret Datasheet Values
Jon Izkue, *Wurth Elektronik*

8:55 AM
IS03.2 Optimized Material Selection for Targeted Electrolytic Capacitor Designs
Benjamin Dermeik, *CapXon Electronic Technology Co., Ltd.*

9:20 AM
IS03.3 Cooling Considerations for an MLCC Array in a Resonant Power Converter
Hunter Hayes, *KEMET Electronics Corporation*

9:45 AM
IS03.4 Optimizing Modern Power:- The Role of Parasitics in High Performance Design
Octavian-Tudor Stroe, *Wurth Elektronik*

10:40 AM
IS03.5 Trends in Power Applications versus Operational Life of Aluminum Electrolytic Capacitors — The Key is Thermal Management
MaryAnn Fulton, *YAGEO*

11:05 AM
IS03.6 High-Temperature Solid-State Metallized Polymer Capacitors for Power Processing Applications
Angelo Yializis, *PolyCharge*

11:30 AM
IS03.7 Switched-Capacitor Power ICs for Emerging Data Center Architectures
Dennis Larsen, *Skycore Semiconductors*

8:30 AM – 11:55 AM
▸ **PSMA SESSION** ◂

IS04: 3D-Power Packaging for AI and Its Application in Power Systems Optimization

ROOM 206

SESSION CHAIRS

Vikas Gupta, *ASE US, Inc*

John Bultitude, *Bultitude Consulting LLC*

Jason Rouse, *Taiyo America, Inc.*

8:30 AM
IS04.1 Silicon Capacitors for Improved Power Efficiency and Power Density: From the Grid to the Chip
Jean-Marc Yannou, *Murata*

8:55 AM
IS04.2 Embedded Passives Design for AI Power Delivery
Sudha Durvasula, *Saras Micro Devices*

9:20 AM
IS04.3 How AI/ML Workloads are Transforming Data Center Power and Cooling
Cheelim Nge, *Google Cloud*

9:45 AM
IS04.4 Power for AI-Data Centers
Bernhard Knott, *Infineon*

10:40 AM
IS04.5 Exploring AI/ML in Power Electronics – Component Selection and Converter Topology Optimizations
Doug Hopkins, *NC State University*

11:05 AM
IS04.6 The Silent Enabler: WBG Power Technology & packages for the AI-HPC Revolution
Giuliano Cassataro, *Nexperia*

11:30 AM
IS04.7 Vertical Power Delivery Integration: Benefits and Trade-offs of Moving Beyond PCB Backside to In-package Solutions
Trey Roessig, *Empower Semiconductor*

8:30 AM – 11:55 AM

IS05: Gate Drivers and Their Applications

ROOM 210

SESSION CHAIRS

Emanuel Eni, *Infineon Technologies AG*

Yifu Zhang, *Infineon Technologies*

8:30 AM

IS05.1 Methods to Control Bootstrap Overcharge in Half-Bridge Gate Driver ICs

Alex Mazany, *Texas Instruments*

8:55 AM

IS05.2 Gate Driver Features and Considerations for Bidirectional FETs in Single-Stage Matrix Converters

Alex Mazany, *Texas Instruments*

9:20 AM

IS05.3 Optimization of Double-Pulse Half-Bridge Operation in Traction Inverters Using a Novel High-Resolution Current-Mode Gate Driver

Long Nguyen, *Skyworks Solutions*

9:45 AM

IS05.4 Adaptive Gate Strength Implementation for Reverse-Conducting Insulated Gate Bipolar Transistor Based Electric Vehicle Traction Inverter Applications

Lathom Louco, *BorgWarner*

10:40 AM

IS05.5 Mitigating False Turn-On in Power MOSFETs Using Current Mode Gate Drivers: Advancements in Gate Drive Control

Matthew Segada, *Skyworks Solutions*

11:05 AM

IS05.6 Decoding the Isolated Gate Driver's Datasheet: Clarity Beyond the Bullet Points

Emanuel Eni, *Infineon Technologies AG*

8:30 AM – 11:55 AM

IS06: The Future of Powering AI

ROOM 207

SESSION CHAIRS

Robert C.N. Pilawa-Podgurski, *UC Berkeley*

Minjie Chen, *Princeton University*

8:30 AM

IS06.1 Density, Efficiency and Transient Response: How to Achieve These in a Compute Dense Rack?

Sudhir Kudva, *Nvidia*

8:55 AM

IS06.2 Power Delivery for High-speed Die to Die Interconnects and Future 3D-ICs

Alan Roth, *TSMC*

9:20 AM

IS06.3 Feeding 10000A TPU from +/-400V: Architecture, Challenge, Opportunities

Lu Jian, *Google*

9:45 AM

IS06.4 Opportunities and Challenges in Vertical Power Delivery for AI ASICs

Shenli Zou, *Meta Platforms*

10:40 AM

IS06.5 Powering AI Chips: Your Last Innovation

Sombuddha Chakraborty, *Texas Instruments*

11:05 AM

IS06.6 The Future of Powering AI

Roberto Rizzolatti, *Infineon Technologies Austria AG*

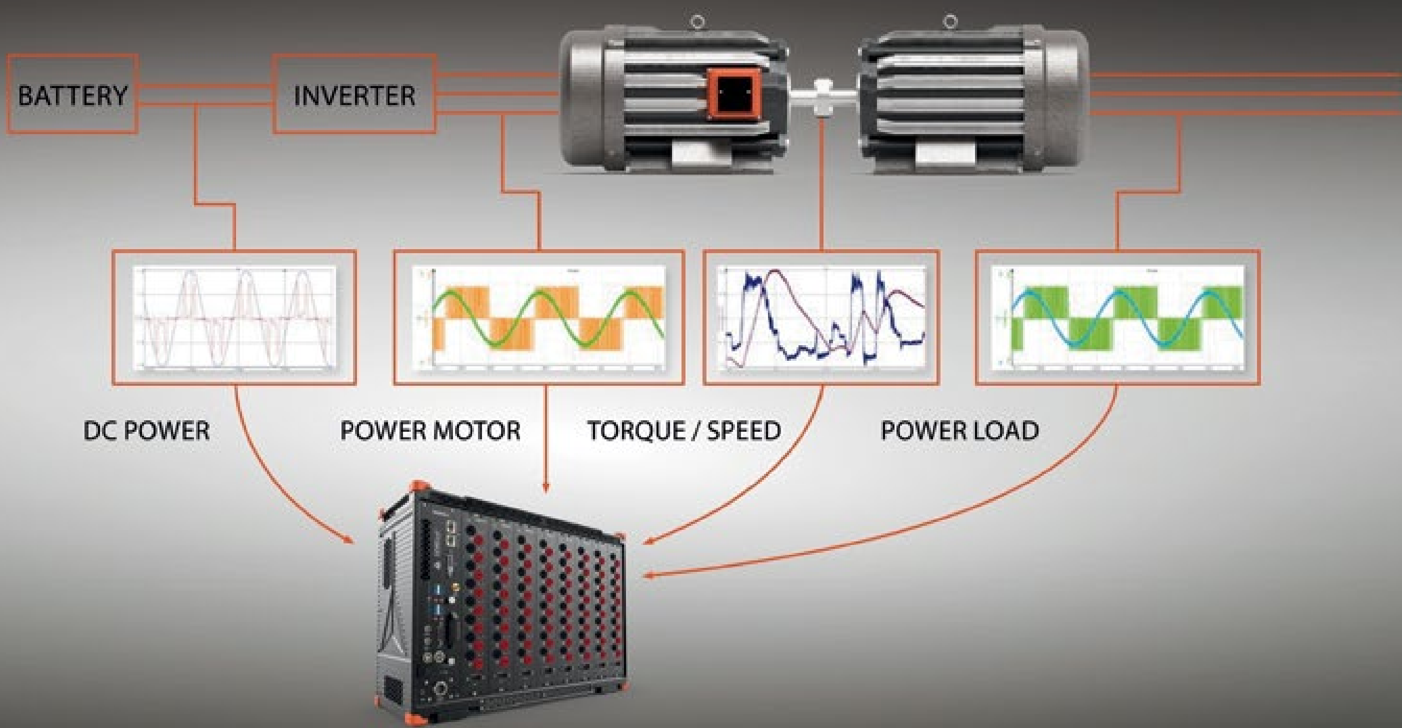
11:30 AM

IS06.7 Efficient Power Delivery Solutions for 5KW GPUs

Kaladhar Radhakrishnan, *Intel Corporation*

DEWESoft®

measurement innovation



POWER ANALYSIS

High sampling rate, high bandwidth and high accuracy hardware for power analysis on electric motors, inverters, transformers, switches and any other electronic equipment.

ALL-IN-ONE

Multiple power modules can be integrated in a single device.

STATIC AND DYNAMIC TESTING

Our sophisticated Power calculation algorithms ensure amazing results during both static and dynamic recording conditions. Analysis of both low-speed wind turbine power (<10 Hz), up to high-speed electric vehicle motors (<3000 Hz) is possible. Detailed analysis of period-based values is also included.

DISTRIBUTABLE

Several devices can be distributed across the world and are still perfectly synchronized for failure location analysis.

POWER CALCULATIONS

The system will calculate more than 100 power parameters like P, Q, S, PF, cos phi and many others. All these calculations can be done online or in post-processing.

HIGH PRECISION POWER ANALYSIS

High-accuracy Dewesoft hardware combined with Dewesoft X Power software guarantees reliable measurement results.

SCOPE AND FFT

In addition to the power analysis other useful tools and visualisations are Scope, Vector Scope, Harmonic FFT, 2D FFT, and 3D FFT. For example the 3D FFT of a motor run-up will yield valuable information about the behaviour of the machine in a single plot.

RAW DATA

Raw Data is essential for detailed analysis of your electric machine. Transients and Oscillations can be captured continuously or by a trigger condition. Power values in conjunction with Raw data allow for immediate anomaly detection.

DEBATE SESSIONS

Every year, the APEC Committee handpicks a handful of hot topics and brings together a panel of distinguished experts to engage in a dynamic exchange of views. The Debate Sessions are structured around pivotal questions designed to spark debate, ensuring a representation of diverse perspectives. Kickstarting the session with introductory remarks from our panelists, we then open the floor to you—our audience of specialists—to weigh in with your insights, challenge the experts, and steer the conversation with your questions. Get ready for an invigorating exchange of ideas that is as informative as it is animated and walk away with a deeper understanding of the latest trends and controversies in power electronics.

4:30 PM – 6:00 PM

DEBATE #1:

Bidirectional Devices: Will emerging bi-directional devices have wide adoption or not?

RIVER LEVEL, ROOM 006

SESSION CHAIR

- **John Shen,** *Simon Fraser University*

DEBATE SPEAKERS

- **Michael Harrison,** *Enphase Energy*
- **Victor Veliadis,** *Power America*
- **Qinghong Yu,** *Schneider Electric*
- **Srabanti Chowdhury,** *Stanford University*

There has been a need for bi-directional power semiconductor devices for a range of power electronic applications, including but not limited to matrix converters, advanced multilevel converters, Vienna rectifiers, and solid-state circuit breakers. Bi-directional semiconductor switches are conventionally made of back-to-back connected unidirectional devices, thus doubling the power loss and component cost. The power semiconductor industry and research community have been trying to develop more cost-effective all-integrated bidirectional power devices, such as bidirectional silicon IGBTs, SiC MOSFETs, GaN four-quadrant switches, and reverse-blocking IGBTs or IGCTs in the past decade. However, the bidirectional device application and market have yet to reach a critical mass. During this session, we will examine the market pull and technology push factors of the field, and how these factors will shape the future of power electronics.

4:30 PM – 6:00 PM

DEBATE #2:

In Power Electronics, should the future rely more on Generative AI for Design or Predictive AI for Optimization?

RIVER LEVEL, ROOM 007

SESSION CHAIR

- **Alan Mantooth,** *University of Arkansas*

DEBATE SPEAKERS

- **Trifon Liakopoulos,** *Eneira*
- **Minjie Chen,** *Princeton University*
- **Richard Blakey,** *Würth Elektronik*
- **Frede Blaabjerg,** *Aalborg University*

Artificial intelligence (AI) is no longer just supporting power electronics (PE)—it is beginning to reshape it. AI is infiltrating every layer of modern power converters. As this transformation accelerates, the PE community faces a defining question: Should the future be built on Generative AI—systems that invent, architect, and autonomously design converters? Or on Predictive AI—models that are used to optimize, diagnose, and fortify converters using deep data-driven insight?

Generative AI advocates will champion tools capable of turning natural-language prompts into complete converter designs, new modulation strategies, drafting hardware prototypes, and enabling end-to-end autonomous design workflows.

Predictive AI proponents will counter with its proven industrial value—high-accuracy forecasting of losses and dynamics, precise aging and RUL prediction, enhanced closed-loop control, and safer, more reliable operation through compact, trustworthy models.

Join us as we debate not just how AI will change power electronics—but which form of AI should lead that change.

8:30 AM – 12:00 PM

T09: Point-of-Load DC-DC Converters

ROOM 214A

SESSION CHAIRS

Sombuddha Chakraborty, *Texas Instruments*

Kishan Joshi, *Intel Corporation*

8:30 AM

T09.1 A Point-to-Point Time-Optimal Dynamic Voltage Scaling for High-Performance Processor VRMs

Voltage Regulator Modules (VRM)

AUTHORS: Yijie Qian, Kaifu Pan, Ju Zhou, Shen Xu, Weifeng Sun

8:50 AM

T09.2 Powering AI Accelerators by Power Modules with Minimized Power Distribution Network Losses

Voltage Regulator Modules (VRM)

AUTHORS: Wenkang Huang, Ravidasa Hegde, Paul Yeaman, Surendhar Somasundaram, Danny Clavette, Darryl Galipeau

9:10 AM

T09.3 A Series-Capacitor Based Zero-Bias Trans-Inductor Voltage Regulator

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Chenxi Li, Chenghan Zhu, Haoyu Wang

9:30 AM

T09.4 An All-GaN 90.6% Peak Efficiency Switch-Rationalized 48V-to-Point-of-Load Hybrid Power Converter with Digitally Auto-Locked V_{CC} Control Achieving 1,158A/Inch3 Current Density

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Hua Chen, Yuanqing Huang, Arijit Raychowdhury

9:50 AM

T09.5 A Concept of Linked Coupled Inductors

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Alexandr Ikriannikov, Xu Huang

10:40 AM

T09.6 A Triple-Path 12V/24V-to-1V GaN-Based Hybrid DC-DC Converter

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Saket Jha, Rafaella Gomes, Hanh-Phuc Le

11:00 AM

T09.7 A PWM Density Adjustment Strategy for Transient Enhancement Applied to Processor Power Supply

Voltage Regulator Modules (VRM)

AUTHORS: Zhenying Sun, Xiaohan Hu, Yijie Qian, Shen Xu, Weifeng Sun

11:20 AM

T09.8 Compensation-Winding-Current-Based Constant On-Time Control of Trans-Inductor Voltage Regulators (TLVRs)

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Shuyu Zhang, Yicheng Zhu, Nathan Biesterfeld, Robert C.N. Pilawa-Podgurski

11:40 AM

T09.9 Two-Phase Patterned-Magnetic-Flux Coupled Inductor for Vertical Power Delivery

Voltage Regulator Modules (VRM)

AUTHORS: Youssef Elasser, Sudhir Kudva, Mostafa Mosa, Rose Abramson, Ahmed Nabih, C. Thomas Gray

8:30 AM – 12:00 PM

T10: Modeling and Control Techniques for Motor Drives

ROOM 214B

SESSION CHAIR

Ziaur Rahman, *Booz Allen Hamilton*

8:30 AM

T10.1 A Complex Vector-Based Uncertainty and Disturbance Estimation Control Strategy for PMSM

Modeling and Control Techniques for Motor Drives

AUTHORS: Yuxiang Xue, Qishui Zhong, Yingzhe Wu, Hengbin Zhang, Xi Liu, Yishan Cai, Lisheng Wang, Hui Li, Xinyu Zhang

8:50 AM

T10.2 Self-Regulating Position Sensor Harmonic Compensation for PMSM Drives

Modeling and Control Techniques for Motor Drives

AUTHORS: Gayan Vimukthi Dissanayake Mudiyanselage, Sandun S. Kuruppu

9:10 AM

T10.3 **Fast Restart Method for Sensorless Vector-Controlled Induction Motors Considering Speed Variation**

Modeling and Control Techniques for Motor Drives

AUTHORS: Hye-Won Kang, Joon-Seok Kim, Joon Hyoung Ryu, June-Seok Lee

9:30 AM

T10.4 **Evaluation of Active Damping Strategies for Mitigating Resonance in Induction Motor-Based EV Traction Drives**

Modeling and Control Techniques for Motor Drives

AUTHORS: Priyanshu Singla, Srikanthan Sridharan

9:50 AM

T10.5 **Investigating the Impact of Stator Winding Configurations on Model Predictive Control for Symmetrical Six-Phase Induction Drives**

Modeling and Control Techniques for Motor Drives

AUTHORS: João Serra, Hugo R.P. Antunes, Fernando Bento, António João Marques Cardoso

10:40 AM

T10.6 **PLL-Based MRAO for Sensorless Vector Control of Stand-Alone and Grid-Connected DFIG**

Modeling and Control Techniques for Motor Drives

AUTHORS: Ramu Nair, Narayanan G

11:00 AM

T10.7 **Copper-Loss Optimizing Control Considering Rotor Temperature of a Wound Field Synchronous Motor**

Modeling and Control Techniques for Motor Drives

AUTHORS: Han-Vit Kim, June-Hee Lee, June-Seok Lee

11:20 AM

T10.8 **Deadbeat Predictive Current Control of a Multilevel Self-Voltage-Balanced GaN HEMTs Based Drive for Coreless Axial Flux PM Propulsion Motors in Hydrogen-Electric Aircraft**

Modeling and Control Techniques for Motor Drives

AUTHORS: Xuli Quan, Md Mohidul Islam, Farzad Yaghoobi Notash, Seongho Shon, Jiangbiao He, Hui Li

11:40 AM

T10.9 **Online Reinforcement Learning Torque Controller for Electrical Motor Drives**

Modeling and Control Techniques for Motor Drives

AUTHORS: William Moreira, Bruno Lahm, Paulo Silva, Rodrigo Vieira, Cassiano Rech

8:30 AM – 12:00 PM

T11: High Performance Inverter Topologies and Design

ROOM 214C

SESSION CHAIRS

Qingyun Huang, *University of Missouri*

Liwei Zhou, *The University of Texas at Arlington*

8:30 AM

T11.1 **Design of a Load-Independent Class-Φ2 Inverter with Ultra-Large Constant-Voltage-Output Range**

Single and Multi-Phase Inverters

AUTHORS: Hongjie Peng, Ziheng Liu, Ju Gao, Jiayin He, Chengkang Ao, Jinyan Wang, Yong Xie

8:50 AM

T11.2 **Ultra Compact Eleven-Level Single-Phase Stacked T-Type Inverter Enabled by a Solid-State Multi-Terminal Bidirectional Switch**

Multilevel Inverters

AUTHORS: Theofilos Moraitis, Georgios Kampitsis

9:10 AM

T11.3 **Design Optimization of a Bidirectional Single-Inductor Multiple-Output (SIMO) DC-AC Converter**

Bidirectional Converters (DC-AC Focus)

AUTHORS: Chuyue Ji, Jiayang Wu, Albert Ting Leung Lee, Siew Chong Tan, Shu Yuen Ron Hui

9:30 AM

T11.4 **A Low Device Count Three-Terminal Active Capacitor with Low-Side Design for Effective Second-Harmonic Ripple Suppression**

Single and Multi-Phase Inverters

AUTHORS: Sagar De, Siva Prabhakar, Sandeep Anand

9:50 AM

T11.5 Class-Er Inverter: High-Frequency Inverter with Varicap-Based Lossless Voltage-Stress Reduction

Single and Multi-Phase Inverters

AUTHORS: Wenqi Zhu, Yinchen Xie, Ayano Komanaka, Yutaro Komiyama, Xiuqin Wei, Hirotaka Koizumi, Hiroo Sekiya

10:40 AM

T11.6 Comprehensive Design Strategy for High Performance DC/AC and AC/DC Flying Capacitor Multilevel Converters

Multilevel Inverters

AUTHORS: Logan Horowitz, Robert C.N. Pilawa-Podgurski

11:00 AM

T11.7 100kW 3-Phase ARCP Soft Switched SiC (S2SiC) Inverter: Design and Verification

Single and Multi-Phase Inverters

AUTHORS: Yushi Yang, Nan Lin, Yuheng Wu, Dongyu Jin, Muhammad Fasih Uddin, Zack Wehri, Brij Singh, Long Wu, Yue Zhao

11:20 AM

T11.8 Design and Experimental Validation of a 27.12 MHz GaN Class-E Inverter with Multi-Resonant Networks

Single and Multi-Phase Inverters

AUTHORS: Azuma Uchida, Kai Machizawa, Kazuki Tanaka, Xiuqin Wei

11:40 AM

T11.9 Single-Stage Isolated Bidirectional Current-Fed Modular Multilevel DC-AC Converter for High Step Ratio Applications

Bidirectional Converters (DC-AC Focus)

AUTHORS: Flavio Ramos, Philippe Gray, Khai Huynh

8:30 AM – 12:00 PM

T12: SiC Devices

ROOM 214D

SESSION CHAIRS

Fletcher Fleming, *Leonardo DRS*

Daniel Drews, *Leonardo DRS*

8:30 AM

T12.1 Enhancement of Thermal Reliability for SiC MOSFET Based on Active Gate Driver

GaN and SiC Devices and Modules

AUTHORS: Zhiwei Yang, Ruya Song, Shuang Zhao, Helong Li, Yipu Wang, Yuhu Wu, Lijian Ding

8:50 AM

T12.2 Body-Diode Reliability Characterization of Silicon Carbide MOSFETs Toward a Degradation-Insensitive Online Junction Temperature Monitoring

WBG Integration and Reliability

AUTHORS: Purushottam Khadka, Zheyu Zhang, Christopher Edrington

9:10 AM

T12.3 Technique for the Accurate Measurement of Average dv/dt of SiC MOSFET

WBG Integration and Reliability

AUTHORS: Aditya Aman, Abhishek Chanekar, Sandeep Anand, Abhinav Arya, Mohd Ismail, Anant Agarwal

9:30 AM

T12.4 Dynamic Voltage Balancing in Series-Connected SiC MOSFETs: AI-Assisted Impact Quantification of Device Parameters Variation

GaN and SiC Devices and Modules

AUTHORS: Hamood Ur Rehman, Yue Zhao, Xiaoqing Song

9:50 AM

T12.5 A Simplified and Low-Cost Voltage Balancing Control Method for Series-Connected SiC MOSFETs

GaN and SiC Devices and Modules

AUTHORS: Xianglai Zeng, Hamood Ur Rehman, Daixin Chen, Yue Zhao, Xiaoqing Song

10:40 AM

T12.6 Design Considerations for SiC Power Module Paralleling

GaN and SiC Devices and Modules

AUTHORS: Zhongjie Wang, Lingxiao Xue, Xiangqian Zhang

11:00 AM

T12.7 Overvoltage Mitigation with Minimum-Loss Discontinuous PWM in SiC Inverter Systems

WBG Integration and Reliability

AUTHORS: Ji-Soo Park, Kyo-Beum Lee

11:20 AM

T12.8 A High-Speed SiC MOSFET Based Switch Circuit for Fast Transition of Beam Current in Electron Gun Applications

GaN and SiC Devices and Modules

AUTHORS: Muhammed Yusuf Candan, Samet Kurt, Mustafa Murat Sezer

11:40 AM

T12.9 Uncertainty-Aware Physics-Informed Machine Learning for Remaining Useful Life Prediction of Power Electronic Devices

Power Silicon MOSFETs, BJTs, IGBTs, etc.

AUTHORS: Le Gao, Chaoming Liu, Mingzheng Wang, Kaishuo Li, Jiaming Zhou, Mingxue Huo

8:30 AM – 12:00 PM

T13: Emerging and Diverse Power Electronics Applications

ROOM 217A

SESSION CHAIRS

Jeffery Nilles, *Alpha & Omega Semiconductor*

Juan Rodriguez, *University of Oviedo*

8:30 AM

T13.1 Sunflower: A Small-Size Energy-Efficient Power-Based Solar Tracking System for IoT Devices

Energy Harvesting and Power for IoT

AUTHORS: Shousheng Han, Nan Shi, Yan Lu

8:50 AM

T13.2 A Secure Industrial IoT Power Supply Architecture with Embedded Machine Learning

Energy Harvesting and Power for IoT

AUTHORS: Ba Vu Tran, Mohamed Youssef

9:10 AM

T13.3 Battery-Assisted MPPT Technique and Energy Flow Modulation for Energy Harvesting System Under Low MPP Resistance Condition

Energy Harvesting and Power for IoT

AUTHORS: Hongyuan Lu, Xinjie Yu, Pengcheng Zhang

9:30 AM

T13.4 Wirelessly Powering a Cardiac Pacemaker with a Body-Coupled TENG for Self-Powered Operation and Sensing

Energy Harvesting and Power for IoT

AUTHORS: Bowang Zhang, Xin Xia, Yunlong Zi, Ping Wang, Wei Han

9:50 AM

T13.5 Design of a GaN-Based Two-Stage Full-Bridge 1MHz High-Frequency Electrosurgical Generator

Medical Equipment / Tools

AUTHORS: Ziyue Guo, Xinchun Feng, Feishuang Sun, Yu Dou, Chushan Li, Wuhua Li

10:40 AM

T13.6 Design and Characterization of a 64 MHz Power Amplifier for Continuous Arterial Spin Labeling

Medical Equipment / Tools

AUTHORS: Sida Chen, Aobo Yang, M. Dylan Tisdall, Manuel Taso, Gabor Mizsei, John A. Detre, Lei Gu

11:00 AM

T13.7 Fully Integrated 4-Level Supply Modulator for Digital Envelope Tracking

Other Niche and Emerging Applications

AUTHORS: Hee Sung Lee, Jaekwang Kwon, Hyeongjin Kim, Kyung Pil Jung, Meeran Kim, Kyeongho Yeom, Dongki Kim, Seong-Kyun Kim

11:20 AM

T13.8 An All-Metal-Compatible Induction Cooking System with Double-D Coils

Other Niche and Emerging Applications

AUTHORS: Vandana Rallabandi, Subhajyoti Mukherjee, Clayton Hickey, Burak Ozpineci

11:40 AM

T13.9 Enhancing Reactive Power Compensation Capability for a Single-Stage Indirect Matrix Converter in V2G Applications

AC-DC-AC Applications and Matrix Converters

AUTHORS: Avinash Dornala, Woongkul Lee

8:30 AM – 12:00 PM

T14: Control 2

ROOM 217B

SESSION CHAIRS

Jaber Abu Qahouq, *University of Alabama*

Qing Ye, *Caterpillar Inc*

8:30 AM

T14.1 Action-Aware High Dynamic Control for Double-Clamp ZVS PSR Flyback Converter via Reinforcement Learning

Digital Control-MCUs, DSPs, FPGAs, ASICs

AUTHORS: Li Chen, Minggang Chen, Song Ding, Qinsong Qian, Weifeng Sun

8:50 AM

T14.2 Modeling, Nonlinear Analysis, and Design of LLC Converter Under Digital Impedance Shaping Frequency Adaptation Control

Digital Control-MCUs, DSPs, FPGAs, ASICs

AUTHORS: Dipayan Chatterjee, Santanu Kapat, Indra Narayan Kar

9:10 AM

T14.3 Mid-Point Voltage Control of a Series Half Bridge Converter with GaN Switches in 800V Applications

Control of Power Electronic Converters

AUTHORS: Brent McDonald, Jiawen Fu, Pradeep Shenoy

9:30 AM

T14.4 Influence of Grid-Following Converter Dynamics on Transient Behavior of GFM-GFL Hybrid Systems

Control of Power Electronic Converters

AUTHORS: Haowen Wang, Xionigfei Wang, Ilka Jahn

9:50 AM

T14.5 Adaptive Digital Control Addressing Inductance and Bus Voltage Variation in PFC for Energy Storage Systems (ESS)

Control of Power Electronic Converters

AUTHORS: Marco Torrisi, Sebastiano Messina, Angelo Giordano, Mario Cacciato

10:40 AM

T14.6 Digital Peak Current Mode Controlled Multi-Mode, Multi-Phase, Bidirectional 4-Switch Buck-Boost Converter for Data Centers

Digital Control-MCUs, DSPs, FPGAs, ASICs

AUTHORS: Prajwal Keshava Murthy, Sumit Patil, Shamim Choudhury, Chen Jiang, Sheng-Yang Yu, Bosheng Sun

11:00 AM

T14.7 An Output Voltage Maximizer for Efficiency Improvement in Resonant Switched-Capacitor Converters

Control of Power Electronic Converters

AUTHORS: Emmi Wyttenbach, Haifah Sambo, Yicheng Zhu, Robert C.N. Pilawa-Podgurski

11:20 AM

T14.8 Multi-Objective FCS-MPC with Adaptive Weighting Factors Design for DC-DC Converters

Control of Power Electronic Converters

AUTHORS: Zhengchen Guo, Robert Nelms

11:40 AM

T14.9 Neuro-Spiking–Based Nonlinear Time-Optimal Control for VRM

Current-Mode and Voltage-Mode Control

AUTHORS: Giovanni Dalla Colletta, Federico Iob, Bruno Nanino, Stefano Saggini

8:30 AM – 12:00 PM

T15: Power Conversion for Microgrids

ROOM 217C

SESSION CHAIRS

Jonathan Kimball, *Missouri University of Science and Technology*

Khurram Afridi, *Cornell University*

8:30 AM

T15.1 A Comparative Analysis of Droop Control Methods for Naval Hybrid DC Microgrids Under High-Dynamic Pulsed Loads

Microgrid Systems

AUTHORS: Kerry Sado, Cameron Ball, Emerson Miller, Emad Sadeghi, Adel Nasiri, Enrico Santi

8:50 AM

T15.2 **Seamless Power Transfer of Bidirectional Converters in Microgrids Applications**

Microgrid Systems

AUTHORS: Emanuel Serban, Cristian Lascu

9:10 AM

T15.3 **Model-Free Droop and Reinforcement Learning-Based Voltage Control of Decentralized Inverter-Based Microgrids**

Microgrid Systems

AUTHORS: Daniel Weber, Jarren Lange, Oliver Wallscheid

9:30 AM

T15.4 **Operation of Virtual Oscillator Controlled Power Converters Under Overloads and Faults**

Microgrid Systems

AUTHORS: Sima Azizi Aghdam, Mohammed Agamy

9:50 AM

T15.5 **Distributed Cooperative Control for Multi-Parallel EVs Connected to DC Microgrid: Proposal and Demonstration with a Solar Carport**

Microgrid Systems

AUTHORS: Taito Matsumoto, Koji Shigeuchi, Teck Chiang Goh, Yuu Kawai, Manabu Handa, Kazuhiro Sugimoto

10:40 AM

T15.6 **Analyzing the Effect of Stealth Cyber Intrusions on DC Microgrid Cluster Stability Dynamics**

Microgrid Systems

AUTHORS: Sakshi Sharma

11:00 AM

T15.7 **Cyber Resilient Synchronization of DERs via Hybrid Centralized-Distributed Communication Architecture in a Power Electronics Dominated Grid**

Distributed Energy Systems

AUTHORS: Uzair Asif, Harsha Vardhan Reddy Modugu, Hamza Mansour Al-Hallaj, Mohammad B. Shadmand, Arslan Munir, Sudip Mazumder

11:20 AM

T15.8 **Adaptive Predictive Strategy for Grid-Connected Virtual Oscillator Controlled Inverters**

Microgrid Systems

AUTHORS: Sima Azizi Aghdam, Mohammed Agamy

11:40 AM

T15.9 **Transient and Steady-State Short-Circuit Fault Analysis in Triple Active Bridge DC/DC Converters**

Distributed Energy Systems

AUTHORS: Md Didarul Alam, Iqbal Husain

8:30 AM – 12:00 PM

T16: Wireless Power Technologies

ROOM 217D

SESSION CHAIRS

Omer C. Onar, *Oak Rodge National Laboratory*

Shajjad Chowdhury, *Oak Rodge National Laboratory*

8:30 AM

T16.1 **A New Transmitter Coupling Structure with Inductive-Capacitive Decoupling System for Interoperable Dynamic Wireless Charging**

Wireless Charging

AUTHORS: Ashwaini Goswami, Rakesh Pulletikurthi, Deepak Ronanki, Subbarao Pichuka

8:50 AM

T16.2 **Stability Analysis of Wireless Power Transfer System with Resonant Current RMS Inner Loop Under Communication Failure**

Safety and Reliability

AUTHORS: Yongbin Jiang, Canghui Wang, Zechao Zhou, Ning Wang, Jingrui Liu, Ziheng Xiao, Chengyin Mu, Zhiling Liao, Yi Tang

9:10 AM

T16.3 **Optimization Design of Dual-Layer Coil for Wireless Charging Under Wide Coupling Coefficient Variations**

Wireless Charging

AUTHORS: Yongbin Jiang, Yanbo Wang, Qinlan Wang, Sicheng Wang, Yaohua Li, Zhigang Yao, Zhiling Liao, Lei Yang, Yi Tang

9:30 AM

T16.4 **Multi-Objective Optimization for Constant-Power DWPT Under Mutual and Self-Inductance Drift**

Wireless Charging

AUTHORS: Yihao Wu, Zongyang Zhu, Chenmin Deng, Ziyang Xu, Alex J. Hanson

9:50 AM

T16.5 **Higher Order Harmonics Suppression for GaN-Based High-Power Multilevel Inverter in Wireless Power Transfer Systems**

Wireless Charging

AUTHORS: Yue Wu, Haonan Song, Yucheng Shen, Yuchong Peng, Anthony Calabro, John Wolgemuth, Hua Zhang, Fei Lu

10:40 AM

T16.6 **Reactive Power Analysis of EV Wireless Power Transfer Systems Using Magnetomotive Force and Magnetic Circuit**

Wireless Charging

AUTHORS: Sunghyuk Choi, Jinwook Jung, Jung-Ik Ha

11:00 AM

T16.7 **Physics-Informed Neural Network Based Modeling of Magnetic Couplers for EV Wireless Charging System**

Wireless Charging

AUTHORS: Chang Li, Junjun Deng, Yi Zheng, Mengchen Duang, Shuo Wang

11:20 AM

T16.8 **A 22-kW Three-Phase Wireless Charging System Capable of Independent Phase Control**

Wireless Charging

AUTHORS: Hyeon-Young Lee, Yeon-Jun Park, Min-Seok Chae, Jun-Sik Hwang, Seojin Kim, Hyeon-Gyu Choi, Euihoon Chung

11:40 AM

T16.9 **Real-Time Adaptive ZVS Angle Control in Wireless Power Transfer Systems Based on Simple Voltage Sampling**

Wireless Charging

AUTHORS: Yuzhi Yang, Jiayang Wu, Siew Chong Tan, Shu Yuen Ron Hui

1:30 PM – 5:00 PM

T17: Resonant and Quasi-Resonant DC-DC Converters 1

ROOM 214A

SESSION CHAIRS

Luke Jenkins, *IBM*

David Reusch, *Texas Instruments*

1:30 PM

T17.1 **A 1MHz GaN Synchronous Rectifier Controller with Adaptive Turn-Off Control and Ringing Suppression for High-Frequency LLC Converter in Data Center Applications**

Resonant Converters

AUTHORS: Bin Chen, Linxin Jiang, Yike Fang, Yi Fang, Yuhang Zheng, Longcheng Pi, Jingni Hong, Lian Wang, Yunlong Zheng, Rui Zhang, Kai Huang, Xugang Ke

1:50 PM

T17.2 **Differential Power Processing Using a Multi-Port Piezoelectric Component**

Resonant Converters

AUTHORS: Wentao Xu, Sourav Naval, Jessica Boles

2:10 PM

T17.3 **Simplified Cell-Voltage Balancing Using CLLC Converter as a DC Transformer**

Resonant Converters

AUTHORS: Christos Loukas, Antonios Antonopoulos

2:30 PM

T17.4 **Dynamic Analysis and Control Design of Second-Order Harmonic Active Filters Based on Series-Resonant Converters**

Resonant Converters

AUTHORS: Andrea Cervone, Amin Darvishzadeh, Dražen Dujić

2:50 PM

T17.5 **Optimal Design of a 3-Cell Matrix Transformer for 1-MHz GaN LLC Converter Supporting 400-V/800-V Data Center Systems**

Resonant Converters

AUTHORS: Yifan Chen, Xingyuan Yan, Jialong Dou, Zhiqiang Wang

3:40 PM

T17.6 A Novel Isolated Flying-Capacitor DC-DC Converter with Integrated Magnetics and Hysteretic Capacitor-Balancing Control

Hard- and Soft-Switched

AUTHORS: Pablo M. Gil, Juan Rodríguez, Aitor Vázquez, Juan Ramon García-Meré

4:00 PM

T17.7 ZVS Analysis of 3L-ANPC Based GaN DAB Converter with Non-Unity Voltage Conversion Ratio

Hard- and Soft-Switched

AUTHORS: Yiju Wang, Xin Gao, Jiangbiao He

4:20 PM

T17.8 A Miniaturised 1 kW Three-Phase LLC Converter with Wide Voltage Regulation and Regular Frequency Modulation for Aircraft Applications

Resonant Converters

AUTHORS: Daniel Ríos Linares, Miroslav Vasić

4:40 PM

T17.9 Operational Mode Analysis of the Isolated Three-Phase DC/DC Converter

Hard- and Soft-Switched

AUTHORS: Stefan Subotic, Max Dupont, Ralph Burkart, Thomas Gradinger, Dražen Dujić

1:30 PM – 5:00 PM

T18: Magnetics Modelling

ROOM 214B

SESSION CHAIRS

George Slama, *Wurth Elektronik*

Matt Wlkowski, *Wurth Elektronik*

1:30 PM

T18.1 Partial Discharge Behavior of PET Films Under High dV/dt Stress in Sphere–Plate Tests

High-Frequency Magnetics

AUTHORS: Lukas Reißenweber, Alexander Stadler, Ingo Hahn

1:50 PM

T18.2 Electrical Model and Characterization of Near-Field Antennas for Communications from Induction Cooktop

Magnetics Modeling and Simulations

AUTHORS: Javier Hernandez, Óscar Lahuerta Sediles, Sergio Llorente, Francisco Villuendas, Jesús Acero

2:10 PM

T18.3 Integrated Resonant Structures Using Stray Capacitance of Litz Wire Strands for Resonant Converters

High-Frequency Magnetics

AUTHORS: Pramod Apte, Xiao Yu, Jens Friebe

2:30 PM

T18.4 Modeling of N-Level Current Balancing Transformers for Modular High Power Transformer Winding Building Blocks

High-Frequency Magnetics

AUTHORS: Minh Ngo, Aakash Kamalapur, Dong Dong

2:50 PM

T18.5 Integrated Magnetics Design of a Two-Winding HF Transformer Achieving Load Current-Dependent Variable Leakage Inductance Characteristics

High-Frequency Magnetics

AUTHORS: Annoy Kumar Das, Baylon G. Fernandes

3:40 PM

T18.6 Integrated Planar Transformer with Embedded Zero-Sequence Inductance for Active Power Decoupling in Three-Phase Dual Active Bridge Converters

High-Frequency Magnetics

AUTHORS: Yi Han, Satyam Sa, Olivier Trescases

4:00 PM

T18.7 Split-PCB Planar Inductor Design for High-Density High-Efficiency Power Converters

Winding Techniques

AUTHORS: Ashwini Kumar Dubey, Sayan Paul, Yanghe Liu, Shailesh Joshi, Dragan Maksimović

4:20 PM

T18.8 Analysis of Magnetic Configurations to Enhance DAB Converter Performance Over a Wide Power Range at High Voltage

High-Frequency Magnetics

AUTHORS: Siddhesh Shinde, Gautam Rituraj, Gautham Ram Chandra Mouli, Pavol Bauer

4:40 PM

T18.9 FEA Prediction of Parasitic Capacitance and Common-Mode Current Performance in Planar Transformers

Winding Techniques

AUTHORS: Yu-Chen Liu, Kuan-Yi Chen, Shang-Hsun Wu, Quang-Huy Nguyen

1:30 PM – 5:00 PM

T19: High Density Power Module Design

ROOM 214C

SESSION CHAIRS

Joshua Stewart, *The Aerospace Corporation*

Qing Ye, *Caterpillar Inc*

1:30 PM

T19.1 A 1295W/in3 160A Quad-Phase VPD Module with Flexible Ganging and Multiphysics Optimization for Large-Scale HPC Systems

Power Modules / High Density Design

AUTHORS: Haoyu Wang, Zhoutong Liu, Junxiang Xu, Xuliang Wang, Meng Xiong, Yilong Liu, Xiaodong Li, Jishun Cui, Yan Wang, Xiaosen Liu

1:50 PM

T19.2 Packaging Design for a 20 kV Diamond Photoconductive Semiconductor Switch

Power Electronics Packaging

AUTHORS: Shiyue Deng, Samuel Defaz, Yang Li, Ali Anwar, Abdul Muneeb, Abdul Basit Mirza, Fang Luo

2:10 PM

T19.3 Increasing Power Density in 48V DC-DC Converters Using Vertically Integrated 3D Glass Power Bricks for Data Center Applications

Embedded Technologies, 3D Packaging, and Additive Manufacturing

AUTHORS: Joseph Winkler, Torben Rumpf, Jannik Koch, Marc Wurz, Bernhard Wicht

2:30 PM

T19.4 A High-Density 6kW GaN-Based LLC Converter Module with ±400V Input and 50V Output for Server HV-IBC Application

Power Modules / High Density Design

AUTHORS: Jitai Han, Chuangcheng Li, Yunsheng Qu, Shangkang Huang, Wei Ren Seet

2:50 PM

T19.5 Optimization of GaN-Based High-Current Low-Voltage Two-Stage Converter with Fully 3D Embedded Structure

Embedded Technologies, 3D Packaging, and Additive Manufacturing

AUTHORS: Samuel Defaz, Yang Li, Abdul Muneeb, Raveesh Magod, Xin Zhang, Fang Luo

3:40 PM

T19.6 A Novel 3L-SNPC Power Module for EV Motor Drives

Power Modules / High Density Design

AUTHORS: Siqi Dai, Shuangxi Zhu, Jianwei Lv, Suhang Wei, Xuchen Sun, Cai Chen, Yong Kang, Wei Jiang, Pengyang Wang, Bin Lai

4:00 PM

T19.7 High Power Density Double-Sided Cooled SiC Power Module with Embedded Liquid-Cooled Microcooler

Power Modules / High Density Design

AUTHORS: Cheng Tang, Yujui Lin, Hao Chen, Yu Chen, Man Prakash Gupta, Michael Degner, Mehdi Asheghi, Kenneth Goodson, H. Alan Mantooth

4:20 PM

T19.8 Design & Integration Challenges of High-Power Dense Traction Inverter for Commercial Medium- and Heavy-Duty Vehicles

Power Electronics Packaging

AUTHORS: Santhosh Krishnamoorthi, Jaroslaw Leonarski, Sneha Padaki, Dakshina Murthy-Bellur, Gabriel Tenaglia, Zachary Gheaja

4:40 PM

T19.9 A Method to Balance Thermal Distribution of Paralleled Press-Pack IGBTs Based on Gradient Copper-Molybdenum Alloy Ratio Layout

Power Electronics Packaging

AUTHORS: Suhang Wei, Jiaxin Liu, Weishan Lv, Yuan Zhang, Siqi Dai, Xuchen Sun, Cai Chen, Yong Kang, Wei Jiang, Pengyang Wang, Bin Lai

1:30 PM – 5:00 PM

T20: On-Board and Off-Board Charging Systems

ROOM 214D

SESSION CHAIRS

Xiaoyan Liu, *Tesla*

Sandeep Anand, *Indian Institute of Technology Bombay*

1:30 PM

T20.1 Power Gyrator for EV Charging Applications

On-board and Off-board Charging Systems

AUTHORS: Luis Ruiz Chamorro, Nikola Mirković, Miroslav Vasić

1:50 PM

T20.2 **A New Multi-Functional Non-Isolated Battery Charger with Predictive Current Control for Future Electrified Transportation Applications**

On-board and Off-board Charging Systems

AUTHORS: Preetha Philip, Deepak Ronanki

2:10 PM

T20.3 **Isolated Single-Stage, Single-Phase AC-DC Rectifier for EV On-Board Chargers with Totem-Pole PFC, Secondary-Side Resonance, and Magnetic Integration**

On-board and Off-board Charging Systems

AUTHORS: Koji Shigeuchi, Takuya Mizuno, Masanori Ishigaki

2:30 PM

T20.4 **800 V On-Board Charger with Reduced DC-Link Capacitance via Embedded Active Power Decoupling**

On-board and Off-board Charging Systems

AUTHORS: Qishan Pan, Guanjiang Liu, Dejun Zhang, Haoyu Wang

2:50 PM

T20.5 **Novel Concept of Universal Onboard Charger Applicable for DC and AC Grids**

On-board and Off-board Charging Systems

AUTHORS: Oleksandr Husev, Mohammad Mehdi Kashani, Gerald Deboy, Parham Mohseni, Matthias Kasper, Jacek Rabkowski

3:40 PM

T20.6 **PCB-Based Integrated Matrix Transformer and the Novel Application of Circular Orthogonal Parallel Airgaps for 11kW On-Board Chargers**

On-board and Off-board Charging Systems

AUTHORS: Anthony Buchman, Tianlong Yuan, Tianyi Jiang, Qiang Li

4:00 PM

T20.7 **Analysis and Control of Third-Harmonic Current Injection Based On-Board Charger Under Unbalanced Grid Conditions**

On-board and Off-board Charging Systems

AUTHORS: Chandrima Chatterjee, Adnan Khan, Soumya Shubhra Nag

4:20 PM

T20.8 **Pareto-Optimal Design Method for DAB Converter Considering Balanced Performance Across Wide Operating Ranges**

On-board and Off-board Charging Systems

AUTHORS: Taegyu Ryu, Euihoon Chung

4:40 PM

T20.9 **Paralleling Partial Power DC-DC Converters for Ultra-Fast Charging of Electric Vehicles**

On-board and Off-board Charging Systems

AUTHORS: Aabid Ahmad Dar, Vishnu Mahadeva Iyer

1:30 PM – 5:00 PM

T21: Modeling and Simulation: Circuits & Systems; Parasitics Extraction & Optimization; and Software Tools

ROOM 217A

SESSION CHAIRS

Adam Skorek, *University of Québec at Trois-Rivières*

Karun Potty, *Lucid Motor*

1:30 PM

T21.1 **A-Star Algorithm-Based Automated Routing for Multilayer PCB**

Circuits and Systems

AUTHORS: Chanhee Park, Kyeongpil Kim, Jeongwoo Son, Gyunghoon Park, Seung-Hwan Lee

1:50 PM

T21.2 **A Mathematical Framework for Quantifying DC Capacitor Utilization in Resonant Converters**

Circuits and Systems

AUTHORS: Sayed Amir Hashemi, Arsalan Rasoolzadeh, Majid Pahlevani

2:10 PM

T21.3 **A Machine Learning Based Approach of Estimating Equivalent Circuit Model Parameters at Different SoCs of Li-Ion Batteries from Voltage Relaxation**

Circuits and Systems

AUTHORS: Md. Samiul Islam Sagar, Md Nahid Islam, Jaber Abu Qahouq

2:30 PM

T21.4 Non-Linear Discrete Time Modeling of a 1 MHz Dual Active Bridge Converter

Circuits and Systems

AUTHORS: Naveed Ishraq, Writtik Dutta, Ayan Mallik, Saikat Dey, Changkyu Bai

2:50 PM

T21.5 Modeling the Electric and Magnetic Near-Field Emissions from SiC-Based Half-Bridge Converters

Circuits and Systems

AUTHORS: Jeet Panchal, Mamoru Sasaki, Tim Thacker, Majid Manteghi, Dong Dong, Rolando Burgos

3:40 PM

T21.6 Voxel-Based Implicit Solver for Automated Electro-Thermal Simulation

Software Tools

AUTHORS: Xianghao Mo, Daniel Ríos Linares, Regina Ramos, Gabriel Luis Maldonado Roldán, Miroslav Vasić

4:00 PM

T21.7 Current–Temperature–Resistance Modeling and Conversion Loss Sharing Methodology for Optimized Efficiency and Thermal Distribution in Large-Scale HPC Power Delivery Networks

Parasitics Extraction and Optimization

AUTHORS: Haoyu Wang, Zhoutong Liu, Junxiang Xu, Xuliang Wang, Meng Xiong, Yilong Liu, Xiaodong Li, Jishun Cui, Yan Wang, Xiaosen Liu

4:20 PM

T21.8 Parasitic Extraction for Multichip Power Modules Using the Frequency-Domain A-Phi Formulation

Parasitics Extraction and Optimization

AUTHORS: Peng Han, Jingchen Liang, Pavani Gottipati

4:40 PM

T21.9 A Flexible Framework for Fully Automated SMPS Characterization

Software Tools

AUTHORS: Wolf Hübner, Burkhard Ulrich

1:30 PM – 5:00 PM

T22: Gate Driver Circuits

ROOM 217B

SESSION CHAIRS

Zheyu Zhang, *Technical University of Iași*

Narayan Kar, *University of Windsor*

1:30 PM

T22.1 An Ultra Compact RGB LED Driver with Only One Off-Chip Component, 97.25% Peak Efficiency, and Nearly Full-Range Color Gamut Coverage

Control ICs

AUTHORS: Wangkang Lan, Caiyu Tong, Yuan Gao

1:50 PM

T22.2 Double-Pulse Test Circuit for Four-Quadrant Characterization and Dynamic ON-Resistance Evaluation of Monolithic Bidirectional GaN Switches

Gate Drive Circuits and Fault Protection

AUTHORS: Hande Kong, Hyeongmeen Baik, Jinia Roy

2:10 PM

T22.3 A Temperature-Tolerant, Ultrafast Fault Protection Scheme for GaN HEMTs with PCB-Integrated Rogowski Coil Current Sensors

Gate Drive Circuits and Fault Protection

AUTHORS: P. T. Nandh Kishore, Soumya Shubhra Nag, Sumit Kumar Pramanick

2:30 PM

T22.4 Method for Determining Switching Timing of Gate Drive Current of Active Gate Driver to Maximize Turn-Off Loss Reduction Under Fixed Vds Overshoot Condition in SiC MOSFETs

Gate Drive Circuits and Fault Protection

AUTHORS: Yohei Sukita, Toshiaki Inuma, Michihiro Ide, Kenichi Morokuma, Yukihiko Wada, Yuta Yamaoka, Yasushige Mukunoki, Makoto Takamiya

2:50 PM

T22.5 Single-Step Dead Time Optimization Based on Gate-Source Voltage Sensing

Gate Drive Circuits and Fault Protection

AUTHORS: Hongming Zhao, Krishang Agarwal, Joachim Joos, Valentijn De Smedt

3:40 PM

T22.6 A Novel Signal-Power Integrated Gate Driver Design for Mv SST Applications

Gate Drive Circuits and Fault Protection

AUTHORS: Junwei Liu, Wenjie Xu, Taiming Chen, Yi Zhang, Shu-Hung Henry Chung

4:00 PM

T22.7 A Self-Regulating Gate Driver with Low-Voltage MOSFETs for Switching Overshoot Suppression of SiC MOSFET

Gate Drive Circuits and Fault Protection

AUTHORS: Changwei Lei, Hengyu Wang, Zixuan Zheng, Chengyuan Zhou, Xuanyu Jin, Kuang Sheng

4:20 PM

T22.8 An Improved Gate Drive Methodology for Stacked GaNFETs in a Radiation-Tolerant High-Voltage Bidirectional Pulser

Gate Drive Circuits and Fault Protection

AUTHORS: Robert E. Bolaños, Reynaldo S. Gonzalez

4:40 PM

T22.9 Active Gate Driver with Controllable Drain-to-Gate Capacitive Coupling for Voltage Overshoot Reduction in SiC MOSFETs

Gate Drive Circuits and Fault Protection

AUTHORS: Niklas Falkenberg, Martin Pfost

1:30 PM – 5:00 PM

T23: Design and Control of High Power Converters

ROOM 217C

SESSION CHAIRS

Sheldon Williamson, *Ontario Tech University*

Dong Dong, *Virginia Tech*

1:30 PM

T23.1 Submodule-Level Decentralized Control for Cascaded Quadruple Active Bridge-Based Medium-Voltage Converters

Solid-State Transformers

AUTHORS: Bowen Yang, Vikram Roy Chowdhury, Soham Dutta, Satish Tadala, Manish Tathode, Brian Johnson, Luca Corradini, Dragan Maksimović, Gab-Su Seo

1:50 PM

T23.2 Operational Analysis and Control of a Multi-Port Solid-State Transformer

Solid-State Transformers

AUTHORS: Zhen Huang, Marcus Vieira Soares, Thomas Langbauer, Roberto Petrella, Michael Hartmann

2:10 PM

T23.3 2kV SiC Full-Bridge Converter Power Stage Design for Sst-Based Extreme Fast Chargers

Solid-State Transformers

AUTHORS: Tohfa Haque, Wensong Yu, Srdjan Lukic

2:30 PM

T23.4 A Novel Chb+Mab Based Solid-State Transformer Architecture for Fast Charging EV Grids

Solid-State Transformers

AUTHORS: Siddhi Kadam, João Victor Guimarães França, Isaak Christou, Milan Van de Zanden, Levy Ferreira Costa

2:50 PM

T23.5 Multi-Port Operation of Modular Bridge Rectifier Solid-State Transformer with Integrated Medium-Voltage Energy Storage

Solid-State Transformers

AUTHORS: Zhenchao Li, Giacomo Andrioli, Dražen Dujić

3:40 PM

T23.6 Analysis of the Voltage and Power Sharing of an ISOP-Based LLC Resonant DCX Converters for Solid-State Transformer Systems

Solid-State Transformers

AUTHORS: Samuel S. Queiroz, Levy Ferreira Costa

4:00 PM

T23.7 PCB-Embedded MHz Wireless Power Transfer Auxiliary Power Supply with Solid Dielectric Insulation for 34 kV Systems

Solid-State Transformers

AUTHORS: Abhinav Soni, Rolando Burgos, Dong Dong

4:20 PM

T23.8 Multilevel Step-Up DC–DC Converter for Direct Interfacing of Offshore Wind Turbine to HVDC Grid: Modal Analysis and Experimental Validation

FACTs Devices and HVDC

AUTHORS: Shibaji Basu, Praveen Jain

4:40 PM

T23.9 Multiport LLC-Based Interphase Solid-State Transformer Architecture

Solid-State Transformers

AUTHORS: João Victor Guimarães França, Milan Van de Zanden, Levy Ferreira Costa

1:30 PM – 5:00 PM

T24: Wireless Energy Systems – High Frequency

ROOM 217D

SESSION CHAIRS

Sounak Maji, *Texas Instruments*

Erdem Asa, *Oak Rodge National Laboratory*

1:30 PM

T24.1 A Synchronous Rectification Method for Optimal Switching of GaN-Based Inductive Power Transfer Systems

Wireless Charging

AUTHORS: Israel Yepez Lopez, Jiasheng Huang, Dražen Dujić

1:50 PM

T24.2 A 1kW, 6.78MHz GaN Series-Series WPT Using 3D Packaging for Low Parasitic and Thermal Integration Achieving 2kW/in³

Wireless Charging

AUTHORS: Saurabh Kale, Niklas Deneke, Bernhard Wicht

2:10 PM

T24.3 A Novel Frequency Control Approach for Wide Power Regulation and Full-Range ZVS in Wireless Battery Charging Systems

Wireless Charging

AUTHORS: Gangwei Zhu, Jiayang Wu, Siew Chong Tan, Shu Yuen Ron Hui

2:30 PM

T24.4 A High-Power Compact Capacitive WPT System for EV Charging

Wireless Charging

AUTHORS: Raquel Sarabia-Soto, Dheeraj Etta, Syed Saeed Rashid, Khurram K. Afridi

2:50 PM

T24.5 Modeling and Optimization of MHz Self-Resonant Planar Coil for Wireless Power Transfer

Wireless Charging

AUTHORS: Ghovindo Siadari, Jungwon Choi

3:40 PM

T24.6 A 6.78-MHz kW-Level Capacitive Wireless Power Transfer System Utilizing Low-Loss Optimized Hollow Cylindrical Wire Based Inductors

Wireless Charging

AUTHORS: Asif Mushtaq Bhat, Ayush Dixit, Sreyam Sinha

4:00 PM

T24.7 A 6.78-MHz kW-Level 15-cm Air-Gap Misalignment-Tolerant Capacitive Wireless Power Transfer System for EV Charging Employing Roadway-Vehicle DC-DC Converters

Wireless Charging

AUTHORS: Asif Mushtaq Bhat, Ayush Dixit, Sreyam Sinha

4:20 PM

T24.8 A Scalable Dynamic Capacitive Wireless Power Transfer System Architecture

Wireless Charging

AUTHORS: Ben Liao, Dheeraj Etta, Khurram K. Afridi

4:40 PM

T24.9 Machine Learning Enabled Position Detection for 6.78 MHz UAV Wireless Power Transfer System

Wireless Charging

AUTHORS: Kerim Colak, Erdem Asa

8:30 AM – 11:55 AM

▸ PSMA SESSION ◂

IS07: Beyond Silicon: Integrated Wide Bandgap Power Solutions for Next-Generation Systems

ROOM 206

SESSION CHAIRS

Renee Yawger, *iDEAL Semiconductor*

Peter Di Maso, 8:30 AM

IS07.1 Utilizing D³GaN Capabilities to Optimize Automotive Traction Inverter Performance and Costs in Electric Vehicles
Hans Winter, *VisIC Technologies Austria GmbH*

8:55 AM

IS07.2 Accelerating GaN Adoption in Motor Drives with Monolithic ICeGaN™ Integration
Di Chen, *Cambridge GaN Devices*

9:20 AM

IS07.3 A Novel Three-Phase Power Micro-Module for Robotic Hands
Marco Palma, *Efficient Power Conversion*

9:45 AM

IS07.4 Enabling High-Temperature Applications with Monolithic GaN IC Modules
David Czajkowski, *MinDCet NV*

10:40 AM

IS07.5 1250 V and 1700 V GaN Solutions for 800 VDC AI Data Centers
Andy Smith, *Power Integrations*

11:05 AM

IS07.6 High-Power GaN ICs Deliver Leading Efficiency and Power Density in 800V AI Data Center DC-DC Brick Solutions
Llew Vaughan-Edmunds, *Navitas*

11:30 AM

IS07.7 Maximizing GaN Benefits Through Integration
John Gomez, *Texas Instruments*

8:30 AM – 11:55 AM

▸ PSMA AND PELS JOINT SESSION ◂

IS08: AI Tools for More Efficient Power Electronics Design

ROOM 207

SESSION CHAIRS

Kevin Hermanns, *PE-Systems GmbH*

Stephanie Watts Butler, *WattsButler LLC*

Jaume Roig, *onsemi*

8:30 AM

IS08.1 Repurposing Power Electronics into an AI Reservoir Model
Subham Sahoo, *Aalborg University*

8:55 AM

IS08.2 Charting the Future: A Taxonomy of AI -Driven Power Electronics
Joao Pereira Pinto, *ORNL*

9:20 AM

IS08.3 AI-Enabled Prototyping and Experimental Validation of Hybrid Energy Systems
Zahra Saadatizadeh, *Mississippi State University*

9:45 AM

IS08.4 AI in Power Electronics Development and Operation
Nima Tashakor, *Volkswagen*

10:40 AM

IS08.5 AI at the Edge: Resource-Constrained Reinforcement Learning for Real-Time Control in Power Electronics
Christian Schumann, *University of Applied Sciences Kaiserslautern*

11:05 AM

IS08.6 Temporal Modeling for Proactive Reliability in Power Electronic Architectures
Varaha Satya Bharath Kurukuru, *Silicon Austria Labs*

11:30 AM

IS08.7 Physics-Informed Machine Learning for Power Electronics Design
Xinze Li, *University of Arkansas*

8:30 AM – 11:55 AM

IS09: Simulation and Modelling of Power Electronics

ROOM 210

SESSION CHAIRS

Harry Soin, *AEI*

Richard Chung, *ST Microelectronics*

8:30 AM

IS09.1 Accelerating BLDC Motor Drive Design Using Analog & Digital Co-simulation
Lei Han, *Qorvo*

8:55 AM

IS09.2 Multi-Physics Transient Simulation Approach for Current Capability Assessment of Power Modules
Ludovica Longo, *Nexperia*

9:20 AM

IS09.3 Advanced HIL Validation of High Frequency DC/DC Resonant and Single-Stage Matrix Converters
Bryan Lieblick, *Plexim*

9:45 AM

IS09.4 Validating 3D FEM Simulations with Measurements – The Case of Gapped Core and Multi-turn/Litz Wires
Juris Vencels, *TRAFOLO Engineering*

10:40 AM

IS09.5 Simulation and Rapid Prototyping of Current Mode Controllers Implemented using MCUs
Jeroen Buitendijk, *Plexim*

11:05 AM

IS09.6 Reduced-Order Magnetics Modeling: Accelerating Power Electronics Design with FEA Insights
Nikos Dimitrakopoulos, *Altair Engineering*

11:30 AM

IS09.7 Implementation of EOSS in PLECS Models for Accurate Loss Predictions in Soft-Switching Applications
Blake Nelson, *Wolfspeed*

8:30 AM – 11:55 AM

IS10: Power Supplies for AI Servers

ROOM 205

SESSION CHAIRS

Jitendra Agrawal, *Apple*

Sam Abdel-Rahman, *Infineon Technologies America*

8:30 AM

IS10.1 AI Server and Rack Scale Power Loss Analysis
Pavan Kumar, *Intel Corporation*

9:20 AM

IS10.2 Improving Transient Performance on Server and AI Applications
Jose Luis Silva, *Monolithic Power Systems (MPS)*

9:45 AM

IS10.3 Significance of Precise Power Measurement for Data Center Energy Efficiency
Patrick Fuchs, *ZES ZIMMER Electronic Systems GmbH – A Rohde & Schwarz Company*

10:10 AM

IS10.4 Hardware Evaluation of Non-Isolated DC/DC Converters for High-Voltage Power-Backup-Units (PBUs) in AI Datacenter Applications
Sriram Jagannath, *Infineon Technologies Austria AG*

10:40 AM

IS10.5 12kW Power Supply for AI Server and Data Center Applications with 113 W/in3 and Grid Shaping Function
David Meneses, *Infineon Technologies*

11:05 AM

IS10.6 16kW Three-Phase PSU for AI Server and Data Center Applications with Energy Buffer
David Meneses, *Infineon Technologies*

11:30 AM

IS10.7 High Voltage Hot Swap Circuit Design to Enable 400V / 800VDC Data Center Power Delivery
Josh Mandelcorn, *Texas Instruments*

8:30 AM – 11:55 AM

▸ PSMA SESSION ◂

IS11: Overcoming Technical and Manufacturing Challenges to Meet Market Demands

ROOM 212

SESSION CHAIRS

George Slama, *Wurth Elektronik*

Ed Herbert, *PSMA Independent Inventor*

Matt Wilkowski, *Würth Elektronik*

8:30 AM

IS11.1 Design and Validation of a Medium-Voltage Dual Active Bridge Transformer: Fixing Multiple Design Challenges
Nicola Rosano, *Standex*

8:55 AM

IS11.2 3D Printing to Fabricate Bobbins and Other Passive Components
Peter Weiner, *NORWE*

9:20 AM

IS11.3 The Hidden Challenges of Design Transformers for Dual Active Bridge Systems
Marcin Kącki, *Hitachi Energy*

9:45 AM

IS11.4 Low-Power and High-Power Transformer Solutions to Support the Power Delivery Network for AI in Data Centers
Claudio Canete-Cabeza, *Würth Elektronik Midcom*

10:40 AM

IS11.5 Chanllenge in Implementing Automation & Robotics in Magnetics Manufacturing.
Martin Kuo, *ITG Electronics*

11:05 AM

IS11.6 Voltage Rating of Metal Alloy Molded Inductors
David Ruiz Gomez, *Würth Elektronik eiSos*

11:30 AM

IS11.7 Customizable Magnetic Components for Next-Generation Power Electronics Using Nanocrystalline Flake Ribbon
Xinru Li, *CBMM*

8:30 AM – 11:55 AM

IS12: EV Power System Design Challenges

ROOM 213

SESSION CHAIRS

Francesco Di Domenico, *Infineon Technologies*

Davide Giacomini, *Infineon*

8:30 AM

IS12.1 Single-stage converter with CoolGaN Bidirectional switch, a paradigm shift of EV on-board charger solutions
Yang Jiao, *Infineon Technologies Americas Corp.*

8:55 AM

IS12.2 Understanding the Transition from 12V to 48V Low Voltage Rail for Automotive Systems
Madison Ecklund, *Texas Instruments*

9:20 AM

IS12.3 Half the Cost, Full Performance: Innovative Approaches to EV On-Board Charger Design
Wesam Taha, *Schaeffler*

9:45 AM

IS12.4 Design and Implementation of a Bidirectional 11 kW CLLC Converter Using Smart SiC Switches for Automotive Applications
John MORRIS, *Automotive Electrification at Analog Devices, Inc.*

10:40 AM

IS12.5 EV Efficiency Optimization through 15-Level Static and Dynamic Gate Drive Technologies for Driving Cycle
Luowei Wen, *Texas Instruments*

11:05 AM

IS12.6 Automotive Power Modules: Packaging Choices and Cost Trade-offs
Amine Allouche, *Yole Group*

11:30 AM

IS12.7 Cybersecurity of Public EV-Charging Infrastructure: Lessons from 80,000 Stations in Germany and Implications for the U.S.
Patrick Rempel, *Harz University of Applied Sciences*

1:30 PM – 4:55 PM

▸ PSMA SESSION ◂

IS13: New Era of Power Technologies, Devices, Topologies and Applications

ROOM 205

SESSION CHAIRS

Karthick Murukesan, *Power Integrations*

Davide Giacomini, *Infineon*

1:30 PM

IS13.1 Reverse Recovery Revisited for Wide-Bandgap Power transistors

Eric Persson, *Infineon Technologies Americas Corp*

1:55 PM

IS13.2 Leap Ahead with GaN Bidirectional Switches

Davide Bisi, *Renesas*

2:20 PM

IS13.3 Advancements in SiC Power Devices: Device Design Roadmap to Next-Generation Energy and AI Applications

Shesh Mani Pandey, *Microchip*

2:45 PM

IS13.4 1250 V GaN HEMTs for High-Voltage AI Datacenter Architecture

Kamal Varadarajan, *Power Integrations*

3:40 PM

IS13.5 GaN High Power Modules – next level in Efficient & Ecological BEV Inverter Applications

Hans Winter, *VisIC Technologies Austria GmbH*

4:05 PM

IS13.6 Next Generation Inductive Isolation Based Solid State Relays Open New Electronic Switching Applications

Srivatsa Raghunath, *Infineon Technologies*

4:30 PM

IS13.7 Benefits of Integrated ZCD / ZVD Feature in GaN Devices for Triangular Current Mode (TCM) Totem Pole PFC

Subhransu Satpathy, *Texas Instruments*

1:30 PM – 4:55 PM

IS14: Power Circuit Design for Emerging Applications

ROOM 206

SESSION CHAIRS

Sudhakarababu Chakkirala, *Power Integrations*

Kamal Varadarajan, *Power Integrations*

1:30 PM

IS14.1 An Anti-Magnetic Tampering Quasi-Resonant Flyback SMPS for Energy Metering Applications

Neil Kenneth Mendoza, *Power Integrations*

1:55 PM

IS14.2 High Voltage Data Center AC-DC Trade Offs

Brent McDonald, *Texas Instruments*

2:20 PM

IS14.3 Design of a GaN-Based Single-Switch Forward Converter with a Loss-Less Passive Reset for Aerospace Applications

John Dorosa, *Texas Instruments*

2:45 PM

IS14.4 High Efficient Bidirectional GaN Based Single Stage Microinverter

Marco Ruggeri, *Renesas*

3:40 PM

IS14.5 How to Design an Efficient and Cost Effective 300W Micro DC/DC Converter with Secondary Side Regulation for Automotive Applications

Sean Xu, *Texas Instruments*

4:05 PM

IS14.6 A SiC-Based 33kW Bi-directional Single Phase ANPC Converter with High Efficiency

Julius Rice, *Wolfspeed*

4:30 PM

IS14.7 Design of AC-DC Matrix Converters with Bidirectional GaNs for OBC Applications

Sean Xu, *Texas Instruments*

1:30 PM – 4:55 PM

IS15: Tools and Automation for Design and Testing

ROOM 210

SESSION CHAIRS

Anuj Narain, *Wolfspeed*

Adam Anders, *Cyient Semiconductor*

1:30 PM

IS15.1 Design and Optimization of an Automated Double-Pulse-Test Setup for WBG Power Devices with Self-Adjusting Deskew
Yifu Zhang, *Infineon Technologies*

1:55 PM

IS15.2 Verifying Traction Inverter Robustness Against Manufacturing Tolerances Using Motor Emulation
Matthew Hortop, *AVL Test Systems, Inc.*

2:20 PM

IS15.3 Automated Calibration Framework for Double Pulse Testing of WBG Devices
Vivek Shivaram, *Tektronix Inc*

2:45 PM

IS15.4 AI-Driven Parasitic Filtering of Shunt Current Measurement for WBG Characterisation
Vivek Shivaram, *Tektronix Inc.*

3:40 PM

IS15.5 Mitigating Extra Eddy Currents Losses in HF Transformers' Aluminium Housing: A Physical-Based Study with Thermal Analysis
Michael Dunleavy, *Bourns Electronics*

4:05 PM

IS15.6 Hot Topic: Intuitive Semiconductor Thermal Loss Estimation for System-Level Design
Kristofer Eberle, *Plexim, Inc.*

4:30 PM

IS15.7 Lessons Learned Converting High-Fidelity Switching Models of Resonant Converters into AI-Based Reduced Order Models for System-Level Simulations
Rafael Sánchez Garciarivas, *Siemens*

1:30 PM – 4:55 PM

IS16: Power Converter Circuits and Topologies

ROOM 207

SESSION CHAIRS

Puneet Sareen, *Texas Instruments*

Sasikala Thangam, *Texas Instruments*

1:30 PM

IS16.1 High Efficiency and High Density 3.3kW Server GaN PSU Based on Auxiliary Resonant Commutated Pole Totem Pole PFC
David Meneses, *Infineon Technologies*

1:55 PM

IS16.2 Understanding Inductor and Flyback Transformer Datasheet Specifications and Characteristics
Andres Arias, *Premier Magnetics*

2:20 PM

IS16.3 Bidirectional GaN Switch Half Bridge Building Block for Next Generation Power Converters
Satyajit Simhadri, *Renesas*

2:45 PM

IS16.4 Optimized Component Selection for Multi-Stage Power Conversion Systems
Juan Rosales, *Altair*

3:40 PM

IS16.5 Compact GaN-Based 5 kW Four-Level Totem-Pole PFC Converter
Marco Palma, *Efficient Power Conversion*

4:05 PM

IS16.6 A CCM/TCM Multi-mode Controlled Totem-pole Bridgeless PFC
Bosheng Sun, *Texas Instruments*

4:30 PM

IS16.7 Achieving High Power Factor, Low THD, Single-Stage Design with Low Output Ripple Using Switched Valley Fill Flyback Topology
Donnie Saturno, *Power Integrations*

1:30 PM – 4:55 PM

IS17: Markets and Technology Evolution

ROOM 212

SESSION CHAIRS

Elisabetta Mahmutovic, *Analog Devices*

Dinesh Kithany, *Wired & Wireless Technologies (WAWT)*

1:30 PM
IS17.1 Power Architecture evolution in Datacenters
Pietro Scalia, *Renesas*

1:55 PM
IS17.2 From SiC Adoption to Supply Chain Realignment: The Future of Power Electronics for xEVs
Milan Rosina, *Yole Group*

2:20 PM
IS17.3 Evolution of Higher Power Racks – Path to 1MW and Beyond
Harry Soin, *Advanced Energy*

2:45 PM
IS17.4 Safeguarding Your Valuable IP: Protecting AI Innovations and Innovations Developed with the Assistance of AI
Mark Rawls, *Rothwell, Figg, Ernst & Manbeck, P.C.*

3:40 PM
IS17.5 Powering the Kilowatt-Class AI Processors Era: A State-of-the-Industry Review of Scalable Power Delivery Solutions for Compute Platforms
Trey Roessig, *Empower Semiconductor*

4:05 PM
IS17.6 From Fast Chargers to Datacenters: The Expanding Role of GaN in Power Electronics
Roy Dagher, *Yole group*

4:30 PM
IS17.7 The Threats and Opportunities for Power Semiconductor Vendors in an Evolving EV Landscape
Dinesh Kithany, *Wired & Wireless Technologies (WAWT)*

1:30 PM – 4:55 PM

IS18: Wide Bandgap Power Devices

ROOM 213

SESSION CHAIRS

Sandeep Bahl, *Texas Instruments*

Andy Smith, *Power Integrations*

1:30 PM
IS18.1 Optimizing Soft-switching Operation of GaN at High Frequency
Francesco Di Domenico, *Infineon Technologies*

1:55 PM
IS18.2 Reexamination of MOSFET Hard Switching Losses in Application for Si and GaN Devices
David Jauregui, *iDEAL Semiconductors*

2:20 PM
IS18.3 SiC JFET Super Cascode for High Voltage Semiconductor Circuit Breakers
Leo Aichriedler, *Infineon Technologies Austria AG*

2:45 PM
IS18.4 Improvement of SiC MOSFETs Body Diode Qrr Up to 30% Through Semiconductor Substrate Engineering
Eric Guiot, *Soitec*

3:40 PM
IS18.5 Forced Current Quasistatic C-V Technique for SiC Devices
Jim Bucci, *Keithley Instruments / Tektronix*

4:05 PM
IS18.6 Design and Reliability Validation of SiC MOSFET Modules Utilizing Body Diodes for Industrial Applications
Michael Rogers, *Mitsubishi Electric US, Inc.*

4:30 PM
IS18.7 Optimal Efficiency Enabled by SiC MOSFET in Induction Heating
Pengwei Sun, *Infineon Technologies Americas Corp.*

8:20 AM – 10:00 AM

T25: 48V-to-1V Direct DC-DC Conversion

ROOM 214A

SESSION CHAIRS

Kishan Joshi, *Intel Corporation*

Cahit Gezgin, *Infineon*

8:20 AM

T25.1 Multi-ZVS-Bus Multiphase Buck Converter for High-Peak-Current 48-V VRM Applications

Voltage Regulator Modules (VRM)

AUTHORS: Yanqing Wu, Yenan Chen, Dehong Xu

8:40 AM

T25.2 A Three-Phase Hybrid Converter with 6× Duty-Cycle Extension and Fast Transient Response for Direct 48V-to-Pol Conversion

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Yuxiao Yang, Hanbo Tu, Sasa Tong, Zhengxi Wang, Zheng Yang, Wanjun Chen, Zekun Zhou, Bo Zhang

9:00 AM

T25.3 A Multiple-Inductor-Middle 48V-1V Hybrid DC-DC Converter for Computing Power Delivery

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Zhiguo Tong, Yan Lu

9:20 AM

T25.4 A Quasi-Single-Stage 48 V–to–0.8 V Voltage Regulator Module Based on Half-Bridge Current Doubler with Zero Bias TLVR

Voltage Regulator Modules (VRM)

AUTHORS: Simone Mazzer, Roberto Rizzolatti, Mario Ursino, Kevin Zufferli, Gerald Deboy, Stefano Saggini

9:40 AM

T25.5 Design and Optimization of a 48V–1V Merged Buck–Boost LLC Converter for Vertical Power Delivery to Ultra-High-Current AI Processors

Resonant Converters

AUTHORS: Zhaotian Yan, Zongjie Zhou, Junmin Jiang, Kevin Jing Chen, Ping Wang

8:20 AM – 10:00 AM

T26: Solid State and Hybrid Circuit Breakers

ROOM 214B

SESSION CHAIRS

Yuetao Hou, *Texas Instruments*

Aitor Vázquez Ardura, *Grupo de Sistemas Electrónicos de Alimentación*

8:20 AM

T26.1 A Thyristor-Based Bidirectional Solid-State Circuit Breaker with Embedded Symmetrical RCD Snubber for DC Microgrid Protection

Solid State and Hybrid Circuit Breakers

AUTHORS: Yuxiao Yang, Zhengxi Wang, Sasa Tong, Xudong Li, Hanbo Tu, Wanjun Chen, Zekun Zhou, Bo Zhang

8:40 AM

T26.2 Analysis of Crosstalk in Solid-State Circuit Breakers Equipped with Transient Voltage Suppression Diodes

Solid State and Hybrid Circuit Breakers

AUTHORS: Yang Xu, Xingyue Tian, Samuel Klein, Ching-Hsiang Yang, Ruirui Chen, Zheyu Zhang, Hua Bai, Fred Wang

9:00 AM

T26.3 Modeling and Elimination of High-Frequency Oscillation During Turn-Off Transient in Si-MOSFET Based Solid State Circuit Breakers

Solid State and Hybrid Circuit Breakers

AUTHORS: Yucheng Shen, Haonan Song, Yue Wu, Yan Zhang, Fei Lu

9:20 AM

T26.4 Low Overvoltage Ratio Gas Discharge Tube and Metal Oxide Varistor Hybrid Voltage Clamping Circuit for Solid State Circuit Breaker

Solid State and Hybrid Circuit Breakers

AUTHORS: Yannal Nawafleh, Daixin Chen, Xiaoqing Song

9:40 AM

T26.5 Evaluation and Design of Bidirectional SSCBs Based on Half-Bridge SiC Modules for MVDC Protection

Solid State and Hybrid Circuit Breakers

AUTHORS: Yannal Nawafleh, Daixin Chen, Baher Rizeq Abu Sba', Ahmed Ismail, Yue Zhao, Xiaoqing Song

8:20 AM – 10:00 AM

T27: Modeling and Simulation: Device & Component Modeling

ROOM 214C

SESSION CHAIRS

Adam Skorek, *University of Québec at Trois-Rivières*

Didier Balocoo, *Onsemi*

8:20 AM

T27.1 A Simplified Nonlinear Switching Model in Modified Nodal Analysis (Mna)-Based Simulations for Ipebb Electronic Design Automation (Eda)

Device and Component Modeling

AUTHORS: Sooan Pack, Yeonho Jeong

8:40 AM

T27.2 High-Fidelity Modeling of Dynamic Magnetic Components for Power Electronics with Double-Pulse Testing, Automated Circuit Simulation and Deep Learning

Device and Component Modeling

AUTHORS: Haisheng Shen, Takehiro Motomatsu, Noritaka Shigei, Atsushi Itagaki, Masahiro Yamaguchi, Yoichi Ishizuka

9:00 AM

T27.3 Design and Integration of a Novel Insulated NTC Thermistor for Enhanced Temperature Sensing in Power Modules

Device and Component Modeling

AUTHORS: Keigo Yoshida, Jiyoon Choi, Thiyu Warnakulasooriya, Sihoon Choi, Jun Imaoka, Masayoshi Yamamoto, Hideyuki Suzuki, Yuka Kamada, Tsuyoshi Kawaguchi, Minoru Kobayashi

9:20 AM

T27.4 An Approach to Estimate Battery State-of-Charge Under Dynamic AI Training Workloads

Device and Component Modeling

AUTHORS: Ali Alenezi, Prasad Enjeti

9:40 AM

T27.5 Modeling and Analysis of Partial Discharge in High-Voltage Printed Circuit Boards

Device and Component Modeling

AUTHORS: Matthew Pompa, Andrew Lemmon

8:20 AM – 10:00 AM

T28: IGBTs and Ga2O3 Devices

ROOM 214D

SESSION CHAIRS

Raghav Khanna, *UToledo*

Samuel Atwimah, *UToledo*

8:20 AM

T28.1 Optimizing Gate Resistance in RC-IGBTs Through Analysis of Dynamic Switching Characteristics

Power Silicon MOSFETs, BJTs, IGBTs, etc.

AUTHORS: Hideo Komo, Michael Rogers, Mark Steiner, Kentaro Yoshida, Tsuyoshi Osaga, Daiki Sasahara

8:40 AM

T28.2 Electro-Thermal-Mechanical Multiphysics Modeling and Characterization of Compliant Press-Pack IGBTs

Power Silicon MOSFETs, BJTs, IGBTs, etc.

AUTHORS: Yizheng Tang, Lingyu Zhu, Zizhang Kang, Cao Zhan, Ku Zhao, Weicheng Wang, Shengchang Ji

9:00 AM

T28.3 Design of a High-Performance Single-Stage Impedance Control Network-Based 48-V-to-1.8-V Point-of-Load Converter

Ultra-Wide Bandgap Devices

AUTHORS: Abdullah Saboor, Khurram K. Afridi

9:20 AM

T28.4 Power-Over-Fiber Gate Drive Design and Switching Behavior of a 1.9-kV β-Ga_2O_C Vertical FinFET

Ultra-Wide Bandgap Devices

AUTHORS: Yuzhou Yao, Junchong Fan, Juchen Yang, Luoyuan Jiang, Pengyu Fu, Jin Wang, Saurav Roy, James Speck, Sriram Krishnamoorthy

9:40 AM

T28.5 DC Modeling of 8 kV Depletion Mode Gallium Oxide MOSFET

Ultra-Wide Bandgap Devices

AUTHORS: Abu Shahir Md Khalid Hasan, Mohammad Dehan Rahman, Md Majharul Islam, Md Maksudul Hossain, H. Alan Mantooth

8:20 AM – 10:00 AM

T29: EMI/EMC & Reliability Investigation of Power Converter

ROOM 217A

SESSION CHAIRS

Weiqiang Chen, *ABB*

Vidhi Patel, *ABB*

8:20 AM

T29.1 Island Shielding Design for Power Modules to Reduce Common-mode EMI Noise

Quality and System Reliability Including EMI/EMC

AUTHORS: Qinghui Huang, Yirui Yang, Yanwen Lai, Li Zhang, Vafa Marzang, Guo-Quan Lu, Shuo Wang

8:40 AM

T29.2 Transfer-Molded Power Module for Low Common-Mode Capacitance and Enhanced Thermo-Mechanical Reliability

Power Modules / High Density Design

AUTHORS: Jiyoon Choi, Thiyu Warnakulasooriya, Sihoon Choi, Jun Imaoka, Masayoshi Yamamoto

9:00 AM

T29.3 Comparative Study of Nanocrystalline and Ferrite Chokes in Hybrid EMI Filters

Quality and System Reliability Including EMI/EMC

AUTHORS: Tahmid Ibne Mannan, Subarto Kumar Ghosh, Md. Abdul Kium Hridoy, Seungdeog Choi, Masoud Karimi-Ghartemani, Farrukh Jamshed, Adel Nasiri

9:20 AM

T29.4 Impacts of Channel Length Scaling on Porous Pin Fin Two Phase Cooling Mini Channels for Large SiC/GaN Power Module Baseplates

Thermal Management

AUTHORS: Ali Haji Ali Biglo, Fahim Foysal, Kai Luo, Chen Li, Enrico Santi

9:40 AM

T29.5 Duty Cycle Optimization for Active Thermal Compensation of Parallel Connected SiC MOSFETs

Thermal Management

AUTHORS: Dimitrios Deldimos, Fausto Stella, Andrea Piccioni, Gianmario Pellegrino

8:20 AM – 10:00 AM

T30: Control 3

ROOM 217B

SESSION CHAIRS

Zahra Saadatizadeh, *Mississippi State University*

Kaushik Basu, *Indian Institute of Science*

8:20 AM

T30.1 A 1.5MHz Time-Based Boost Converter with Feedback-PID for AMOLED Displays with Delay-Line-Based Line Feedforward

Control ICs

AUTHORS: Paolo Melillo, Mauro Leoncini, Gabriele Magni, Alessandro Bertolini, Alessandro Gasparini, Massimo Ghioni

8:40 AM

T30.2 Gradient-Descent Sensorless Current Balancing for Multiphase LLC Converters

Sensor and Sensor-less Control

AUTHORS: Orest Cobani, Claire Dimitriuc, Mohammad Shawkat Zaman, Luca Bertolini, Olivier Trescases

9:00 AM

T30.3 A Smooth Transition Method from I-F Control to Back-EMF Sensorless Control Under Transient States for IPMSM

Sensor and Sensor-less Control

AUTHORS: Ji-Eun Seo, Han-Vit Kim, June-Seok Lee

9:20 AM

T30.4 Hybrid High-Resolution Digital PWM Based on SERDES & Clock-Phase-Switching Methods

Digital Control-MCUs, DSPs, FPGAs, ASICs

AUTHORS: Fabian Pöchmüller, Patrick Lampl, Roberto Petrella

9:40 AM

T30.5 Closed-Loop Slew Rate Control of Active Current Source Gate Driver with Analog IC Design for SiC MOSFET

Gate Drive Circuits and Fault Protection

AUTHORS: Wen Xin Wu, Wei-Ru Lin, Wen Lin Ko, Guan-You Wu, Ching-Jan Chen, Giao Huu Thuc

8:20 AM – 10:00 AM

T31: Power Electronics for Renewable Energy

ROOM 217C

SESSION CHAIRS

Zhehui Guo, *Delta Electronics (Americas) Ltd.*

Oleksandr Husev, *Warsaw University of Technology, Poland*

8:20 AM

T31.1 Design of Slew Rate Controlled Power Modulation for DC Series Arc Fault Extinguishing in PV Systems

Photovoltaic (PV) Inverters and Micro Inverters

AUTHORS: Wan Kim, Mina Kim, Hyun-Jun Choi, Hwa-Pyeong Park

8:40 AM

T31.2 A Single-Phase Non-Isolated Six-Switch Buck-Boost Inverter Using GaN Power Devices

Photovoltaic (PV) Inverters and Micro Inverters

AUTHORS: Halladi Shashwatha Kumara Kedlaya, Saleh Farzamkia, Vishal Kumar Meena, Alex Qin Huang

9:00 AM

T31.3 Direct Power Control for the Battery Port of a Multisource Inverter

Photovoltaic (PV) Inverters and Micro Inverters

AUTHORS: Chang Liu, Bing Li, Guozhu Chen

9:20 AM

T31.4 Optimal L-Filter Design Method Considering Impact of Control Frequency for Single-Phase Grid-Connected H-Bridge Inverters

Photovoltaic (PV) Inverters and Micro Inverters

AUTHORS: Juyeon Lee, Eunwoo Lee, Jin-Hyuk Park, June-Seok Lee

9:40 AM

T31.5 Multi-Objective Optimization of Multi-Level DC-AC Converter for Single-Phase PV Microinverters

Photovoltaic (PV) Inverters and Micro Inverters

AUTHORS: Abhishek Awasthi, Majid Pahlevani, Praveen Jain

8:20 AM – 10:00 AM

T32: Resonant and Quasi-Resonant DC-DC Converters 2

ROOM 217D

SESSION CHAIRS

Olivier Trescases, *University of Toronto*

Khurram Afridi, *Cornell University*

8:20 AM

T32.1 A Multi-Mode PFM/APWM Controlled Modular Resonant Converter for Magnetron Applications

Resonant Converters

AUTHORS: Reza Emamalipour, John Lam

8:40 AM

T32.2 State-Plane-Based ZVS Boundary Characterization for Active Rectifiers in LCCL–LCCL Wireless Power Transfer Systems

Hard- and Soft-Switched

AUTHORS: Muhammad Azmeer Zahid, Shubhangi Gurudiwan, Mayank Chawla, Abhilash Kamineni, Regan Zane

9:00 AM

T32.3 An Isolated Piezoelectric-Based Power Converter for High Conversion Ratios

Resonant Converters

AUTHORS: Amanda Jackson, Daniel Brown, Jeffrey Lang, David Perreault

9:20 AM

T32.4 SiC-MOSFETs Characterization and Optimal Parameter Selection for Frequency Doubling LLC Resonant Converter

Resonant Converters

AUTHORS: Celia Hermoso Díaz, Jiasheng Huang, Dražen Dujić

9:40 AM

T32.5 Isolated, Multi-Resonant Flying-Capacitor-Based Soft-Switching Flyback Converter with a Fractional-Turn Planar Transformer

Hard- and Soft-Switched

AUTHORS: Kumar Joy Nag, Aleksandar Prodić

10:20 AM – 12:00 PM

T33: 48V Intermediate Bus DC-DC Converters

ROOM 214A

SESSION CHAIRS

Xin Zhang, *IBM*

Justin Henspeter, *IBM*

10:20 AM

T33.1 A 98.0% Efficiency GaN-Based Intermediate Bus Converter (IBC) with Bidirectional Full-Wave Current Sensor and Near-Zero Dead-Time GaN Driver for Data Center Applications

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Yike Fang, Linxin Jiang, Lunhui Yao, Bin Chen, Yi Fang, Longcheng Pi, Yuhang Zheng, Jingni Hong, Lian Wang, Liping Zhao, Lenian He, Xugang Ke

10:40 AM

T33.2 5000 W/in³ Single-Stage Resonant Switched-Capacitor Converter for 48 V-to-12 V Applications

Resonant Converters

AUTHORS: Haoran Xu, Weijia Hao, Jingbin Wu, Desheng Zhang, Run Min, Qiaoling Tong, Xuecheng Zou

11:00 AM

T33.3 A 30-60V Input 6V Output Regulated Resonant SC Converter with Unified Hard-Soft Switching Control Achieving 100A and 1339W/in³ for High-Performance Computing

Hard- and Soft-Switched

AUTHORS: Haoyu Wang, Zhoutong Liu, Junxiang Xu, Xuliang Wang, Yilong Liu, Xiaodong Li, Jishun Cui, Yan Wang, Xiaosen Liu

11:20 AM

T33.4 A Simple Method for Capacitor Voltage Balancing of Flying-Capacitor Three-Level Buck Converters

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Juan Rodríguez, Pablo M. Gil, Diego G. Lamar

11:40 AM

T33.5 High Density Fractional Ratio Switched Capacitor Converter

Resonant Converters

AUTHORS: Roberto Rizzolatti, Simone Mazzer, Mario Ursino, Kevin Zufferli, Erik Medeossi, Gerald Deboy, Stefano Saggini

10:20 AM – 12:00 PM

T34: Integrated Motor Drives and Actuators

ROOM 214B

SESSION CHAIRS

Sneha Narasimhan, *ABB*

10:20 AM

T34.1 Analysis and Experimental Validation of Inverter Switching Frequency Impact in High-Speed Air-Cooled Motor-Inverter Systems

Integrated Motor Drives

AUTHORS: Kazuma Tomida, Tatsuro Yamada, Naoki Omura, Koki Notake, Takahiko Murayama, Koji Yamaguchi

10:40 AM

T34.2 Evaluation of Shaft Voltage Mitigation with Modulation Strategies and LCCR Output Filter in 3-Level NPC Inverters

AC, DC, BLDC Motor Drives

AUTHORS: Minchul Kim, Younghoon Cho

11:00 AM

T34.3 Power Electronic Development Challenges for High Power Density Integrated Electric Drive Applications

Integrated Motor Drives

AUTHORS: Shajjad Chowdhury, Himel Barua, Vandana Rallabandi, Jonathan Wilkins, Gui-Jia Su, Pedro Ribeiro, Brian Rowden, Burak Ozpineci, Bidzina Kekelia, Sreekant Narumanchi

11:20 AM

T34.4 A 3.3V to 200V Hybrid Series-Parallel Switched Capacitor Integrated Circuit for Dielectric Actuators with 94.2% Peak Efficiency

Actuators

AUTHORS: Bahlakoana Mabetha, Yanqiao Li, Jason Stauth

11:40 AM

T34.5 Design, Drive, and Control of a Novel Hybrid-Excited E-Core SRM

AC, DC, BLDC Motor Drives

AUTHORS: Gholamreza Davarpanah, Sajjad Mohammadi

10:20 AM – 12:00 PM

T35: Modeling and Simulation: HIL, Digital Twins, and Rapid Prototyping

ROOM 214C

SESSION CHAIRS

Sombuddha Chakraborty, *Texas Instruments*

Jeffery Nilles, *Alpha & Omega Semiconductor*

10:20 AM

T35.1 Development of Oscillation Canceller for DC Resonance Induced by CPL Using Power Hardware-in-the-Loop Simulation

Hardware-in-the-Loop, Digital Twins and Rapid Prototyping

AUTHORS: Shunya Ishiguro, James Langston, Yuki Izumida, Kazuki Watanabe, Hebert Lopez

10:40 AM

T35.2 Integration of Multiple Real-Time Simulation Platforms with AIO for Scalability

Hardware-in-the-Loop, Digital Twins and Rapid Prototyping

AUTHORS: Mohammad Khalid, Aswad Adib, Michael Starke, Joao Pereira Pinto, Madhu Sudhan Chinthavali

11:00 AM

T35.3 Data-Driven Switching Models Realization in Power Electronic Converters via Symbolic Regression

Hardware-in-the-Loop, Digital Twins and Rapid Prototyping

AUTHORS: Navid Hadifar, Ali Haji Ali Biglo, Pablo Moscato, Enrico Santi

11:20 AM

T35.4 A Parametric Discrete-Time Solver for Analysis, Control, and Fast Hardware-in-the-Loop Simulation of Flying Capacitor Multilevel DC–DC Converters

Hardware-in-the-Loop, Digital Twins and Rapid Prototyping

AUTHORS: Santanu Kapat, Calvin Paul, Arindam Maulik, Philip Krein

11:40 AM

T35.5 Enhancing DC Microgrid Electrothermal Performance Through Digital Twin Enabled Droop Optimization

Hardware-in-the-Loop, Digital Twins and Rapid Prototyping

AUTHORS: Cameron Ball, Kerry Sado, Emerson Miller, Emad Sadeghi, Jarrett Peskar, Connor Madden, Austin R.J. Downey, Adel Nasiri, Enrico Santi

10:20 AM – 12:00 PM

T36: Magnetics Design and Modelling

ROOM 214D

SESSION CHAIRS

Matt Wlkowski, *Wurth Elektronik*

Adam Skorek, *University of Québec at Trois-Rivières*

10:20 AM

T36.1 Analysis and Design of Integrated Magnetic Components Using Magnetic Shunts for a Dual Active Bridge Converter

Magnetics Modeling and Simulations

AUTHORS: Alberto Cárcamo, Sayan Paul, Ashwini Kumar Dubey, Dragan Maksimović, Luca Corradini, Aitor Vázquez

10:40 AM

T36.2 Coaxial Through-Silicon via Micro-Transformers: Design, Fabrication, and Power Conversion Demonstration

High-Frequency Magnetics

AUTHORS: Yixiao Ding, Xuan Wang, Aobo Yang, Yifan Zhu, Minjie Chen, Lei Gu, Mark Allen

11:00 AM

T36.3 LLG-SPICE: A Unified Model for Simulating Planar Magnetics with Material Physics Properties

Magnetics Modeling and Simulations

AUTHORS: Davit Grigoryan, Han Cui, Minjie Chen

11:20 AM

T36.4 Coupled Inductor Design for IPOP LLC Resonant Converter Considering Voltage Gain Model and Current Sharing

Magnetics Modeling and Simulations

AUTHORS: Yu Zuo, Diego Gerardo Bernal Cobaleda, Wout Vanderwegen, Jiaze Kong, Bangli Du, Qingcheng Sui, Yang Li, Hans Wouters, Wilmar Martinez

11:40 AM

T36.5 Reversed-Winding Passive Coil for Simplified Flexible Induction Heating Zones

Winding Techniques

AUTHORS: Ignacio Lope Moratilla, Claudio Carretero Chamarro, Jesús Acero, Óscar Lahuerta Sediles, José-Miguel Burdio Pinilla

10:20 AM – 12:00 PM

T37: Power Module Integration and Measurement

ROOM 217A

SESSION CHAIRS

Wensong Yu, *NCSU*

Lei Wang, *Renesas Electronics*

10:20 AM

T37.1 Low-Profile Vertical Shunt Resistor Integration in High-Current Power Modules

Power Modules / High Density Design

AUTHORS: Thiyu Warnakulasooriya, Jiyoon Choi, Sihoon Choi, Jun Imaoka, Masayoshi Yamamoto, Leonard Henrichs, Jan Ückerseifer, Jan Marien

10:40 AM

T37.2 Vertical Shunt Resistor for Double-Sided Cooling Power Modules

Power Modules / High Density Design

AUTHORS: Sihoon Choi, Thiyu Warnakulasooriya, Jiyoon Choi, Jun Imaoka, Masayoshi Yamamoto, Keishi Nakamura, Susumu Toyoda, Koji Shigesawa

11:00 AM

T37.3 SiC Power Device Condition Monitoring with On-Chip In-Driver 2-D Multi-Level T_{CC} Delay Measurement

Embedded Technologies, 3D Packaging, and

AUTHORS: Prosenjit Kumar Ghosh, Fei Zhou, Brian Ma

11:20 AM

T37.4 Innovative Patterning Technology for Advanced Packaging and Power Electronics Applications

Power Electronics Packaging

AUTHORS: Poulomi Mukherjee, Kelvin Chan, Howard Kao, Kartik Ramaswamy, Alan May, Loic Constantin, Sarah Wozny

11:40 AM

T37.5 Design of a 6.5 kV SiC MOSFET Full-Bridge Module

Power Modules / High Density Design

AUTHORS: Max Rogers, Arthur Boutry, Andrew Lemmon, Nicholas Turner, Nick Baker

10:20 AM – 12:00 PM

T38: Three-Phase AC-DC Converters

ROOM 217B

SESSION CHAIRS

John Lam, *York University*

Yicheng Zhu, *University of Texas, Austin*

10:20 AM

T38.1 Design and Comparative Analysis of Fully Soft-Switched and Hard-Switched Current Injection Circuit for Unfolding-Based AC-DC Converters

Power Factor Correction

AUTHORS: Shubhangi Gurudiwan, Aditya Zade, Hongjie Wang, Regan Zane

10:40 AM

T38.2 Design and Implementation of Three-Phase Six-Switch Power Factor Corrector with DC-Link Capacitor Voltage Balance

Power Factor Correction

AUTHORS: Yan-Chen Shen, Tsorng-Juu Liang, Wen-Chung Chen, Kai-Hui Chen, Kenneth Yung-Sheng Hong

11:00 AM

T38.3 ZVS Turn-on Integrated Triangular Current Mode Control for Three-Phase Three-Level Flying Capacitor Bidirectional PFC

Bidirectional Converters (AC-DC Focus)

AUTHORS: Nidhi Haryani, Ripun Phukan, Laszlo Huber, Anup Anurag, Juan Ruiz, Peter Barbosa

11:20 AM

T38.4 A Single-Stage Three-Phase Wireless Power Transfer System with Reduced GaN Bi-Directional Switch Voltage Stress

Single-Phase and Three-Phase Input

AUTHORS: Fan Zhai, Lingxiao Xue, Jingshan Zheng, Zhongjie Wang, Xiaonan Dong

11:40 AM

T38.5 Current Optimization in Three-Phase Vienna Rectifiers Considering Non-Unity Power Factor and DC-Link Voltage Imbalance

Single-Phase and Three-Phase Input

AUTHORS: Yi-Hung Liao, Jia-Sheng Liu, Chun Yin

10:20 AM – 12:00 PM

T39: Control and Diagnostics of Power Converters and Energy Storage

ROOM 217C

SESSION CHAIRS

Zheyu Zhang, *Rensselaer Polytechnic Institute*

Mohammed Agamy, *University at Albany*

10:20 AM

T39.1 **Grid Reactive Power Control in Three-Phase Unfolding-Based Architectures**

Power Quality, UPS, Active Power Filters

AUTHORS: Sanat Poddar, Regan Zane

10:40 AM

T39.2 **Resilient Neural Control for Grid-Forming Microgrids: an Integrated AI-Based Approach for Virtual-Impedance Scheduling and Cyber-Attack Mitigation**

Microgrid Systems

AUTHORS: Syed Muhammad Talha Zaidi, Uzair Asif, Arslan Munir, Mohammad B. Shadmand, Sudip Mazumder

11:00 AM

T39.3 **Optimization Methodology for a GaN-Based Single-Phase Online Ups Using Combined Variable On-Time and Fixed-Frequency Control**

Power Quality, UPS, Active Power Filters

AUTHORS: Xuancen Wu, Syed Saeed Rashid, Abdullah Saboor, Khurram K. Afridi

11:20 AM

T39.4 **A Low-Complexity In-Situ Battery State of Health Estimation System Using Partial EIS Data**

Energy Storage Systems

AUTHORS: Lingwei Sun, Chi-Jyun Ko, Jingyuan Liang, Kuo-Ching Chen, Wai Tung Ng

11:40 AM

T39.5 **Breaking the Constant-Current Barrier: ICA-Based Battery Health Estimation Under Real-World EV Operating Conditions**

Energy Storage Systems

AUTHORS: Do Hyeon Kim, Jeong Soo Ko, Jong-Hun Lim, Je-Yeong Lim, Dong Hwan Kim, Byoung Kuk Lee

10:20 AM – 12:00 PM

T40: DC-DC Converter Applications

ROOM 217D

SESSION CHAIRS

Eric Swenson, *IBM*

Xiaonan Lu, *Purdue University*

10:20 AM

T40.1 **An Overtone-Reconfigurable Piezoelectric-Based Power Converter for Wide Load Range Applications**

Resonant Converters

AUTHORS: Brycen Halfmann, Wentao Xu, Jessica Boles

10:40 AM

T40.2 **Maximum Efficiency Point Tracking Algorithm for High-Efficiency Operation of an On-Board Charger in High-Voltage Battery Electric Vehicles**

Resonant Converters

AUTHORS: Jaehyeok Jang, Younghoon Cho

11:00 AM

T40.3 **An Automotive-Use 1MHz 48V AO2T Current Mode GaN LiDAR Boost Converter with Adaptive Transient Response and Temperature Compensated All-GaN Current Sensing**

Hard- and Soft-Switched

AUTHORS: Yi Fang, Linxin Jiang, Longcheng Pi, Yike Fang, Bin Chen, Yuhang Zheng, Jingni Hong, Lian Wang, Jianlong Lin, Xiang Gao, Lenian He, Xugang Ke

11:20 AM

T40.4 **A Self-Triggering ZVS Gate Drive for Multi-MHz Class-D Inverters**

Resonant Converters

AUTHORS: Cheng Zhang, Sheng Zhao, Zhengteng Sun, Shu Yuen Ron Hui

11:40 AM

T40.5 **A 48V-Input Series Double Dickson (SDD) Converter for Point-of-Load Conversion**

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Wenjie Yang, Zhiguo Tong, Yan Lu

8:20 AM – 10:00 AM

▸ PSMA SESSION ◂

IS19: Improving Energy Efficiency and Availability Part 1

ROOM 212

SESSION CHAIRS

Kai Li, *MEAN WELL Power Solutions*

Mike Hayes, *Tyndall National Institute*

David Chen, *Power Integrations*

8:20 AM

IS19.1 Efficiency in Low-Power Isolated DC-DC Conversion for Interface and Gate Drive Supplies
Stanislav Suchovsky, *RECOM*

8:45 AM

IS19.2 Grid-Forming Batteries
Oindrilla Dutta, *Sandia National Labs*

9:10 AM

IS19.3 Making Next-Gen AI Data Centers More Available and Efficient by Improving SiC Short-Circuit Ruggedness
Adam Morgan, *NoMIS Power*

9:35 AM

IS19.4 The Role of Long Duration Energy Storage to Decarbonise and Establish Energy Security
Padraig Lyons, *IERC*

8:20 AM – 10:00 AM

▸ PSMA SESSION ◂

IS20: Magnetic Materials for Existing and Emerging Applications Part 1

ROOM 213

SESSION CHAIRS

George Slama, *Wurth Elektronik*

Ed Herbert, *PSMA Independent Inventor*

Matt Wilkowski, *Würth Elektronik*

8:20 AM

IS20.1 Relevant Magnetic Material Properties for Existing and Emerging Applications
Lukas Reißenweber, *Coburg Universiy of Applied Sciences and Arts*

8:45 AM

IS20.2 Metal Chip Power Inductor for IVR Applications: High Performance with Customizable Flexibility
Toshio Hiraoka, *TAIYO YUDEN Co. Ltd.*

9:10 AM

IS20.3 Magnetic/Resin Composite Sheets for High-Frequency Power Electronics: From Fundamental Properties to Packaging Integration Challenges
Hideki Ooyama, *Ajinomoto Fine-Techno Co., Inc.*

9:35 AM

IS20.4 Superparamagnetic Nanocomposites for Power Electronic Applications
Dale Huber, *Sandia National Laboratories*

8:20 AM – 10:00 AM

IS21: Power Modules and Packaging

ROOM 206

SESSION CHAIRS

Lei Han, *Qorvo*

Frank Cirolia, *Advanced Energy*

8:20 AM

IS21.1 Enabling Miniaturization and Higher Efficiency in Low Voltage Motor Drives Through Semiconductor Integration and Flip Chip Power Packaging
Nicholas Oborny, *Texas Instruments*

8:45 AM

IS21.2 PCB Design Considerations and Stack-up for 40 kVA Assembled Power Modules (700 VDC, 45 A)
Michael Schleicher, *Semikron Danfoss Elektronik GmbH & Co. KG*

9:10 AM

IS21.3 Ceramics Substrates for Next Generation Heat Dissipation from Electric Devices
Takehito Mukai, *Noritake Co.,Limited*

9:35 AM

IS21.4 Power Electronics Integration and Manufacturing-Power Modules / High Density Design
HoChieh Yu, *ICP Technology*

8:20 AM – 10:00 AM

IS22: USB Power Delivery

ROOM 207

SESSION CHAIRS

Armando Mesa, *onsemi*

Darwin Fernandez, *Texas Instruments*

8:20 AM

IS22.1 Thermal-Efficient USB-PD Charging in Automotive Systems: Embracing the 48 VIN Standard
Seong Kim, *Texas Instruments*

8:45 AM

IS22.2 **Elevating 140W Fast-Charging Adapter Design to a New Level with the Improved ZVS Flyback and Totem-Pole PFC Solution**
Siran Wang, *Monolithic Power Systems*

9:10 AM

IS22.3 **A Self-Biasing, Auxless Sensing GaN-based Flyback Converter for USB-PD Adapters**
Bing Lu, *Texas Instruments*

9:35 AM

IS22.4 **Firmware Optimizations to Enhance Light-Load Efficiency in USB-PD Adapters**
Clomiferds Sales, *Power Integrations*

8:20 AM – 10:00 AM

▸ **PSMA SESSION** ◂

IS23: Reliability: From Stress to Strength: Physics-Based Reliability for Next-Generation GaN Power Systems

ROOM 210

SESSION CHAIRS

Crystal Yannarella, *L3HARRIS TECHNOLOGIES*

Eric Swenson, *STSM – Power Technology and Qualification*

8:20 AM

IS23.1 **Mission Profile-driven Reliability Assessment of Leading-edge GaN for AI Data Center Applications**
Shengke Zhang, *EPC Co.*

8:45 AM

IS23.2 **Smart Motors: Harnessing Sensor Data and AI for Predictive Maintenance**
Eric Swenson, *STSM – Power Technology and Qualification*

9:10 AM

IS23.3 **Electronics in a Deep Ocean Environment. Effects of Pressure on Electronics and Things to Consider During the Design Phase**
Haskell Fought, *University of South Carolina*

9:35 AM

IS23.4 **Joint GaN Technology Study**
Elona Lala, *IBM*

8:20 AM – 10:00 AM

▸ **PSMA SESSION** ◂

IS24: Pairing Capacitors with Inductors to Create Better Solutions

ROOM 205

SESSION CHAIRS

Alan Cooper, *YAGEO*

Matt Wilkowski, *Würth Elektronik*

8:20 AM

IS24.1 **A Practical Design Guide for Resonant Power Conversion**
Simon Reuning, *YAGEO Group*

8:45 AM

IS24.2 **The Importance of Magnetic Components in EMC Filter**
Szymon Pasko, *TE Connectivity – Schaffner*

9:10 AM

IS24.3 **EMI Filter Success – Smart Inductor Selection**
Jared Quenzer, *Würth Elektronik*

9:35 AM

IS24.4 **Performance of Common-Mode Chokes with Enhanced Differential-Mode Inductance in EMI Filters Including Capacitive Interactions**
Bryce Hesterman, *Utah State University*

10:20 AM – 12:00 PM

▸ **PSMA SESSION** ◂

IS25: Improving Energy Efficiency and Availability Part 2

ROOM 212

SESSION CHAIRS

Mike Hayes, *Tyndall National Institute*

Kai Li, *MEAN WELL Power Solutions*

David Chen, *Power Integrations*

10:20 AM

IS25.1 **Single-Stage Resonant Converter for High-Efficiency EV Charging**
MC Dela Pena, *Power Integrations*

10:45 AM

IS25.2 **The Energy Harvesting Sweet Spot for Self-Powering Wireless Sensor Nodes**
Aditya Singh, *Tyndall National Institute*

11:10 AM
IS25.3 Centralized Power Distribution and Higher Efficiency for System Benefits
Kai Li, *MEAN WELL Power Solutions*

11:35 AM
IS25.4 Using DC-Based Solutions to Enable Fast-Deployed, Scalable, Modular Data Centers to Drive Unprecedented Densities, Efficiency, Optimization, and Enablement
Brian Zahnstecher, *PowerRox*

10:20 AM – 12:00 PM

▸ PSMA SESSION ◂

IS26: Magnetic Materials for Existing and Emerging Applications Part 2

ROOM 213

SESSION CHAIRS

George Slama, *Wurth Elektronik*
Matt Wilkowski, *Würth Elektronik*
Ed Herbert, *PSMA Independent Inventor*

10:20 AM
IS26.1 Multi-Cut Nanocrystalline Cores Through Classical Modeling
Abrahan Solis, *MK Magnetics*

10:45 AM
IS26.2 Nanocrystalline Cores for EMI Applications
Tobias Trupp, *Magnetec GmbH*

11:10 AM
IS26.3 Role of Nb in Nanocrystalline Ribbon and Core Manufacturing
Naoki Ito, *CBMM*

11:35 AM
IS26.4 Fe-based Nanocrystalline Alloys for Power Choke Applications
Michael Freitag, *YAGEO Group / KEMET Electronics*

10:20 AM – 12:00 PM

IS27: Commercial Monolithic Bidirectional Switches are Here. Are They Ready for Adoption in Your Power Converter Products?

ROOM 206

SESSION CHAIRS

Victor Veliadis, *PowerAmerica*
Thomas Jahns, *University of Wisconsin-Madison*

10:20 AM
IS27.1 The Benefits of Monolithic GaN Bidirectional Switch for Hard and Soft-switching Single-stage Converters
Eric Persson, *Infineon Technologies Americas Corp*

10:45 AM
IS27.2 B-TRAN® Bidirectional High-Power Switch Enabling Solid-State Circuit Breakers and EV Contactors
Bhuvan Gupta, *Ideal Power*

11:10 AM
IS27.3 Dual-Stage to Single-Stage: GaN BDS Enabling the Next Leap in Power Design
Marco Ruggeri, *Renesas*

11:35 AM
IS27.4 Single-stage Power Converter Enabled by GaN Bidirectional Switches
Llew Vaughan-Edmunds, *Navitas*

10:20 AM – 12:00 PM

IS28: Power Converter Control Circuits and Algorithms

ROOM 207

SESSION CHAIRS

Edward Jones, *Infineon Technologies Austria AG*
Reza Sharifi, *Texas Instruments*

10:20 AM
IS28.1 High Power Density and High Efficiency GaN-based PFC for Server and Telecom
Marco Torrisi, *STMicroelectronics S.r.l.*

10:45 AM
IS28.2 Single MCU Based Control Solution for Single-Stage Isolated AC/DC PFC Rectifiers with Direct Matrix Converter Topology
Srikanth Yerra, *Texas Instruments*

11:10 AM

IS28.3 **Digital Centric DCDC with Low Complexity Analog Circuit and Linear Regulation Mode**
Lionel CIMAZ, *STMicroelectronics*

11:35 AM

IS28.4 **A Construct Method for Designing Digital Power Controllers with Examples and Tools**
Vito Derasmo, *North Atlantic Industries*

10:20 AM – 12:00 PM

IS29: Standards and Compliance for Power Supplies

ROOM 210

SESSION CHAIRS

Raghukumar Bommenahalli, *Dekra*

Doug Hopkins, *NC State University*

10:20 AM

IS29.1 **What it Takes to Make an IEC60601 Medical Power Supply**
Frank Cirolia, *Advanced Energy*

10:45 AM

IS29.2 **Compliance Feasibility Study – A User-Friendly EMC Test Result Simulation and EMI Filtering Solution Design Tool**
Yirui Yang, *University of Florida*

11:10 AM

IS29.3 **Multimodal Agent for EMI-Aware PCB Design Verification and Diagnosis**
Yirui Yang, *University of Florida*

11:35 AM

IS29.4 **Beyond the Plug: Meeting Product Safety Under IEC 60335-1 and Minimizing Standby Power Consumption**
Neil Barte, *Power Integrations, Inc.*

10:20 AM – 12:00 PM

IS30: Vertical Power for AI Data Centers

ROOM 205

SESSION CHAIRS

Chance Dunlap, *Amber Semiconductor, Inc. (AmberSemi)*

Chris Casey, *Amber Semiconductor, Inc. (AmberSemi)*

10:20 AM

IS30.1 **AI Power: Why Traditional Delivery is Breaking Down**
Chris Casey, *Amber Semiconductor, Inc. (AmberSemi)*

10:40 AM

IS30.2 **Challenges in AI Datacenters & Solution Requirements for Vertical Power Architectures**
Ahmed Abou-Alfotouh, *AMD*

11:00 AM

IS30.3 **Silicon Technology and the Process Integration Path for Vertical Power**
Ankush Gupta, *GlobalFoundries*

11:20 AM

IS30.4 **Advancing Magnetic Designs for High Density Designs**
Youssef Elasser, *NVIDIA*

11:40 AM

IS30.5 **Technological Advancements Driving Power Density for Vertical Power**
Chance Dunlap, *Amber Semiconductor, Inc. (AmberSemi)*

TECHNICAL DIALOGUE SESSIONS *as of February 4, 2026*

This part of APEC Technical Program features dialogue presentations from authors of peer-reviewed papers that cover all areas of technical interest for the practicing power electronics professional. The rigorous review process ensures that only the most innovative technical solutions are highlighted to provide the highest quality possible. Papers selected for the Dialogue Session will be presented in a poster format, offering authors the opportunity for in-depth discussions with conference attendees.

12:00 PM – 1:45 PM

D01: AC-DC Converters

HEMISFAIR BALLROOM

SESSION CHAIRS

Nathan Ellis, *University of Calfornia, Santa Cruz*

Ping Wang, *Hong Kong University of Science and Technology*

D01.1 Design of the Passive Clamp Snubber for the Flyback Converter Working as Automatic Power Factor Corrector

Power Factor Correction

AUTHORS: Abraham Lopez-Antuna, Aitor Vázquez, Duberney Murillo-Yarce, Marta María Hernando, José A. Villarejo, Javier Sebastián

D01.2 Single-Phase AC-DC Feedforward with Differentiator QSG

Power Factor Correction

AUTHORS: Francisco Azcondo, Alberto Pigazo, Christian Brañas

D01.3 Soft Switching Two Transistor Flyback Topology for Medium Power Applications

External AC-DC Adapters

AUTHORS: Ionel Jitaru, Andrei Savu

D01.4 A New System to Reduce Standby Losses in Compact GaN-Based Digital Adapter

External AC-DC Adapters

AUTHORS: Angelo Giordano, Marco Torrisi, Sebastiano Messina, Daniele Sfilio, Mario Cacciato

D01.5 Planar Magnetics in Switched-Mode Power Supplies: Achieving Compact, High-Density and IP65-Rated Performance

Embedded AC-DC Power Supplies

AUTHORS: Jonathan Nadar, Srikanthan Sridharan

D01.6 Low DC-Link Voltage Operation of Three-Phase Bidirectional AC-DC Converter with Fixed Voltage Modulation Index

Bidirectional Converters (AC-DC Focus)

AUTHORS: Cheolmin Hwang, Seongwon Lee, Jung-Ik Ha

D01.7 Miniaturized Primary-Side Regulated Active Clamp Flyback Converter with Custom IC and Integrated Transformer for High Power Density Applications

Single-Phase and Three-Phase Input

AUTHORS: Navid Hadifar, Farrukh Jamshed, Akiyoshi Tanaka, Xuan Wang, He Shan, Benton H. Calhoun, Enrico Santi, Mark G. Allen, Adel Nasiri

D01.8 Control of Single-Phase Soft-Switched iTCM AC/DC Converter Without ZVD/ZCD

Power Factor Correction

AUTHORS: Shrivatsal Sharma, Zhehui Guo, Yusheng Chen, Misha Kumar, Peter Barbosa

D01.9 Three-Phase Hybrid Rectifier with Symmetric DC-Bus for More Electric Aircrafts

Single-Phase and Three-Phase Input

AUTHORS: Érico Chagas Guimarães, Marcus Evandro Teixeira Souza Jr, Danillo Borges Rodrigues, Luiz Carlos Gomes de Freitas

D01.10 Design and Implementation of a Bidirectional Vienna Converter for On-Board Charger

Bidirectional Converters (AC-DC Focus)

AUTHORS: Shang-Wei Lin, Tsorng-Juu Liang, Wen-Chung Chen, Kai-Hui Chen, Kenneth Yung-Sheng Hong

D01.11 Design and Implementation of a Three-Phase Eight-Level Flying Capacitor Multilevel Rectifier for Future Data Center Power Delivery

Power Factor Correction

AUTHORS: Roderick Bayliss III, Robert C.N. Pilawa-Podgurski

D01.12 Cost-Effective and Flexible Bias Generator for SiC MOSFETs in High-Power Applications

Power Factor Correction

AUTHORS: Sumana Ghosh

D01.14 DM Conducted EMI Noise Prediction for Variable-Frequency, Variable-on-Time Interleaved Integrated TCM Totem-Pole PFC Converters

Power Factor Correction

AUTHORS: Zhehui Guo, Yusheng Chen, Ripun Phukan, Misha Kumar, Peter Barbosa

12:00 PM – 1:45 PM

D02: High Voltage or High Power DC-DC Converters 1

HEMISFAIR BALLROOM

SESSION CHAIRS

Evan Reutzel, *Texas Instruments*

Olivier Trescases, *University of Toronto*

D02.2 Virtual Switched Inductor Modulation for DAB Converters

Bidirectional Converters (DC-DC Focus)

AUTHORS: Camilo Suarez-Buitrago, Diego Gerardo Bernal Cobaleda, Wilmar Martinez

D02.3 Single-Stage Vertical Voltage Regulator for High-Performance Microprocessors

Voltage Regulator Modules (VRM)

AUTHORS: Zhenshuai Rong, Yingchao Chi, Jinfeng Zhang, Xufu Ren, Teng Long

D02.4 Closed-Form Time-Domain Modeling and Pontryagin's Minimum Principle-Optimal Control of a Dual-Active-Bridge with Stacked-Secondary Phases

Bidirectional Converters (DC-DC Focus)

AUTHORS: Anirudh Ashok Pise, Rahul Birari, Nasser Kutkut, Issa Batarseh

D02.5 A Multiple-Degrees-of-Freedom Modulation Strategy for Series Resonant Converter Dual Active Bridge for Minimum Reactive Power and Turn-Off Current in Energy Storage System

Bidirectional Converters (DC-DC Focus)

AUTHORS: Guangzhi Cui, Weiyu Tai

D02.6 A Medium-Voltage Bidirectional Isolated DC Transformer Using 3.3 kV SiC Devices

Bidirectional Converters (DC-DC Focus)

AUTHORS: Junjie Li, Hongyu Lin, Peng Jiang, Hao Feng, Li Ran

D02.7 Input-Series Output-Parallel Connected LLC DC-DC Converter Featuring Current Doubler Rectification

Resonant Converters

AUTHORS: Mami Izumiguchi, Yudai Tanaka, Koki Mori, Akito Tabata, Yoichi Ishizuka

D02.8 Comparative Efficiency Analysis of Full-Bridge and Half-Bridge DAB Converters Under Optimized Modulation Strategies

Bidirectional Converters (DC-DC Focus)

AUTHORS: Marina Vitali, Andrea Cervone, Wilmar Martinez

D02.9 An LLC DCX with Matrix Transformer for Datacenter Application

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Jinshi Du, Bima Nugraha Sanusi, Pinhe Wang, Tianming Luo, Ziwei Ouyang

D02.10 All-Switches ZVS via Minor Frequency Perturbation in Bidirectional Phase-Shift Full-Bridge Converters

Bidirectional Converters (DC-DC Focus)

AUTHORS: Tien-Sheng Li, Minh Ngo, Rolando Burgos, Dong Dong

D02.11 Analytical Modeling and Optimal Dual Phase Shift Modulation of High-Gain Dual Active Bridge with Stacked Secondary Phases

Bidirectional Converters (DC-DC Focus)

AUTHORS: Anirudh Ashok Pise, Rahul Birari, Nasser Kutkut, Issa Batarseh

D02.12 Bidirectional DC-DC CLLLC Resonant Converter Parallel Modules with Current Sharing Technology

Bidirectional Converters (DC-DC Focus)

AUTHORS: Chun-Li Chuang, Tsorng-Juu Liang, Kai-Hui Chen, Jun-Yun Lin, Wei-Chiang Kuo

D02.13 Analysis and Implementation of a Series-Capacitor Zero-Bias Trans-Inductor Voltage Regulator

Voltage Regulator Modules (VRM)

AUTHORS: Shuyu Zhang, Yicheng Zhu, Nathan Biesterfeld, Robert C.N. Pilawa-Podgurski

12:00 PM – 1:45 PM

D03: Low Voltage or Low Power DC-DC Converters 2

HEMISFAIR BALLROOM

SESSION CHAIRS

Elie Libbos, *Texas Instruments*

Alireza Safaee, *Apple Inc*

D03.1 A Multi-Resonant Cascaded Series-Parallel Switched-Capacitor Converter Featuring Continuously Scalable Conversion Ratio

Resonant Converters

AUTHORS: Xuliang Wang, Haoyu Wang, Zhoutong Liu, Yuan Yao, Yang Liu, Wing Hung Ki, Jin Wei, Yan Wang, Xiaosen Liu

D03.2 2:1 Capacitively-Isolated Resonant Switched Capacitor DCX Converter

Resonant Converters

AUTHORS: Gabriel Luis Maldonado Roldán, Daniel Ríos Linares, Miroslav Vasić

D03.3 Reinforcement Learning-Based Online Loop Compensation Parameter Optimization for Multiphase Buck Converters

Voltage Regulator Modules (VRM)

AUTHORS: Hao Luo, Yanpu Peng, Yijie Qian, Shen Xu, Weifeng Sun

D03.4 Quantitative Modeling and Optimization of VRM Filter Parameters Under Current Mode Constant On-Time Control

Voltage Regulator Modules (VRM)

AUTHORS: Xiaobing Wang, Shuai Zhang, Shen Xu, Weifeng Sun

D03.5 Multi-Mode Exact Time-Domain Analysis and Characteristics-Based Design of the ACF Converter

Hard- and Soft-Switched

AUTHORS: Amrita Mitra, Utsab Kundu, Vinod John, Ramkumar S

D03.7 Evaluation of Zero Switching Loss CrM for LCC Converter in Capacitor Charging Power Supply

Resonant Converters

AUTHORS: Zhou He, Wentao Zhou, Hongfa Ding, Ziqi Zhang, Yuankun Zhang, Dong Dong, Rolando Burgos

D03.8 Magnetics Integrated Design for CNR Point-of-Load Converter

Voltage Regulator Modules (VRM)

AUTHORS: Zehui Li, Zhongqiu Zhang, Qishan Pan, Haoyu Wang

D03.9 A Multi-Mode ZVS-Buck Converter with High-Speed Mode Transition for Wide Input Applications

Voltage Regulator Modules (VRM)

AUTHORS: Minggang Chen, Shiyu Liu, Wenzhen Yong, Yuanbo Chen, Qinsong Qian, Weifeng Sun

D03.10 LNO Piezoelectric Resonator Temperature Characteristic

Resonant Converters

AUTHORS: Alex Marques, Martin Lott, Alexandre Rheinhardt, Marie Bousquet, Gaëtan Perez, Ghislain Despesse

D03.11 A 2.7-MHz High-Efficiency Low-Profile Capacitively Isolated Resonant DC-DC Converter Utilizing Coupled Air-Core Inductor

Resonant Converters

AUTHORS: Abhas Porov, Ankita Meena, Ayush Dixit, Sreyam Sinha

D03.12 A Quad-Inductor Hybrid Dickson Converter with Enhanced Current-Driving Capability and Minimized Inductor Losses for 48V Point-of-Load Systems

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Athul Muraleedharan Sudha, Shilong Shen, Sri Navaneeth Easwaran, Raveesh Magod, Indumini Ranmuthu, Sriharsh Pakala, Jin Liu, Hoi Lee

D03.13 Extending the Input Voltage Range of an Always-Dual-Path Hybrid DC-DC Converter Using Phase-Shift Operation

Voltage Regulator Modules (VRM)

AUTHORS: Katsuhiro Hata, Shinsaku Tanaka, Toru Ashikaga, Yasuhiro Rikiishi

D03.14 A Single-Stage Regulated Resonant Switched-Capacitor Converter

Resonant Converters

AUTHORS: Zhibang Song, Zhiguo Tong, Sai Weng Sin, Yan Lu

12:00 PM – 1:45 PM

D04: Devices 3: GaN and Others

HEMISFAIR BALLROOM

SESSION CHAIRS

Raghav Khanna, *UToledo*

Sneha Narasimhan, *ABB*

D04.1 Bridging the Fabless-Foundry Gap: A Calibrated TCAD Dataset Approach for GaN HEMT

GaN and SiC Devices and Modules

AUTHORS: Hyungwon Yoon, Yong Kyu Lee, Jongwook Jeon

D04.2 A Fast On-State Voltage Measuring Circuit for GaN Power Devices

GaN and SiC Devices and Modules

AUTHORS: Honglang Zhang, Hui Li, Shan Yin, Yingzhe Wu, Chen Song, Jinshu Lin, Xi Liu

D04.3 First Demonstration of Buck Converter Using Diamond Mosfet

Ultra-Wide Bandgap Devices

AUTHORS: Sora Kawai, Shunsuke Shoji, Nobutaka Oi, Ryo Yoshida, Kosuke Ota, Hiroyuki Uchida, Akihiko Watanabe, Kenji Ueda, Takanori Isobe, Hiroshi Kawarada, Ichiro Omura, Tatsuya Fujishima

D04.4 Gate-Delay Optimization Strategy for Balancing Dynamic ON-Resistance and Power Loss in GaN/Si Hybrid Switches

WBG Integration and Reliability

AUTHORS: Chen Song, Hui Li, Shan Yin, Yingzhe Wu, Honglang Zhang, Jinshu Lin, Xi Liu

D04.5 Optimization Framework for Hard-Switching Transients of Power Semiconductor Devices to Minimize Switching Losses and EMC-Relevant Noise Emissions

WBG Integration and Reliability

AUTHORS: Jochen Streit, Robert Kragl, Manuel Riefer, Hadiuzzaman Syed, Karl Oberdieck, Ingmar Kallfass

D04.6 Reliability Characterization of GaN HEMTs Under Extreme Temperature Cycling for Space Power Applications

GaN and SiC Devices and Modules

AUTHORS: Dilip Rana, Purushottam Khadka, Tian Qiu, Zheyu Zhang

D04.7 New High Temperature Metallized Film Capacitors Utilizing Low Dissipation Factor Nanolayered Film

GaN and SiC Devices and Modules

AUTHORS: Erik Steinmetz, Bryce Lanese, John Tomko, Mike Ponting, Mason Wolak

D04.8 Digitization of a Hybrid Current Sensor for Enhanced Measurement Accuracy and Noise Reduction in Power Electronics Applications

WBG Integration and Reliability

AUTHORS: Alireza Omidi, Hassan Habib Chaudhry, Ayooluwa Ajiboye, Alireza Khaligh, Babak Parkhideh

D04.10 GaN Power Module Design with Fully Integrated Gate Driver to Achieve Beyond 200 V/ns Switching Speed

GaN and SiC Devices and Modules

AUTHORS: Reza Shahbazi, Yunting Liu

12:00 PM – 1:45 PM

D05: Control 6

HEMISFAIR BALLROOM

SESSION CHAIRS

Cong Ma, *BorgWarner*

Lei Han

D05.1 A Fast-Tracking Power Supply Based on Optimized D-CAP+ Control and Enhancement-Mode GaN Transistor

Control of Power Electronic Converters

AUTHORS: Xiao Xing Lai, Donglai Zhang

D05.2 A Current Source Gate Driver with Dual-Edge Adaptive Slew Rate for GaN Devices

Gate Drive Circuits and Fault Protection

AUTHORS: Giao Huu Thuc, Meng-Jen Tsai, Ching-Jan Chen, Jyan-Kai Fu, Wen Xin Wu, Wei-Ru Lin

D05.3 Impact of Modulation Techniques on the Performance of High Frequency Three Phase SiC Based Active Front End Converters

Digital Control-MCUs, DSPs, FPGAs, ASICs

AUTHORS: Stefano Casalicchio, Giuseppe Aiello, Francesco Gennaro, Dario Patti

D05.4 Extended Zero Turn-Off Loss (ZTL) Region for SiC MOSFETs by Gate Voltage Boosting

Gate Drive Circuits and Fault Protection

AUTHORS: Morten Rahr Nielsen, Luke Shillaber, Ameer Janabi, Stig Munk-Nielsen, Teng Long

D05.5 Robust Grid-Forming Control Based on Virtual Flux Observer

Control of Power Electronic Converters

AUTHORS: Xueqing Gao, Jun Zhang, Tao Li, Mingming Zhang

D05.7 Integrated Frequency-Based Overpower Protection for Multi-Output Flyback Converters

Gate Drive Circuits and Fault Protection

AUTHORS: Wilma Tan, Yi Li, Jerikah Tabaog, Jhaebhee Mark Calderon, Cyril Quinto

D05.8 Transient Response Improvement in Multi-Active-Bridge Converters Using Load Feedforward-Based Decoupling Control

Control of Power Electronic Converters

AUTHORS: Waseah Anjum, Arkadeb Sengupta, Marco Liserre

D05.9 Hierarchical Virtual Oscillator Control Based on Andronov-Hopf Oscillator for Microgrid Black Start

Control of Power Electronic Converters

AUTHORS: Shumeng Wang, Uthandi Selvarasu, Minoo Mohebbifar, Mahshid Amirabadi, Yuan Li, Brad Lehman

D05.10 A Dual-Layer Model Predictive Control for Enhanced Hybrid Systems in Electric Mobility

Control of Power Electronic Converters

AUTHORS: Xueshen Zhang, Youngkeun Kim, Yeonho Jeong

12:00 PM – 1:45 PM

D06: Motor Drives

HEMISFAIR BALLROOM

SESSION CHAIRS

Ashik Amin, *Ford Motor Company*

Ziaur Rahman, *Booz Allen Hamilton*

D06.1 High-Frequency CM/DM Noise Separator Design for Electric Vehicle Applications

Power Quality and EMI for Motor Drives

AUTHORS: Yu Zhang, Genzhai Peng

D06.3 Comparison Between Smart Coil Solution and RLC dv/dt Filter on Mitigation of Reflected Overvoltage in SiC Motor-Drive Systems

AC, DC, BLDC Motor Drives

AUTHORS: Abdelrahman Habib, Mohamed Metwly, Jiangbiao He

D06.4 Enhancement of Transient Speed Deviation in Single-Inverter Dual-Parallel IPMSM Drives with Optimal Damping Current

Modeling and Control Techniques for Motor Drives

AUTHORS: Byung-Joon Jung, Kyo-Beum Lee

D06.5 An Evaluation of Rare-Earth-Free External Rotor Permanent Magnet Assisted Synchronous Reluctance Machine for Micro-Wind Turbines

Modeling and Control Techniques for Motor Drives

AUTHORS: Md Rashedur Rahman, Md Khurshedul Islam, Md Moniruzzaman, Seungdeog Choi, Shuhui Li, Yangki Hong

D06.6 A Novel Flux Weakening Control Strategy for Surface-Mounted Permanent Magnet Synchronous Motors Based on Online Iterative Calculation and Voltage Feedback Compensation

Modeling and Control Techniques for Motor Drives

AUTHORS: Hengbin Zhang, Hui Li, Yingzhe Wu, Yuxiang Xue, Limei Xu, Lisheng Wang, Xi Liu, Yishan Cai

D06.7 Suppression of Cross-Coupling Effects on Current Control in Wound Field Synchoronous Motor Drives

Modeling and Control Techniques for Motor Drives

AUTHORS: Sung Jun Lee, Gyu Cheol Lim, Minha Kim, Jung-Ik Ha

D06.8 Experimental Results for an Inverter Integrated with a High-Speed Surface Permanent Magnet External Rotor Motor

Integrated Motor Drives

AUTHORS: Vandana Rallabandi, Shajjad Chowdhury, Pedro Ribeiro, Clayton Hickey, Jonathan Wilkins, Burak Ozpineci, Bidzina Kekelia, Emily Cousineau, Rajneesh Chaudhary, Sreekant Narumanchi

D06.9 Open-Circuit Switch Fault Detection Method for SPMSM Drives Using a Single DC-Link Shunt Current

Modeling and Control Techniques for Motor Drives

AUTHORS: Youjin Lee, Seoktaek Yun, Suyong Chae

D06.10 Adaptive Acceleration Control of a Six-Phase PMSM Considering Thermal-Mechanical Constraints

AC, DC, BLDC Motor Drives

AUTHORS: Md Moniruzzaman, Md Rashedur Rahman, Seungdeog Choi

D06.12 Investigation of DM and CM Reflected Wave Overvoltages and Their Mutual Suppression Using an Optimized Dwell-Time Approach in SiC-Based Two-Level Interleaved Motor Drives

Power Quality and EMI for Motor Drives

AUTHORS: Ali Anwar, Abdul Muneeb, Shiyue Deng, Yang Li, Abdul Basit Mirza, Fang Luo

D06.13 Phase Selection Strategies for Flux-Current-Based Position Sensorless Control of SRM

Modeling and Control Techniques for Motor Drives

AUTHORS: Yoshihiro Nakazawa

12:00 PM – 1:45 PM

D07: Power Electronics for Utility Applications 1

HEMISFAIR BALLROOM

SESSION CHAIRS

Drazen Dujic, *École Polytechnique Fédérale de Lausanne*

Khurram Afridi, *Cornell University*

D07.1 A Data-Driven Algorithm for Estimating Battery State of Charge via Smart Plug-Based PCC Measurements

Smart Grid and Metering

AUTHORS: Abolfazl Najar, He Yang, Jin Ye, Wenzhan Song

D07.2 Grid Connected Three-Phase Integrated Magnetic-Based Inverter with Inherent Active Harmonic Filtering

Power Quality, UPS, Active Power Filters

AUTHORS: Naresh Kumar Meena, Loganathan Umanand

D07.3 Hybrid Control Strategy for Dual Active Bridge Converters in UPS Systems

Power Quality, UPS, Active Power Filters

AUTHORS: Kuo Fu Liao, Pin Chieh Chan, Kuo Liang Lee

D07.4 A Novel Capacitorless High-Performance and Highly Reliable Active Output Filter (CLAOF) for Next-Generation Aerospace Applications

Power Quality, UPS, Active Power Filters

AUTHORS: Haitham Kanakri, Euzeli Cipriano Dos Santos Jr., Maher Rizkalla

D07.5 Fault Detection and Current Limitation Strategy for Grid-Forming Converters Under Balanced Faults

Microgrid Systems

AUTHORS: Matheus Bernardes Soares, Ênio Costa Resende, Danillo Borges Rodrigues, Luiz Carlos Gomes de Freitas, Lucas Pereira Pires

D07.6 Droop-Based Control Scheme for PV-Powered DC Microgrids with Load Shedding/Restoration Capability

Microgrid Systems

AUTHORS: Ali Elrayyah

D07.7 Effective Power Sharing in Radial DC Microgrids Using Dual Active Bridge with Cascaded Voltage Regulation Output Ports

Microgrid Systems

AUTHORS: Ali Elrayyah, Yilmaz Sozer

D07.10 Thermal Measurement of Asymmetric Losses in a Submodule of an Isolated Modular Multilevel DC-DC Converter

FACTs Devices and HVDC

AUTHORS: José-Andrés Aguilar Croston, Narges Moeini, Jean-Yves Gauthier, Cyril Buttay, Besar Asllani, Piotr Dworakowski, Maryam Saeedifard

D07.11 Capacitors Size Reduction in HVDC-MMC Systems Using Ripple Compensating Converters and Model Predictive Control

FACTs Devices and HVDC

AUTHORS: Bishop Poudel, Ali Elrayyah

12:00 PM – 1:45 PM

D08: On-Board and Off-Board Chargers

HEMISFAIR BALLROOM

SESSION CHAIRS

Xiaoyan Liu, *Tesla*

Bhanu Teja Vankayalapati, *Texas Instruments*

D08.1 Evaluation of Novel Integrated Charger Inverter Architecture for Electric Vehicles

Vehicular Power Electronic Circuits and Systems

AUTHORS: Prabath Binduhewa, Sachith Wijesooriya, Gayan Dissanayake, Ujala Maha Gamage, Sandun S. Kuruppu, Jiangbiao He

D08.2 Mode Transition Analysis for Multifunctional Secondary Stage Three Port Integrated Dual Input DC-DC Converter for On-Board Charging Applications

Vehicular Power Electronic Circuits and Systems

AUTHORS: Ritankar Kumar, Olive Ray

D08.3 A Unified Off-Board Charging System for Integrated Wired and Wireless EV Charging

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Cheol-Hee Jo, Subhajyoti Mukherjee, Mostak Mohammad, Omer C. Onar

D08.4 Exploring the Design Limits of a 22-kW All-GaN 3L-NPC and Interleaved Dual-Buck iOBC with Common Mode Voltage Cancellation

On-board and Off-board Charging Systems

AUTHORS: Ebraam Fakhuri, Christian Klumpner, Md Rishad Ahmed, Ying Li

D08.5 Single-Stage On-Board Charger Based on LLC Converter with Output Ripple Suppression Control

On-board and Off-board Charging Systems

AUTHORS: Xiaozhou Wang, Shuang Zhao, Helong Li, Jinxiao Wei, Lan Liu, Zhiqing Yang, Yun Yang, Lijian Ding

D08.6 Grid Voltage Sensorless Predictive Power Control of an Off-Board Battery Charger with Adaptive Inductance Estimation

On-board and Off-board Charging Systems

AUTHORS: Durga Prasad Pilli, Deepak Ronanki, Apparao Dekka

D08.7 Boundary Conduction Mode Control Considering Circulating Current for Two-Parallel Interleaved Vienna Rectifier

On-board and Off-board Charging Systems

AUTHORS: Joonhyung Kim, Juyeon Lee, June-Seok Lee

D08.8 Evaluation and Improvement of DC Capacitor Utilization in Resonant Converters with Reconfigurable Rectifiers

On-board and Off-board Charging Systems

AUTHORS: Sayed Amir Hashemi, Arsalan Rasoolzadeh, Majid Pahlevani

D08.9 Optimized DC/DC Converters for Pulsed Charging of Electric Vehicles Batteries Adopting Active Ripple Energy Concepts

On-board and Off-board Charging Systems

AUTHORS: Reyyan Ahmad Khan, Sadik Cinik, Asim Ibrahim, Petar J. Grbović, Giuseppe De Falco, Roberto Petrella

12:00 PM – 1:45 PM

D09: Power Electronics Applications 1

HEMISFAIR BALLROOM

SESSION CHAIRS

Aitor Vázquez Ardura, *Grupo de Sistemas Electrónicos de Alimentación*

Juan Ramón G. Meré, *University of Oviedo*

D09.1 A Novel Method for Peak Current Suppression Using a Bus Connected Energy Storage Converter

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Peyman Asadi, Lei Wang, Mark Alexander, Gaetano Petrina, Shea Petricek

D09.2 A Maximum Power Point Tracking Algorithm with the Adaptive Moment Estimation for a PV System

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Jianwu Zeng, Zichun Lin, Taesic Kim

D09.3 Differential Power Processing for Ultra-Efficient Data Center Server Rack Applications

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Michael Solomentsev, Xiaoling Li, Joshua Major, Alex Hanson

D09.5 An Efficient Power Management Method for Limited-Power Systems Operating with Long Supply Cables

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Martin Plesnik, Gabriel Patulea

D09.6 Interleaved Resonant FCML Converter Architecture for Scalable Vertical Power Delivery in High-Performance Computing Systems

Datacenter (including AI) / Telecom Power Architecture & System Considerations

AUTHORS: Amir Lotfi, Sriharini Krishnakumar, Amirhosein Gohari Nazari, Mohammad B. Shadmand, Inna Partin-Vaisband

D09.8 Control of an Active Clamp Flyback Converter for a Travelling Wave Tube

Defense and Military Power Electronics

AUTHORS: Alberto Astolfi, Alessandro Revelant, Paul D. Mitcheson

12:00 PM – 1:45 PM

D10: Wireless Power Transfer 1

HEMISFAIR BALLROOM

SESSION CHAIRS

Khurram Afridi, *Cornell University*

Shajjad Chowdhury, *Oak Rodge National Laboratory*

D10.1 Omnidirectional Wireless Power Transfer at MHz for Capsule Endoscopy

Wireless Charging

AUTHORS: Heng Zhang, Paul D. Mitcheson, Chi-Kwan Lee

D10.2 Embeddable, Affordable, 50 Ω Matched Contactless Sensors for Power Device Switching Characterization and Monitoring

Non-contact Sensors for Power Electronics

AUTHORS: Camille Gillot, Timothée Labau, René Escoffier, Bruno Allard

D10.3 A Novel Online Mutual Inductance and Output Voltage Identification Method for WPT Systems with Multiple Transmitter Coils

Non-contact Sensors for Power Electronics

AUTHORS: Junhui Yang, Chaoqiang Jiang, Xiaosheng Wang, Zhaozheng Zhu

D10.4 A Feedback-Less Model Free Approach to Efficiency Enhancement in Dynamic Wireless Power Transfer for EV Charging

Wireless Charging

AUTHORS: Sina Navaiyan Kalat, Sadegh Vaez-Zadeh, Brandon Grainger

D10.5 Open-Loop Stability Analysis and Derivation of Optimal Coupling Coefficient for Capacitive Power Transfer Systems

Wireless Charging

AUTHORS: Subhabrata Basak, Utsab Kundu, Loganathan Umanand

D10.6 Closed-Form Solutions for Self and Mutual Capacitances in Capacitive Wireless Power Transfer Systems

Wireless Charging

AUTHORS: Subhabrata Basak, Utsab Kundu, Loganathan Umanand

D10.7 Phase-Coordinated Dual-Channel IPT for Constant Voltage Under Two-Dimensional Misalignment

Wireless Charging

AUTHORS: Yihao Wu, Zongyang Zhu, Haoyu Wang, Ziyang Xu, Alex J. Hanson

D10.8 Analytical Boundaries and Design Criterion of ZVS in Series Compensated WPT Systems

Wireless Charging

AUTHORS: Lokukankanamge Peiris, Carl Ho, David Swatek

D10.9 High-Power Wireless Phone Charging via Reconfigurable MagSafe-Coil

Wireless Charging

AUTHORS: Giulia Segatti, Liyu Yang, Yanchao Li, Liang Jia, Li Wang, Stefano Saggini

D10.10 Optimization of Communication Techniques for Efficient WPT

Wireless Charging

AUTHORS: Giulia Segatti, Liyu Yang, Liang Jia, Li Wang, Yanchao Li, Stefano Saggini

12:00 PM – 1:45 PM

D11: Magnetics Applications & Characterization

HEMISFAIR BALLROOM

SESSION CHAIRS

George Slama, *Wurth Elektronik*

Ed Herbert, *PSMA*

D11.1 Winding Loss Model for Toroidal Core Magnetics Using the Mirroring Method

Magnetics Modeling and Simulations

AUTHORS: Jonas Mühlethaler

D11.2 A Lightweight Deep Learning Model for Core Loss Prediction Based on Waveform Segmentation

Magnetics Modeling and Simulations

AUTHORS: Shangrong Li, Yingyi Yan, Bo Zhang

D11.3 High-Efficiency 10 kW Transformer Design, Loss Evaluation, and Misalignment Analysis for Inductive Wireless Charging of Autonomous Underwater Vehicles (AUVs)

Magnetics Modeling and Simulations

AUTHORS: Prasanth Thummala, Xiulin Chen, Avinash Maguluri, Yu Qi, Zihao Liu, Yong Pang, Xin Gao, Xiaoyun Rong, Zhongxun Jiang

D11.4 Comparison of DC Biased Inductances with Small- and Large-Signal AC-Excitation

Magnetics Modeling and Simulations

AUTHORS: Pierre Küster, Lennart Hoffmann, Jens Friebe

D11.5 A New Winding Structure for Balance Technique Considering Soft Saturation Characteristics of Powder Cores

Winding Techniques

AUTHORS: Gaku Kondo, Yota Omizu, Sihoon Choi, Jun Imaoka, Masayoshi Yamamoto

D11.6 Automated Characterization and Loss Modeling of Medium Frequency Magnetic Cores

High-Frequency Magnetics

AUTHORS: Joaquin Tristan, Jacob Ferrer, Christopher Bracken, Todd Marzec, Brandon Grainger, Paul Ohodnicki Jr.

D11.7 Enhancing Efficiency and Increasing Leakage Inductance by Using Aluminium Foil Winding in Transformer for Dual Active Bridge Converter

Winding Techniques

AUTHORS: Priya Priya, Sandeep Anand, Baylon G. Fernandes

D11.8 FEA-Driven High-Frequency Transformer Design, Fabrication and Loss Characterization

High-Frequency Magnetics

AUTHORS: Thilina Dissanayake, Vandana Rallabandi, Rafal Wodja, Clayton Hickey, Ethan Kotre, Sahan Wijethunga, Pablo Gomez, Sandun S. Kuruppu

D11.9 Low Profile, Laminated Nife Transformers for High-Frequency LLC Resonant Converters

Advanced Magnetic Materials and Geometries

AUTHORS: Xuan Wang, Farrukh Jamshed, Victor Gao, Lei Gu, Adel Nasiri, Mark Allen

D11.10 Circuit-Based Analytical Model for the Airgap Effect on Current Sharing in Parallel Windings of a Planar PCB Transformer

Magnetics Modeling and Simulations

AUTHORS: Yan Liang, Yi-Hsun Hsieh, Qiang Li

D11.11 Flatwise Windings for Improved Thermal Management in High Power Transformer Applications

Winding Techniques

AUTHORS: Karl Raymond Roque, Itsuki Masuda, Sihoon Choi, Jun Imaoka, Masayoshi Yamamoto, Matti Kauhanen, Kengo Tashiro

12:00 PM – 1:45 PM

D12: DC-AC Inverters

HEMISFAIR BALLROOM

SESSION CHAIRS

Yunting Liu, *The Pennsylvania State University*

Shivam Chaturvedi, *George Mason University*

D12.1 Randomized Threshold-Based Power Sharing Switching Method for Cascaded H-Bridge Multilevel Inverters

PWM Strategies

AUTHORS: P. M. Lingom, Emmanuel Agamloh, Joseph Song-Manguelle, Roland Unruh, Ideal O. Libouga, Mamadou Lamine Doumbia

D12.2 Coordinate-Based Variable-Switching-Frequency PWM Strategy for Parallel Three-Level NPC Converters for Low-Voltage High-Current Applications

Multilevel Inverters

AUTHORS: Knapoj Chaimanekorn, Ryan Olson, Tianchen Li, Robert Cuzner, Yue Zhao, Feng Guo

D12.3 A Novel Quasi-Five-Level Three-Phase Inverter

Multilevel Inverters

AUTHORS: Christoph Sachs, Fabian Stamer, Jan Allgeier, Martin Neuburger

D12.5 A Novel Driving Scheme for a Multilevel Inverter Stage Utilizing a Solid-State Multi-Terminal Bidirectional Switch

Multilevel Inverters

AUTHORS: Panagiotis Adamopoulos, Anna Moschopoulou, Christos Apostolopoulos, Georgios-Ioannis Bontaitis, Georgios Kampitsis

D12.6 Study of a GaN Modular Multilevel Converter as a Variable-Frequency Active Rectifier for Aeronautical Applications

Multilevel Inverters

AUTHORS: Stephane Ngo Bui Hung, Cyrille Gautier, Lucas Pniak, Loïc Quéval, Bertrand Revol, Éric Labouré

D12.7 Single-Stage Transformer-Based Multilevel Inverter with FCS-MPC Control for High-Performance Grid-Tied Applications

Multilevel Inverters

AUTHORS: Ahmed Ismail M. Ali, Mahmoud S. R. Saeed, Alaaeldien Hassan, Ahmed Hemeida, Mahetab Alam, Anouar Belahcen

D12.8 A Single-Input Single-Phase Five-Level Current Source Inverter with Reduced DC Inductance Value

Multilevel Inverters

AUTHORS: Ling Xing, Qiang Wei, Yan-Fei Liu

D12.9 Analytical Modeling of Common-Mode and Differential-Mode Voltage Spectra for a Two-Level, Three-Phase Inverter

Single and Multi-Phase Inverters

AUTHORS: Hassan Abdallah, Ryan Olson, Tianchen Li, Robert Cuzner

D12.10 A Novel Nine-Level Grid-Tied Common-Ground Inverter with Reactive Power Control, Using One-Cycle Method

Multilevel Inverters

AUTHORS: Saeideh Mona Khadem, Hen-Geul Yeh, Naser Vosoughi

D12.11 SiC-MOSFET/Si-IGBT Hybrid Dual-Side Auxiliary Edge Resonant Cells Soft-Switching PWM Inverter

Single and Multi-Phase Inverters

AUTHORS: Tomokazu Mishima, Kazuki Sato, Shigehiro Yamamoto, Ching-Ming Lai

D12.12 Study and Implementation of a Three-Phase Three-Level NPC Inverter with Leakage Current Suppression

Single and Multi-Phase Inverters

AUTHORS: Cheng-Yi Hsu, Tsorng-Juu Liang, Wen-Chung Chen, Kai-Hui Chen, Po-Yu Su

D12.14 Cost-Optimized Resilient Operation of Grid-Forming Cascaded H-Bridge Inverters with Andronov-Hopf Oscillator-Based Parallel Operation

Multilevel Inverters

AUTHORS: Vikram Roy Chowdhury, Uthandi Selvarasu, Shumeng Wang, Jinli Zhu, Mahshid Amirabadi, Yuan Li, Brad Lehman

D12.15 Phase Shift Modulation and Compensation with NPV Observer in Single-Phase 5L-ANPC-FC Inverter

Multilevel Inverters

AUTHORS: Pengwei Li, Yi Luo, Ali Bazzi

12:00 PM – 1:45 PM

D13: High Voltage or High Power DC-DC Converters 2

HEMISFAIR BALLROOM

SESSION CHAIRS

Rimon Gadelrab, *Texas Instruments*

Luke Jenkins, *IBM*

D13.1 Time-Domain Modeling of Dead Time in a 1-MHz, 5-kW GaN-Based LLC Converter

Resonant Converters

AUTHORS: Aqarib Hussain, Kristen Booth

D13.2 800V to 48V Two-Phase Unfolded Resonant Converter

Resonant Converters

AUTHORS: Christian Branas, Francisco Azcondo, Alberto Pigazo

D13.3 Vertical Power Delivery Module Design and Integration for 850A AI ASIC

Voltage Regulator Modules (VRM)

AUTHORS: Shenli Zou, Joan Wu, Satyam Saini, Yin Hang, Louie Lu, Jonathan Tang

D13.4 Switched Capacitor-Coupled Buck: A Regulated Ibc Solution for 48V-to-5V

Hard- and Soft-Switched

AUTHORS: Kevin Zufferli, Roberto Rizzolatti, Mario Ursino, Simone Mazzer, Gerald Deboy, Stefano Saggini

D13.5 Three-Port Microconverter Integrating PV Module and Battery to DC-Bus for Reduced Intermittency

Hard- and Soft-Switched

AUTHORS: Georgios Salagiannis, Emmanuel Tatakis

D13.6 On the Limits of ZVS in the High-Frequency Switched Series Resonant Balancing Converter

Resonant Converters

AUTHORS: Matthias Musil, Klaus Krischan, Roberto Petrella, Michael Hartmann

D13.8 Adaptive Reinforcement Learning (ARL) Control of a Multi-Port Resonant Converter in UAV Systems

Resonant Converters

AUTHORS: Erdem Asa, Kerim Colak

D13.10 Implementation of Soft-Switching in SiC Devices with Integrated Optical Sensing

Hard- and Soft-Switched

AUTHORS: Yingchao Chi, Borong Hu, Benxuan Li, Zhenshuai Rong, Jinfeng Zhang, Teng Long

D13.11 Converter Topology for DCX Operation with Time-Varying DC Voltages in Three-Phase Unfolding Architectures

Resonant Converters

AUTHORS: Sanat Poddar, Regan Zane

D13.12 Exact Analysis of a Series Resonant Converter Incorporating a Switch-Assisted Rectifier

Resonant Converters

AUTHORS: Arkadeb Sengupta, Waseah Anjum, Marco Liserre

D13.13 High-Density, High-Efficiency GaN-Based 800 V/50 V LLC Converter for Future Datacenters

Resonant Converters

AUTHORS: Pranav Raj Prakash, Qiang Li

12:00 PM – 1:45 PM

D14: Devices 1: Silicon and Passive

HEMISFAIR BALLROOM

SESSION CHAIRS

Samuel Atwimah, *University of Toledo*

D14.2 Evaluation of Critical Parameters for Effective MOSFET Parallelization in Power Applications

Power Silicon MOSFETs, BJTs, IGBTs, etc.

AUTHORS: Guilherme Bueno Mariani, Felix Krall, Susheel Badha, Elvir Kahrimanovic

D14.3 Refining Switching Charge Interval for Power Loss

Power Silicon MOSFETs, BJTs, IGBTs, etc.

AUTHORS: Orion Kress-Sanfilippo, David Jauregui

D14.4 Power Loss Analysis of Various Hybrid SiC/Si Half- and H-Bridges for Optimal Operation

Power Silicon MOSFETs, BJTs, IGBTs, etc.

AUTHORS: Yi Luo, Pengwei Li, Ali Bazzi

D14.5 Supercapacitor Module-Based Characterisation of Solar Panels in the Field

Capacitors, Supercapacitors

AUTHORS: Bilby Johnson, Nihal Kularatna

D14.6 Current Stress Calculation and Optimal Selection of Bulk Capacitor in Motor Drive System with Single-Phase Uncontrolled Rectification

Capacitors, Supercapacitors

AUTHORS: Zongjie Zhou, Yuwei Wu, Zhaotian Yan, Kevin Jing Chen

D14.7 Maximizing Capacitance Density in 48V DC-DC Converters: An MLCC Selection Guide

Capacitors, Supercapacitors

AUTHORS: Joseph Winkler, Jonas Niemeyer, Bernhard Wicht

D14.8 A PCB-Based MLCC Capacitor Assembly with Reduced Parasitics for Applications Requiring Low-Ripple and Low-Impedance

Capacitors, Supercapacitors

AUTHORS: Burkhard Ulrich, Jannik Maier

D14.9 High-Frequency Current-Doubler Rectifier-Based Buck Capacitive-Isolated Converter

Capacitors, Supercapacitors

AUTHORS: Manaya Makino, Rintaro Kusui, Kodai Nishikawa, Hiroki Watanabe, Jun-Ichi Itoh, Kenichi Nagayoshi, Koki Nagae, Takehiko Sumida

12:00 PM – 1:45 PM

D15: Control 4

HEMISFAIR BALLROOM

SESSION CHAIRS

Seungdeog Choi, *Mississippi State University*

Narayan Kar

D15.1 Estimation of the Electrical Equivalent Circuit Parameters of an Induction Machine at Standstill Using the Recursive Least Squares Algorithm and Optimized Excitation Conditions

Control of Power Electronic Converters

AUTHORS: Christoph Heuberger, Heiko Zatocil

D15.2 Passive-Based Assessment of Control Delays on Grid-Following Inverter Admittance Above the Nyquist Frequency

Control of Power Electronic Converters

AUTHORS: Jing Duan, Jie Ye, Songtao Huang, Yukai Huang, Ziao Ren, Jinbang Xu, Longyu Li

D15.3 Series Grid Impedance Regulator Based on Impedance-Emulating Control

Control of Power Electronic Converters

AUTHORS: Ruisheng Shi, Li Zhang, Peng Jiang, Yuhang Zou, Kai Zhang, Jun Lei

D15.4 Self-Powered Gate Driver with Nanosecond-Scale Fault Protection for 650V GaN HEMTs

Gate Drive Circuits and Fault Protection

AUTHORS: Seongho Shon, Haoran Meng, Xiaoqing Song, Hui Li

D15.5 A Decoupled Control Methodology for Stable Operation of Current-Fed Quad Active Bridge Converter

Control of Power Electronic Converters

AUTHORS: Rajat Kumar Shukla, Debasattam Pal, Dipankar Saha, Baylon G. Fernandes

D15.6 Characterization and Comparison of Isolated Gate Driver ICs Considering Diverse Techniques for Cryogenic Applications

Gate Drive Circuits and Fault Protection

AUTHORS: Tian Qiu, Zheyu Zhang, Dilip Rana, Purushottam Khadka

D15.7 Motor Ground Fault Protection via High-Side Current Sensing

Gate Drive Circuits and Fault Protection

AUTHORS: Aaron Clyde Dublin, Jhaebhee Mark Calderon, John Henry Puente, John Emmanuel Tan

D15.9 Robust Control Design and Implementation for Dual Active Bridge Converter with Constant Power Load Under Parameter Uncertainty

Control of Power Electronic Converters

AUTHORS: Ziyong Liu, Javad Ebrahimi, Suzan Eren

12:00 PM – 1:45 PM

D16: Control 7

HEMISFAIR BALLROOM

SESSION CHAIRS

Mohamed Hussien, *Tanta University*

Pedram Chavoshipour Heris, *Mississippi State University*

D16.1 Sensorless Current Balancing Control for Interleaved High-Gain 5X DC/DC Converters

Control of Power Electronic Converters

AUTHORS: Hung-Chi Chen, Yu-Cheng Lin, Chih-Chiang Wu

D16.4 A Bridge-Pair Magnetic Field Detection Architecture for Enhanced dv/dt Rejection in Switch Node Proximity Current Sensing

Sensor and Sensor-less Control

AUTHORS: Hossein Niakan, Ali Farahani, James Gafford, Babak Parkhideh

D16.5 Digital Tolerance Compensation Algorithm and Adaptive ZVS Detection Approach of Asymmetrical Half Bridge Converter

Control of Power Electronic Converters

AUTHORS: Xingqi Chen, Desheng Guo, Sheng-Yang Yu, Shashank Madineni, Wen-Hung Huang

D16.6 **Sensorless Control of SPMSM for Low-Speed Region Based on Physics-Informed Extreme Learning Machine**

Sensor and Sensor-less Control

AUTHORS: Dyan Puspita Apsari, Dong-Choon Lee

D16.7 **Active Gate Drive with Optical Communication and Integrated Power and Signal Systems in Series Connected SiC MOSFETs**

Gate Drive Circuits and Fault Protection

AUTHORS: Junghoon Kim, Karen Reyes, Kangbeen Lee, Woongkul Lee

12:00 PM – 1:45 PM

D17: Renewable Energy Systems

HEMISFAIR BALLROOM

SESSION CHAIRS

Jingbo Liu, *Eaton, US*

Xinru Li, *CBMM Technology Suisse*

D17.1 **Single-Phase Grid-Connected PV Inverter Operating in VCM Using Droop Control and Phase Shift Feedback**

Photovoltaic (PV) Inverters and Micro Inverters

AUTHORS: Lúcio Rogério Júnior, Henrique Tannús de Moura Carvalho, Danillo Borges Rodrigues, Ênio Costa Resende, Luiz Carlos Gomes de Freitas, Ernane Antônio Alves Coelho

D17.2 **Real Time Converter-Based EIS with Output Disturbance Mitigation for Fuel Cell Application**

Fuel Cells and Other Emerging Renewable Energy Systems

AUTHORS: Pedro Andrade, Adérito Neto Alcaso, António João Marques Cardoso

D17.4 **Dynamic Power Sharing in Pv–Battery Dual-Source Inverters Using Modified Virtual Space Vector Modulation**

Photovoltaic (PV) Inverters and Micro Inverters

AUTHORS: Hosein Ghojavand, Javad Ebrahimi, Suzan Eren

D17.6 **Impedance Measurement and Characterization of a 200W PV Panel Using a STEMlab 125-14 Platform**

Fuel Cells and Other Emerging Renewable Energy Systems

AUTHORS: Kallol Biswas, Kalinath Katuri, Sung-Yeul Park

D17.7 **Bayesian GPR-Based Degradation Analysis of PV Modules Using STEMlab 125-14 Impedance Measurements**

Fuel Cells and Other Emerging Renewable Energy Systems

AUTHORS: Kallol Biswas, Kalinath Katuri, Sung-Yeul Park

12:00 PM – 1:45 PM

D18: Power Electronics for Utility Applications 2

HEMISFAIR BALLROOM

SESSION CHAIRS

Dong Dong, *Virginia Tech*

Mohammed Agamy, *University at Albany*

D18.1 **Artificial Intelligence-Based Enhanced State of Health Estimation for Lithium-Ion Battery Utilizing Two-Pulse Load Test**

Energy Storage Systems

AUTHORS: Shaun Thurber, Sooan Pack, Youngkeun Kim, Yeonho Jeong

D18.3 **Online Full ZVS Optimization for Modular Multi-Active Bridge Converter in Mv Pet**

Solid-State Transformers

AUTHORS: Haoyu Wang, Junwei Liu, Jialin Zheng, Yangbin Zeng, Di Mou, Zian Qin

D18.4 **Fast Frequency Regulation with Supercapacitor Energy Storage Systems**

Energy Storage Systems

AUTHORS: Michael Hetzel, Roberto Bellapianta, Jonghun Yun, George Weiss, Federico Silvestro, Giovanni De Carne

D18.5 **Bipolar Boost Converter for Transformerless Battery Energy Storage Integration in the Medium Voltage Distribution Grid**

Energy Storage Systems

AUTHORS: Sabrina Helbig, Jacob Mueller, Jack Flicker, Brandon Grainger

D18.6 **Battery Supercapacitor HESS for Sudden Power Delivery in Smartphone Circuits and Fast Charging**

Energy Storage Systems

AUTHORS: Kavishka Dissanayake, Dulsha Kularatna-Abeywardana, Nitish Patel, Nihal Kularatna

D18.7 **Real-Time Simulation Platform for a Solid-State Transformer with Multilevel Cascaded H-Bridge Dual-Active Bridge Back-to-Back Converters**

Solid-State Transformers

AUTHORS: Zerui Dong, Aditya Ashok, Juan Paez-Alvarez, Satish Kumar Ancha

D18.8 **Towards Embedded Battery Diagnostics Using Electrochemical Impedance Spectroscopy**

Energy Storage Systems

AUTHORS: Latha Anekal, Chandan Chetri, Sheldon Williamson

D18.9 Convolutional Neural Network-Based Equivalent Circuit Model Classification from EIS Data for Battery Degradation Prediction

Energy Storage Systems

AUTHORS: Chandan Chetri, Latha Anekal, Sheldon Williamson

D18.10 State-of-Health Estimation in NCA Lithium-Ion Batteries Using Incremental Capacity Analysis and Gaussian Process Regression While Considering Capacity Recovery

Energy Storage Systems

AUTHORS: Zhe Zhou, Taek Keun Lyu, Peter Nguyen, Saekyeol Kim, Jae Wan Park

12:00 PM – 1:45 PM

D19: Power Electronics for Electric Vehicles

HEMISFAIR BALLROOM

SESSION CHAIR

Yu Zou, *GE Aerospace*

D19.1 Multi-Port DCX Converter for EV On-Board Charging and Low-Voltage Power Distribution

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Hector Sarnago, Oscar Lucía

D19.2 Design and Control of a GaN-Based High-Frequency Converter for Low-Voltage Fuel Cell Electric Vehicle with Extreme Voltage Gain

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Sang Min Lee, Hyeon Soo Kim, Yun Seong Hwang, Seung Hyun Kang, Ju-A Lee, Joo Seung Lee, Ju Han Kim, Jeong Hee Park, Byoung Kuk Lee

D19.3 Design of a Modular Sine-Wave GaN Traction Inverter for 400V Automotive Applications

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Simone Giuffrida, Fabio Mandrile, Radu Bojoi

D19.4 Dynamic DC Voltage-Compatible Asymmetrical Space Vector Modulation for Dual Source Inverters

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Javad Ebrahimi, Hosein Ghojavand, Suzan Eren

D19.5 Suppressing EMI Noise Effect on Wireless Temperature Monitoring for Magnet of the Permanent Magnet Synchronous Motor

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Qingzheng Zhang, Kaiyuan Feng, Changsheng Hu, Yang Zhang, Yao Zheng, Min Chen, Dehong Xu

D19.6 Comparative Analysis of Three-Port Converters for Electric Medium- and Heavy-Duty Vehicles with 48-V Auxiliaries and 1.25-kV Powertrains

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Kyle Kozielski, Mehdi Narimani, Ali Emadi

D19.8 Efficiency-Oriented Modulation Strategy for Flying-Capacitor Multi-Source Inverters in Hybrid Energy Storage Applications

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Javad Ebrahimi, Behzad Soleymani, Suzan Eren

D19.9 Battery Preheating Strategy for Electric Vehicles Utilizing Motor Drive System with Maximum Power Loss Point Tracking

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Nahyun Kang, Junhyuk Yang, Gyu Cheol Lim, Jung-Ik Ha

D19.10 Field-Weakening Control of Induction Motors with Coasting-Trajectory Feedforward and Flux Linkage Delay Compensation

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Joon-Seok Kim, Yeongsu Bak, June-Seok Lee

12:00 PM – 1:45 PM

D20: Power Electronics Applications: Solid State Circuit Breakers and IOT

HEMISFAIR BALLROOM

SESSION CHAIRS

Alexis Gómez, *University of Oviedo*

Juan Rodriguez, *University of Oviedo*

D20.2 Thermal Design and Analysis of Phase Change Material Integrated SiC Based Solid State Circuit Breaker

Solid State and Hybrid Circuit Breakers

AUTHORS: Mohammad Dehan Rahman, Yannal Nawafleh, Cade Marcinkovich, Han Hu, Xiaoqing Song

D20.3 A Parallel Nonlinear Inductor-Based and a Coupled Inductor-Based Fault Current Commutation Strategies for a Medium-Voltage Hybrid DC Circuit Breaker

Solid State and Hybrid Circuit Breakers

AUTHORS: Qichen Yang, Nash Bonaventura, Andre Llanos, Tony Torres, Karl Schoder, Lukas Graber

D20.4 A Low-Cost Multi-Port Hybrid Circuit Breaker with Common Solid-State Branch

Solid State and Hybrid Circuit Breakers

AUTHORS: Daixin Chen, Yannal Nawafleh, Xianglai Zeng, Xiaoqing Song

D20.5 Magnetic Field Energy Harvesting for Localized Power Sources in Medium Voltage AC Drives

Energy Harvesting and Power for IoT

AUTHORS: Michael Wood, Wensong Yu

D20.6 Concurrent Power Generation and Data Transmission: A 2.4 GHz LoRa Solar Monitoring System

Energy Harvesting and Power for IoT

AUTHORS: Felipe Narimatsu Presti, Lucas Araujo Dantas, Marcelo Barros de Almeida, Márcio José Da Cunha, Luiz Carlos Gomes de Freitas, Luiz Pedro Bittencourt Souza, Lucas Campos Lofrano

D20.7 A Self-Sensing Synchronized-Switch Circuit for Multi-Input Piezoelectric Energy Harvesting

Energy Harvesting and Power for IoT

AUTHORS: Xianjun Xu, Yong'An Chen, Qishan Pan, Haoyu Wang, Junrui Liang

D20.8 A Control Architecture for Maximum Energy Extraction from Impulsive Sources

Energy Harvesting and Power for IoT

AUTHORS: Shivam Kumar, Asad Khan, Imad Al-Qadi, Arijit Banerjee

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12:00 PM – 1:45 PM

D21: Wireless Power Transfer 2

HEMISFAIR BALLROOM

SESSION CHAIRS

Hua Zhang, *Lehigh University*

Sounak Maji, *Texas Instruments*

D21.1 Multi-Layer Frequency-Selective Surface for Magnetic Field Shielding in Megahertz Wireless Power Transfer Systems

Safety and Reliability

AUTHORS: Wenqiong Chen, Bo Xue, Kerui Li, Alex M. H. Wong, Shu Yuen Ron Hui

D21.2 A Real-Time Optimal Efficiency Operation for Wireless Battery Charging Systems Without Communication

Wireless Charging

AUTHORS: Jiayu Zhou, Jiayang Wu, Siew Chong Tan, Shu Yuen Ron Hui

D21.3 A 6.78-MHz 15-cm-Air-Gap 2-kW Optimally Soft-Switched Modular Capacitive Wireless Power Transfer System for EV Charging

Wireless Charging

AUTHORS: Ayush Dixit, Asif Mushtaq Bhat, Sreyam Sinha

D21.4 Characterization and Design of Capacitors in a N-Capacitor Wireless Power Transfer System

Wireless Charging

AUTHORS: Avani Ahuja, Jade Sund, Samantha Coday

D21.5 A Constant Current Controller for a Single-Stage PFC Wireless Power Transfer Converter

Wireless Charging

AUTHORS: Saman Rezazade, Mohammed Agamy

D21.6 An Improved Current-Fed Power Transmitter Design with CLC Compensation for Dynamic Wireless Electric Vehicle Charging

Wireless Charging

AUTHORS: McKay Waite, Travis Newbolt, Paras Mandal, Regan Zane, Hongjie Wang

D21.7 High-Voltage Insulated Gate Driver Supply for Solid State Breaker Through Constant Voltage LCC-S Wireless Power Transfer

Safety and Reliability

AUTHORS: Haonan Song, Yue Wu, Yucheng Shen, Yang Xu, Hua Bai, Fred Wang, Fei Lu

D21.8 Soft-Start Control for SS-WPT in EV Charging

Wireless Charging

AUTHORS: Amirreza Mizani, Azam Jaman, Sajad Saberi, Jaber Abu Qahouq

D21.9 Low-Loss Pavement-Embedded Multi-MHz Capacitive Wireless Power Transfer System Using Optimized Curved Couplers

Wireless Charging

AUTHORS: Syed Saeed Rashid, Raquel Sarabia-Soto, Dheeraj Etta, Khurram K. Afridi

D21.10 Optimal Litz Wire Design for High-Power Wireless Charging System

Wireless Charging

AUTHORS: Emrullah Aydin, Mostak Mohammad, Omer C. Onar, Jonathan Wilkins, Bernhard Hoess

12:00 PM – 1:45 PM

D22: Magnetics Applications & Design

HEMISFAIR BALLROOM

SESSION CHAIRS

Matt Wilkowski, *Wurth Elektronik*

Ed Herbert, *PSMA*

D22.1 A New Low Profile, Power Dense Geometry for a 50 kW Transformer with PCB Windings for Electric Aircraft Applications

Advanced Magnetic Materials and Geometries

AUTHORS: Lufan Zhou, Daniel Ríos Linares, Pedro Alou, Miroslav Vasić, Alberto Delgado Expósito

D22.2 Geo2Field: A Deterministic DDPM for Accelerated Magnetic Field Simulation in Medium-Frequency Transformers

Magnetics Modeling and Simulations

AUTHORS: Ward Taborsky, Xiao Yang, Dongsheng Yang

D22.3 Design and Analysis of Leakage Inductance Integrated Transformer Structures Utilizing Interleaved Windings

High-Frequency Magnetics

AUTHORS: Kota Okada, Sihoon Choi, Jun Imaoka, Masayoshi Yamamoto, Takayuki Ikari, Akinori Okubo, Yuichi Iwasaki, Takahiro Tokita

D22.4 Accurate MHz-Range Hysteresis Simulation via a Delay-Enhanced Jiles-Atherton Model in Verilog-A

Magnetics Modeling and Simulations

AUTHORS: Bohua Zhang, Martin Pfost

D22.5 A Noval Integrated-Core Lateral-Flux Coupled Inductor for Vertical Power Delivery in Voltage Regulator Modules

High-Frequency Magnetics

AUTHORS: Yu-Chen Chung, Chien-Chun Chan, Huang-Jen Chiu, Yu-Chen Chang

D22.6 Universal SPICE Modeling of Magnetic Components Applying Vector Fitting Algorithms and State-Space Modeling

Magnetics Modeling and Simulations

AUTHORS: Alberto Vital Pagola, Jesus Oliver Ramírez, Daniel Ríos Linares, Miroslav Vasić, Alberto Delgado Expósito

D22.7 Physically Correct Magnetic Dimensions of Toroidal Cores Based on Material Type and Excitation

Magnetics Modeling and Simulations

AUTHORS: Lukas Mueller, James Cox, Jun Wang, Enrique Garcia

D22.8 MagNet Challenge 2023 Revisited: Beyond the Bounds of Equation-Based Core Loss Modeling

Magnetics Modeling and Simulations

AUTHORS: Asier Arruti, Anartz Agote, Iosu Aizpuru, Mikel Mazuela

D22.9 Matrix Transformer for Data Center Applications with Field-Balanced Secondary Winding and Integrated Shielding

High-Frequency Magnetics

AUTHORS: Thomas Jochmans, Hans Wouters, Wout Vanderwegen, Diego Acevedo-Bueno, Wilmar Martinez

D22.10 Transformer Design with Enhanced Ap Method Using Readily Available and Customizable Magnetics in DAB Converters for Wide Range EV Chargers

Magnetics Modeling and Simulations

AUTHORS: Mahmoodreza Eskandarpour Azizkandi, Wensong Yu, Liming Liu, Hongrae Kim

D22.12 An Improved Analytical Methodology for High-Frequency Planar Transformer Design in LLC Converters

High-Frequency Magnetics

AUTHORS: Venkata Praneeth Somina, Sethuram Ronanki, Bharath T, Sidhartha Chakroborty, Shailesh Ghotgalkar, Kaushik Basu

12:00 PM – 1:45 PM

D23: Power Electronics Integration and Manufacturing 1

HEMISFAIR BALLROOM

SESSION CHAIRS

Zhou Dong, *ABB*

Justin Henspeter, *IBM*

D23.1 High-Density Packaging Structure Optimization with Embedded Gate Driver for 3.3 kV SiC MOSFETs

Power Modules / High Density Design

AUTHORS: Yuxiang Chen, Liyang Du, Xia Du, H. Alan Mantooth

D23.2 Compliance Feasibility Study – A User-Friendly EMC Test Result Simulation and EMI Filtering Solution Design Tool

Quality and System Reliability Including EMI/EMC

AUTHORS: Yirui Yang, Qinghui Huang, Shuo Wang, Martin Kuo

D23.3 **Inverter Leg with Vertical Interconnection and Integrated Shielding: Opportunity for Vertical WBG Power Components**

Power Electronics Packaging

AUTHORS: Mahery Rajemisaona, Pierre-Olivier Jeannin, Vincent Bley, Mickael Petit, Fabien Ndagijimana

D23.4 **EMI Filter Design for Electric Vehicle with PCB-Integrated Capacitors**

Quality and System Reliability Including EMI/EMC

AUTHORS: Genzhai Peng, Yu Zhang

D23.5 **Frequency-Domain Based EMI Analysis and Prediction for Interleaved TCM and Integrated TCM (iTCM) PFC Converters**

Quality and System Reliability Including EMI/EMC

AUTHORS: Yusheng Chen, Tyler McGrew, Zhehui Guo, Ripun Phukan, Peter Barbosa

D23.6 **Binder Jet Printed Ferrite Cores and Lithographically Printed Ceramic Bobbins for Power Conversion**

Embedded Technologies, 3D Packaging, and Additive Manufacturing

AUTHORS: Ramanujam Ramabhadran, Sam Mahmodicherati, Jiale Xu, Juan Rivas-Davila, Cathleen Hoel

D23.7 **Short-Circuit Failure Mode Mechanical Readiness of SiC Press-Pack Packages**

Power Electronics Packaging

AUTHORS: Youssef Abotaleb, Ekaterina Muravleva, Jun Wang

D23.8 **Study of Electric and Magnetic Near-Fields from a Half-Bridge Converter and Their Impacts on Conducted Emissions in Other Devices**

Quality and System Reliability Including EMI/EMC

AUTHORS: Jeet Panchal, Mamoru Sasaki, Tim Thacker, Majid Manteghi, Dong Dong, Rolando Burgos

12:00 PM – 1:45 PM

D24: Low Voltage or Low Power DC-DC Converters 1

HEMISFAIR BALLROOM

SESSION CHAIRS

David Reusch, *University of Minnesota – Duluth*

Name??, *Texas Instruments*

D24.1 **A Light-Load Efficiency-Optimized Modulation for Integrated Buck-Boost-LLC Converter Under Wide Input-Voltage Range**

Resonant Converters

AUTHORS: Yang Zhang, Caifeng Liu, Wei Huang, Xudong Zou, Yong Kang

D24.2 **High-Bandwidth LLC Bus Converter with Direct Effective Power Control (D-EPC) for Power Delivery to Next-Generation AI Processors**

Resonant Converters

AUTHORS: Kenji Funatani, Toshiyuki Zaitsu, Kazuhiro Umetani, Kazuhito Kobayashi, Akito Nakagaki, Masataka Ishihara, Eiji Hiraki

D24.3 **X-ReLA: A Family of Stacked-Ladder Charge-Cross-Converging ReSC with 98.2% Peak Efficiency Featuring Wide Voltage Conversion Ratio and Always Reduced Inductor Current**

Resonant Converters

AUTHORS: Xuliang Wang, Haoyu Wang, Zhoutong Liu, Yuan Yao, Yang Liu, Wing Hung Ki, Jin Wei, Yan Wang, Xiaosen Liu

D24.4 **Monolithic C-L-C Hybrid DC-DC Converter for High Efficiency High-Density Direct 48V-Sub-1.8V Point-of-Load Applications**

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Guozhen Chang, Wing Hung Ki

D24.5 **A 91%, 1,113A/Inch³, 12-52V Input Voltage Fibonacci Hybrid Converter with 5 Flying Capacitors for Point-of-Load Conversion**

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Hua Chen, Young-Seok Noh, Minxiang Gong, Arijit Raychowdhury

D24.6 **PDN Impedance-Aware Phase Sequence Optimization for Multiphase Converters**

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Deqiu Yang, Wei Chen, Hongfeng Fan, Ning Dai, Xin Lou, Gary Yao

D24.7 **48-V/1-MHz Hybrid Switched-Capacitor Converter Achieving Load-Independent Zero-Voltage Switching**

Voltage Regulator Modules (VRM)

AUTHORS: Rui Xu, Yenan Chen

D24.8 High Step-Up DC-DC Converters Based on Modified Boost and SEPIC Converters in Cascaded and Integrated Versions

Hard- and Soft-Switched

AUTHORS: André Miguel Senderski, Carlos Henrique Illa Font, Francisco J. Viglus, Mário Lúcio da Silva Martins

D24.9 Modeling and Analysis of Piezoelectric-Resonator-Based Power Converters with Finite Terminal Capacitance

Resonant Converters

AUTHORS: Benjamin Karish, Wentao Xu, Jessica Boles

D24.10 Circuit-Balanced Flyback Converter Eliminating the Need for an Isolated Auxiliary Supply for Gate Driver IC

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Naoya Miyata, Yuta Imaeda, Silumin Sandaru Seneneyake, Sihoon Choi, Yu Yonezawa, Jun Imaoka, Masayoshi Yamamoto, Hayato Nakamura, Naoki Yoshikawa, Masashi Sawada

D24.11 Input-Inductor Cascaded Buck (I2CB) Converter for 48 V IBC Applications

Voltage Regulator Modules (VRM)

AUTHORS: Aria Delmar, Mausamjeeet Khatua, Harish Krishnamurthy, Andrew Stillwell

D24.12 Design and Characterization of a High Slew Rate Electronic Load for Data Center Power Converter Validation

Point-of-Load (POL) and Multi-Phase Converters

AUTHORS: Marrin Nerenberg, Roderick Bayliss III, Robert C.N. Pilawa-Podgurski

12:00 PM – 1:45 PM

D25: Devices 2: SiC

HEMISFAIR BALLROOM

SESSION CHAIRS

Fei Yang, *TI*

Raghu Kumar, *DEKRA*

D25.1 A Master-Slave Gate Driver Architecture for Paralleling of Medium-Voltage SiC MOSFET Power Module with Oscillation Feedback Path Blocking

GaN and SiC Devices and Modules

AUTHORS: Zhixing Yan, Gao Liu, Hongbo Zhao, Stig Munk-Nielsen

D25.3 Robustness of SiC and GaN Diodes Under Extreme dv/dt Stress Up to 980 V/ns

GaN and SiC Devices and Modules

AUTHORS: Zineng Yang, Hongchang Cui, Xin Yang, Hehe Gong, Yuan Qin, Yuhao Zhang

D25.4 In-situ Characterization of Forward Stability in SiC and GaN Diodes Over Stress Times from 10^{-5} to 10^{3} S

GaN and SiC Devices and Modules

AUTHORS: Xin Yang, Hehe Gong, Zineng Yang, Hongchang Cui, Hengbo Zhang, Kuokchi Lei, Yifei Huang, Yuhao Zhang

D25.5 Switching Loss Characterization with Uncertainty Quantification for 3.3 kV Monolithic Versus Discrete SiC Bidirectional FETs

GaN and SiC Devices and Modules

AUTHORS: Pengyu Fu, Zhining Zhang, Shuwei He, Jin Wang, Anant Agarwal, Stephen Mancini, Woongje Sung, Adam Morgan

D25.6 Analysis of Hard and Soft Switching Loss Imbalance Induced by Parameter Dispersion in Parallel Connected SiC MOSFETs

GaN and SiC Devices and Modules

AUTHORS: Dimitrios Deldimos, Andrea Piccioni, Fausto Stella, Gianmario Pellegrino

D25.7 Empirical Pre-Screen Method for Paralleling Operation of Medium-Voltage Silicon Carbide MOSFETs

GaN and SiC Devices and Modules

AUTHORS: Eric Allee, Ahmed Ismail, Baher Rizeq Abu Sba', Yue Zhao

D25.8 Lifetime of Wolfspeed SiC Discrete MOSFETs Under Power Cycling Stress

WBG Integration and Reliability

AUTHORS: Shilpi Mukherjee, Ayan Biswas, Edgar Ayerbe, Donald Gajewski

D25.9 Design and Validation of a 1MHz Double-Pulse Test (DPT) Methodology for 900V SiC MOSFET

GaN and SiC Devices and Modules

AUTHORS: Jinyuan Hu, Jungwon Choi

D25.10 Online Condition Monitoring of Bond Wire Lift-Off in SiC MOSFETs Using Discrete Transmission Line Response to Gate Resistor Voltage in SiC MOSFET

Power Silicon MOSFETs, BJTs, IGBTs, etc.

AUTHORS: Keqi Song, Shu-Hung Henry Chung

12:00 PM – 1:45 PM

D26: Control 5

HEMISFAIR BALLROOM

SESSION CHAIRS

Sneha Narasimhan, *ABB*

Qingyun Huang,

D26.1 **A Scalable Model Predictive Control with Integrated Power-Sharing Switching Function for Single-Phase N-Level Cascaded H-Bridge Inverters**

Control of Power Electronic Converters

AUTHORS: P. M. Lingom, Emmanuel Agamloh, Joseph Song-Manguelle, Roland Unruh, Ideal O. Libouga, Mamadou Lamine Doumbia

D26.2 **An Online Gate Leakage Detection Method Using Diode Voltage Drop**

Gate Drive Circuits and Fault Protection

AUTHORS: Hangxian Gao, Tetsuya Kawashima, Haruka Shimizu

D26.3 **Discrete-Time Multivariable PID Design in Voltage-Mode Boost Converters for Enhanced Performance and Stability**

Current-Mode and Voltage-Mode Control

AUTHORS: Dipayan Chatterjee, Santanu Kapat, Philip Krein, Pranav Golagana, Indra Narayan Kar

D26.4 **Formulating Critical Performance Limits and Power Stage Design in Multiphase Voltage Regulators with Input Voltage and Power FET Technology Scaling**

Control of Power Electronic Converters

AUTHORS: Teja Golla, Santanu Kapat

D26.5 **Self-Adjusting LFER-Based Dynamic Gate Driving Technique for Fast-Switching GaN HEMTs in 48-V Applications**

Gate Drive Circuits and Fault Protection

AUTHORS: Xiangyu Teng, Junting Chen, Yuwei Wu, Ji Shu, Kevin Jing Chen, Wei Jia Zhang

D26.6 **Impact of Combined Ceramic and Electrolytic Output Capacitors on the Dynamic Response of BOOST Voltage Regulators**

Current-Mode and Voltage-Mode Control

AUTHORS: Subodh Khandelwal, Vahid Yousefzadeh, Shubham Narula, Montu Doshi

D26.8 **A Novel Low-Voltage Ride-Through Control for Bidirectional Megawatt Charging System with Grid Support Capability**

Control of Power Electronic Converters

AUTHORS: Stephen Ambe Chengu, Nikolaos Gatsis, Miltiadis Alamaniotis, Sara Ahmed

D26.9 **Online Monitoring and Control of Power Converter Junction Temperature in Wave Energy Systems Using Artificial Neural-Network-Based Model Predictive Control**

Control of Power Electronic Converters

AUTHORS: Qiang Mu, Kamal Paul, Zaheen Mustakin, Jiale Zhou, Lucas Pereira, Babak Parkhideh, Tiefu Zhao

D26.10 **Decoupled Closed-Loop Control for Regenerative Testing of a 15-kW Bidirectional Synchronous-Rectifier Buck Converter**

Control of Power Electronic Converters

AUTHORS: Zhengming Hou, Dong Jiao, Bryan Gutierrez, Jih-Sheng Lai

12:00 PM – 1:45 PM

D27: Modeling and Simulation: Circuits & Systems; and Parasitics Extraction & Optimization

HEMISFAIR BALLROOM

SESSION CHAIRS

Kishan Joshi, *Intel Corporation*

Jeffery Nilles, *Alpha & Omega Semiconductor*

D27.1 **Characterization Technique for Extracting Parasitic Inductances of a Bidirectional Single GaN Four Quadrant Switch with Ferrite Bead Gate Lead Using Two-Port S-Parameters Measurements**

Parasitics Extraction and Optimization

AUTHORS: Anas Ghammaz, Triston Cooper, Ian Brown, John Shen

D27.2 **The Impact of Switch Commutation on Voltage Balancing in Three-Level Flying Capacitor Multilevel Converters**

Circuits and Systems

AUTHORS: Noah Hosein, Peter Lehn

D27.3 **Modeling of a LSTM-Based SoH Estimator for Li-Ion Batteries Utilizing Partial EIS Data**

Parasitics Extraction and Optimization

AUTHORS: Md. Samiul Islam Sagar, Jaber Abu Qahouq

D27.4 **Dual-Transformer Active-Clamp ZETA Converter**

Circuits and Systems

AUTHORS: Ching-Chun Chuang, Che-Wei Hu, Zin-Ting Chen

D27.5 **Cross Regulation Characteristics by Current Dip in Fly-Buck Converter**

Circuits and Systems

AUTHORS: Younghoon Cho, Paul Jang, Jong-Won Shin

D27.6 A Generalized Mathematical Framework for Modeling and Optimization of Multi-Active Bridge Converters

Circuits and Systems

AUTHORS: Ayan Mallik, Payam Morsali, Yao Qin

D27.7 Forward Recovery Aware of Antiparallel Diodes for GaN-Based Synchronous Rectifier Turn-on Delay in MHz-Class LLC

Parasitics Extraction and Optimization

AUTHORS: Dong Jiao, Zhengming Hou, Jih-Sheng Lai

D27.8 Coil Design Methodology for SS-WPT Systems

Circuits and Systems

AUTHORS: Amirreza Mizani, Azam Jaman, Sajad Saberi, Jaber Abu Qahouq

12:00 PM – 1:45 PM

D28: Modeling and Simulation: Device & Component Modeling; Software Tools; and HIL, Digital Twins and Rapid Prototyping

HEMISFAIR BALLROOM

SESSION CHAIRS

Jeffery Nilles, *Alpha & Omega Semiconductor*

Kishan Joshi, *Intel Corporation*

D28.1 Data-Driven Capacity Estimation of Lithium-Ion Batteries via Temperature-Coupled Neural Network

Device and Component Modeling

AUTHORS: Ala Hussein

D28.3 Novel Input Capacitance Extraction Method for Improved SiC MOSFET Modeling

Device and Component Modeling

AUTHORS: Manuel Horvath, Cristino Salcines, Steffen Beushausen, Karl Oberdieck

D28.4 Interface Algorithm Based on Perfect Delay Compensation for Distributed Real-Time Co-Simulation

Hardware-in-the-Loop, Digital Twins and Rapid Prototyping

AUTHORS: Seong Uk Kang, Cheol-Hee Jo, Chang-Wook Jeon, Dong-Hyuk Yang, Seung-Soo Kim, Dong-Hee Kim

D28.6 Modeling Multi-View Impedance-Based Cross-Geometry SOH Estimator for Li-Ion Batteries

Device and Component Modeling

AUTHORS: Ahmed Bakr, Md. Samiul Islam Sagar, Mohammmad Al-Smadi, Sajad Saberi, Jaber Abu Qahouq

D28.8 An Integrated Physics-Based Reliability Modeling of Power Converters with Degradation Feedback

Device and Component Modeling

AUTHORS: Mikhail Lopes, Sakib Fahimul Islam, Sangwhee Lee, Woongkul Lee, Muhammad Ashraful Alam

D28.9 AI-Driven Design Optimization for a High-Frequency Three-Port DC–DC Converter

Device and Component Modeling

AUTHORS: Zahra Saadatizadeh, Pedram Chavoshipour Heris, H. Alan Mantooth

12:00 PM – 1:45 PM

D29: Power Electronics Integration and Manufacturing 2

HEMISFAIR BALLROOM

SESSION CHAIRS

Vidhi Patel, *ABB*

Justin Henspeter, *IBM*

D29.1 Advanced Online DC-Link Capacitor Thermal Model Incorporating Nonlinearities with Robust Accuracy Under Extreme Load and Environmental Variations

Thermal Management

AUTHORS: Robert Eller, Alexander Rambetius, Heiko Zatocil, Gerd Griepentrog

D29.3 Correlation Between Individual Die Temperature and Transient Thermal Measurements for Silicon Carbide Power Modules

Thermal Management

AUTHORS: Sergio Jimenez, Austin Curbow, David Gonzalez-Nino

D29.4 Forced Cooling Thermal Model for 1-MHz, 5-kW LLC Converter Planar Transformer

Thermal Management

AUTHORS: Aqarib Hussain, Kristen Booth

D29.5 ThermRAG: A Multimodal Knowledge-Enhanced Agent for Power Electronics Thermal Design

Thermal Management

AUTHORS: Yang Li, Yu Zuo, Youliang Zhu, Bangli Du, Jiaze Kong, Qingcheng Sui, Wilmar Martinez

D29.8 A Computationally Efficient Method of Power Module Junction Temperature Estimate Considering Ripple Elements for Yearlong Reliability Simulation of Power Electronics Converters

Thermal Management

AUTHORS: Shahabuddin Khan, Purushottam Khadka, Ahmed Shahnewaz Siraj, Liwei Wang, Buck Brown, Zheyu Zhang

12:00 PM – 1:45 PM

D30: Multilevel Converter and Electric Aircraft Applications

HEMISFAIR BALLROOM

SESSION CHAIRS

Tao Yang, *University of Nottinghan*

Yifu Zhang

D30.1 Design and Development of a 1 kV / 3.6 MVA PEBB DC–AC Inverter for Electric Aircraft Powertrains

Power Electronics for Aerospace Including eVTOL and Electric Aircraft

AUTHORS: Vafa Marzang, Shuo Wang, Haoran Meng, Xiaoyan Liu, Dong Cao

D30.3 A High-Performance Flying Capacitor Multilevel Dual Active Bridge DC-DC Converter for Isolated Automotive Systems

Power Electronics for Hybrid and Electric Vehicles

AUTHORS: Sahana Krishnan, Francesca Giardine, Syed Tahmid Mahbub, Logan Horowitz, Robert C.N. Pilawa-Podgurski

D30.4 Near-Field Coupling Analysis of Butterfly Layouts in Paralleled GaN Half-Bridges for Aerospace Applications

Power Electronics for Aerospace Including eVTOL and Electric Aircraft

AUTHORS: Abdul Muneeb, Ali Anwar, Abdul Basit Mirza, Yang Li, Shiyue Deng, Samuel Defaz, Fang Luo

12:00 PM – 1:45 PM

D31: Power Electronics Applications 2

HEMISFAIR BALLROOM

SESSION CHAIRS

Juan Ramón G. Meré, *University of Oviedo*

Daniel Ríos, *Universidad Politécnica de Madrid (UPM)*

D31.1 Integrated IGBT with Tiny Learning of Radial Basis Networks for Remaining Useful Lifetime Estimation

Other Niche and Emerging Applications

AUTHORS: Simone Tognocchi, Marco Marcon, Danilo Pietro Pau

D31.2 RF Triangular Wave Pulse Power Supply Circuit for Plasma Etching Equipment

Other Niche and Emerging Applications

AUTHORS: Mizuki Kawazu, Miyu Kobayashi, Yuichi Ishihama, Tomohiro Furusato, Yoichi Ishizuka

D31.3 Evaluation of Short-Pulse Laser Driver Using Direct-Drive Normally-on GaN HEMT

Other Niche and Emerging Applications

AUTHORS: Ching-Yao Liu, Chun-Hao Chen, Jih-Sheng Lai, Hao-Chung Kuo, Wei-Hua Chieng, Edward-Yi Chang

D31.4 Data-Efficient Motor Condition Monitoring with Time Series Foundation Models

Other Niche and Emerging Applications

AUTHORS: Deyu Li, Xinyuan Liao, Shaowei Chen, Shuai Zhao

D31.5 Detection of Cyber Attacks in Networked Electric Drives via Physics-Guided Contrastive Learning with Few-Shot Labels

Other Niche and Emerging Applications

AUTHORS: He Yang, Jin Ye

D31.6 A Single Transistor Polarity Guard and Surge Protection Control Circuit for DC Front End

Other Niche and Emerging Applications

AUTHORS: Xiqun Zhu, Shobhana Punjabi

D31.8 Design of High-Frequency, High-Voltage Planar Transformer for Driving Dielectric Barrier Discharge Loads

Other Niche and Emerging Applications

AUTHORS: Saket Kapse, Hyeongmeen Baik, Jinia Roy

MEET OUR 2026 PARTNERS

EMERALD

Würth Elektronik

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

The passive division include inductors, ferrites, chokes, LEDs, capacitors, crystals, resistors, sensors, transformers and wireless charging coils. Board-to-Board, Wire-to-Board, Terminal Blocks, and Input/Output connectors are included in the electromechanical division. Online tools have been developed for use by engineering customers to design in magnetics for switchmode power supplies: RED-EXPERT, for non-isolated, and isolated, flyback designs.

Würth Elektronik offers sophisticated electronic components for a multitude of applications in all industrial sectors. For us, it's not the individual component that's most important – it's finding the solutions to problems. We're the reliable partner for our customers. With Würth Elektronik, customers realize electronic visions – we're on board from start to finish.

DIAMOND

Mentech

Mentech is a global manufacturer of power electronics magnetic components serving leading OEM and EMS partners worldwide. The company designs and produces transformers, inductors, common mode chokes, and custom magnetics for industrial, energy, automotive, and data applications. With vertically integrated R&D, automated manufacturing, and multi region production across China, Vietnam, and the USA, Mentech delivers high reliability, scalable capacity, competitive cost, and long term partnership focus, supporting fast innovation cycles and demanding qualification requirements globally.

STMicroelectronics

An integrated device manufacturer, ST works with more than 200,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of cloud-connected autonomous things.We are committed to achieving our goal to become carbon neutral on scope 1 and 2 and partially scope 3 by 2027. Further information

PLATINUM

Analog Devices

ANALOG DEVICES

Explore Power You Can Trust at APEC 2026. ADI's Intelligent Edge solutions power the world's space-constrained, mission-critical systems that require increased power efficiency and performance while minimizing system complexity, cost, and footprint. With a vast portfolio featuring unmatched power densities, ultralow noise, and superior reliability, customers can expect accelerated time-to-market and best-in-class power designs that enhance human quality of life and reduce environmental impact.

GOLD

Texas Instruments

TEXAS INSTRUMENTS

Texas Instruments Incorporated is a global semiconductor company that designs, manufactures and sells analog and embedded processing chips for markets such as industrial, automotive, personal electronics, enterprise systems and communications equipment. At our core, we have a passion to create a better world by making electronics more affordable through semiconductors. This passion is alive today as each generation of innovation builds upon the last to make our technology more reliable, more affordable and lower power.

YAGEO Group

YAGEO GROUP

YAGEO Group, headquartered in Taipei, Taiwan, is a global leader in electronic components, delivering reliable, innovative solutions for diverse industries. Leveraging the strengths of YAGEO, KEMET, PULSE, and Telemecanique Sensors, we provide industry-leading resistors, capacitors, inductors, magnetics, and sensors that drive advancements in automotive, aerospace, telecommunications, and industrial sectors. Our mission is to forge sustainable partnerships by harnessing our global scale, diverse product portfolio, and innovative team.

SILVER

DEWESoft LLS

DEWESoft, the next evolution in data acquisition instrumentation, offers a full suite of hardware for in-vehicle and lab data acquisition applications. Scalable from one to thousands of channels our instruments are available as small USB and EtherCat devices, stand-alone battery-powered systems, rack-mounted configurations, and ruggedized field-ready solutions. Powered by the latest DEWESoft X software, we acquire and control many multi-domain test sets that include analog in/out, digital in/out, video, CAN, FlexRay, XCP, GPS, and much more.

Electronic Concepts

Established in 1969, Electronic Concepts is a Veteran-owned, American-made leader in the electronic component industry. With facilities in the U.S. and Ireland, we combine advanced technology, vertically integrated production, and engineering expertise to design film capacitors that set the standard. Our products are Built to Endure the Extreme, delivering quality, innovation, and reliability for evolving industry demands. Visit us at APEC – Booth 1319 and learn more at ecicaps.com.

Mitsubishi Electric

Mitsubishi Electric power modules are at the forefront of the latest energy innovations that seek to solve global environmental issues while creating a more affluent and comfortable society for all. Some of these innovations are photovoltaic and wind power generation from renewable energy sources, smart grids realizing efficient supply of power, hybrid/electric vehicles that take the next step in reducing carbon emissions and fuel consumption, and home appliances that achieve ground-breaking energy savings. Mitsubishi power modules are key elements in changing the way energy is used.

Samwha USA Inc.

Manufacturer of ROHS and REACH compliant and ISO/TS 16949 certified capacitors and modules, inductors and cores for all electric devices and modules. Value-creating corporation for mankind and environment.

A LA CARTE

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New England Wire Technologies

Press Room

Wolfspeed

Registration

Microchip

Student Job Fair

Amperesand

EXHIBITOR PRESENTATIONS *as of February 12, 2026*

Many APEC Exhibitors take advantage of the opportunity to make presentations in conjunction with the APEC Exposition. The best of these presentations present a current challenge to the power electronics industry, a brief review of how this challenge has been addressed in the past, and then how that company's products or services offer a solution better than previously existing solutions. The APEC Exhibitor Presentations offer a good way to get a more in-depth look at the latest product and services offered by suppliers to the power electronics industry.

SCAN FOR MOST CURRENT SCHEDULE

COUGAR ELECTRONICS

Scaling Silicon Carbide for High-Power Conversion: Challenges and Solutions

PRESENTED BY:

Ghislain Ginot

Silicon Carbide (SiC) power devices are rapidly reshaping high-power conversion systems by enabling higher switching frequencies, increased power density, and improved efficiency. However, scaling SiC technologies to high-power and high-voltage applications introduces specific design, integration, and reliability challenges that must be addressed at system level.

This presentation shares COUGAR ELECTRONICS and ARCEL's industrial experience in the design and deployment of high-power SiC converters. It will cover key architectural choices, semiconductor selection, gate-drive strategies, thermal management, and insulation constraints specific to SiC-based high-power systems.

Through concrete use cases and feedback from real industrial applications, the objective is to provide practical insights for engineers and system designers considering SiC technologies for next-generation high-power converters.

Diamet Corporation

ON-ON & ON-OFF Operation Mode, Ultra Small and Highly Efficient Isolated TriMagiC Converter™

PRESENTED BY:

Mitsunao Fujimoto

Until now, many SMPS designers have taken the ON-ON transformer operation mode — widely adopted in topologies such as FBPS and LLC — for granted. As a result, the vast majority of high-performance switched-mode power supplies (DC-DC converters) that use transformers have operated in this mode. Technological approaches to achieving further miniaturization and higher efficiency have mainly focused on soft-switching techniques, higher switching frequencies, and improvements in passive components.

In this presentation, we introduce a new approach that enhances DC-DC converter performance by reexamining the transformer operation mode and magnetic flux density behavior, incorporating a low-permeability magnetic core.

Efficient Power Conversion

End-to-End With GaN from EPC

PRESENTED BY:

Alex Lidow

Server architecture has been changing rapidly to keep up with the extreme power demands from artificial intelligence systems. New 800 VDC requirements outlined by Nvidia for the Vera Rubin class of AI servers, coupled with power levels growing to as much as one megawatt per rack open the door to new device technologies and power conversion architectures. EPC has developed GaN devices that set new benchmarks for each and every stage in the new 800 VDC systems, from the 800 V input all the way down to the output of the point of load. In this talk we will show the latest generation GaN devices that are superior to any MOSFET ever developed at any voltage and where they fit in the future of artificial intelligence.

Electronic Concepts, Inc

Dry Film Capacitors for Next-Generation Power Electronics Applications

PRESENTED BY:

Joseph Bond

Electronic Concepts, Inc. (ECI) develops advanced dry film capacitors designed for next-generation power electronics applications. ECI's DC and AC capacitor product lines offer high reliability, long operational lifetime, low losses, and superior thermal stability, addressing the demands of renewable energy systems, and wide-bandgap semiconductor–based converters. This presentation highlights ECI's capacitor technologies including in house manufacturing capabilities and vertical integration, dielectric materials, and packaging innovations. Recent advancements in high temperature capacitors, humidity resistant packaging are discussed, along with the role of ECI's capacitors in enabling higher-efficiency, high-power-density power electronic systems.

Fuji Electric

Thermal Fatigue-Based Lifetime Prediction Method for IGBT / Power Semiconductor Devices

PRESENTED BY:

Takuma Sakai

Power semiconductor devices experience thermal fatigue from repetitive junction temperature cycling, critically impacting reliability. Fuji presents an Arrhenius-based lifetime prediction methodology with temperature-dependent interpolation for arbitrary operating conditions. The method generates accurate lifetime curves from limited standard test data, overcoming conventional methods limitations at intermediate temperatures. This enables optimized thermal management, reduced design margins, and enhanced reliability prediction for power electronic systems.

SCAN FOR MOST CURRENT SCHEDULE

Infineon

From general Purpose To Purpose-Built: How Application-Optimized Silicon Power MOSFETs Boost Overall System Performance

PRESENTED BY:

Matthias Trattler

The increasing demand for higher power, efficiency and power density in various applications is driving the need for advanced silicon power MOSFETs. However, different applications have unique requirements that can no longer be met by one-size-fits-all products incapable of delivering optimal performance. To address this challenge, Infineon's new OptiMOS™ 7 low voltage power MOSFET family offers application-optimized devices that enable customers to unlock maximum performance in their end applications. With OptiMOS 7™ customers can achieve unparalleled levels of performance, efficiency, and power density with switching-, motor-drives-, or RDS(ON)-optimized power MOSFETs, specifically designed to increase overall system performance in AI data centers, battery-powered tools and BMS applications.

Infineon

From Rack to Grid: The Rise of Solid State Power Distribution Powered by CoolSiC™ JFETFrom Rack to Grid: The Rise of Solid State Power Distribution Powered by CoolSiC™ JFET

PRESENTED BY:

Elijah Fagbemi

AI datacenters, commercial, industrial and grid infrastructure require sub microsecond fault isolation, maximum uptime, and lower TCO than conventional protection can provide driving the shift to safe, reliable solid state power distribution Infineon's CoolSiC™ JFET portfolio (750 V and 1200 V), including cascode and dual drive architectures, enables commercially viable high performance solid state protection. Industry leading low RDS(on) reduces power losses and improves power density while enabling compact, efficient designs for SSCBs, hot swap, BBU, eFuses, and auxiliary protection from rack level to grid adjacent systems.

MADDE Inc.

Additive Manufacturing of SiC Components for Semiconductor Processing Equipment

PRESENTED BY:

Sangho Chris Park

This presentation provides an overview of additive manufacturing approaches for silicon carbide (SiC) components used in semiconductor processing equipment. It introduces binder jet–based fabrication and subsequent densification processes as material-efficient alternatives to conventional SiC manufacturing routes. The presentation highlights manufacturing effectiveness, material utilization, and design flexibility, with a focus on practical considerations for industrial adoption in semiconductor equipment applications.

Magnetics

Custom, Cost-Optimized Powder Core Design for High-Power Inductors

PRESENTED BY:

Chris Turocy

SCAN FOR MOST CURRENT SCHEDULE

High power applications such as renewable energy systems, datacenters, and electric vehicles (EV) demand inductor cores that can handle high current while maintaining cost efficiency. Magnetics offers advanced powder core materials and manufacturing capabilities designed for high-density, high performance components. Magnetics' capabilities include toroid stacks, custom dimensions, cut toroids, composite cores, specialized blends, and round centerpost shapes. Core material blends allow engineers to determine the exact core loss and saturation characteristics that deliver the required performance with no excess core volume or cost. This presentation highlights Magnetics' latest powder core materials, manufacturing capabilities, and a practical design example that demonstrates how to develop an ideal powder core tailored to your application.

Mentech

Mentech – Power Electronics Magnetic Components

PRESENTED BY:

Mentech delivers power electronics magnetic components through early stage engineering collaboration, advanced simulation, and smart manufacturing. Our FAE and R&D teams support optimization from design through qualification. With a CNAS qualified in house lab, integrated MES, SAP, and PLM systems, and highly automated global factories, Mentech provides reliable, scalable solutions across automotive, energy, communications, and industrial applications, focused on long term partnership and execution confidence.

Mitsubishi Electric US

Powering Megawatt-Class Racks for AI Datacenters with Wide Bandgap and Next-Gen Power Modules

PRESENTED BY:

Mark Steiner

With the exponentially increasing AI workloads, datacenters are going to require megawatt-class racks and 800 VDC backbones designed with power electronics proven to support this high power-density with best-in-class lifecycle reliability. Mitsubishi Electric has the wide bandgap power modules to meet and surpass those needs. We connect the dots across the entire datacenter facility. This session will discuss our SBD-embedded 3.3kV+ Unifull™ SiC for ultra low-loss power conversion, as well as the X-series HVIGBT modules spanning from 1.7kV to 6.5kV. Additionally, practical applications will be considered for Full-SiC DXE modules, 8th Gen IGBT and the latest SiC technologies. The session will showcase all the latest power semiconductor advancements that are most pertinent to AI datacenter applications. For any and all UPS, SST, ATS, or PDU applications, Mitsubishi Electric offers powerful and efficient solutions for datacenter rack architectures using 480VAC, 800 VDC, and even much higher. Join our seminar to catch up on the latest developments in SiC and IGBT power module technology designed for the entire AI datacenter ecosystem.

Nexperia B.V.

Designing with Hot Swap MOSFETs for AI Datacenters: What Makes Them Different and Why It Matters

PRESENTED BY:

Joe Jiang | Cole Macias

As AI data centers scale to unprecedented power densities, the ability to safely manage live insertion, protect expensive accelerator hardware, and maintain continuous uptime has become critical. Hotswap MOSFETs are a foundational element in these power architectures, yet their role is often underestimated or misunderstood. In high-current, high-voltage AI platforms, the hot swap MOSFET is no longer a generic switch, but a specialized device that directly impacts inrush control, fault response, thermal stress, and system reliability.

This presentation provides a practical overview of what defines a true hotswap MOSFET and why its requirements differ fundamentally from standard power MOSFETs in AI data center applications. Key design considerations, including safe operating area under long inrush events, transient stress during board insertion, interaction with hot swap controllers, thermal performance in dense layouts, and package selection, are examined in the context of modern GPU and accelerator power systems.

SCAN FOR MOST CURRENT SCHEDULE

Through real-world design considerations and case-study comparisons, the talk illustrates how optimized hot swap MOSFET device enables higher reliability, improved protection of costly AI hardware, and more predictable behavior under worst-case conditions. The session concludes by showing how our hot swap MOSFET solution establishes a new benchmark for performance and robustness in AI data center power infrastructure.

Nexperia B.V.

Packages for Wide-Bandgap Power Switches – the Emerging Landscape

PRESENTED BY:

Jim Honea

How should a circuit designer make sense of the variety of packages available - and emerging - for GaN and SiC wide-bandgap power switches? With the shift to WBG, the package is no longer just a housing; it is a critical component. There are options for top-side or bottom-side cooling, copper clip or wire-bond internal connections, and thermal pads with widely different surface areas, in addition to the basic choice of surface-mount or through-hole devices. From these options, are industry standards emerging? And if so, which packages are best suited for which applications?

In this talk, we will compare technical characteristics related to thermal and electrical performance, as well as adoption rates, of these package types. Examples are drawn from Nexperia's existing and coming portfolios of GaN and SiC power switches.

Nyobolt

AI Data Centres Meet Dynamic Response Systems

PRESENTED BY:

Sai Shivareddy

Massive transients combined with critical loads create the perfect storm for data center energy storage solutions (ESS) to shine even as the loads are so large they can serve as their own virtual power plants (VPP). We see a massive influx of ESS applied at every level from the graphical processing unit (GPU) chips all the way to building-scale solutions and even into MV on the front-of-the-meter (FTM) side of the utility grid. As load transient demand increases along with a sensitivity to unwavering power quality, we see everything from supercaps/ultracaps and battery backup units (BBU) directly supporting the AI system input bus to various levels of bulk energy storage that buffer grid disturbance, while enabling maximum performance (i.e. – tokens per watt) and optimal resource allocation of dynamic energy assets.

This keynote presentation seeks to present pragmatic solutions for those looking to hedge their bets in “AI power space race” by providing a realistic characterization of the load at various levels (i.e. – system, rack, site, external) and introducing Dynamic Response Systems (DRS) to demonstrate solutions that utilize the best of all worlds in terms of fast-discharge ESS capable of millions of cycles and underlying, safe bulk storage that meets high load demand with a smoother waveform to the grid via energy buffering techniques such as peak shaving, intelligent power management (IPM), and dynamic power allocation based on real-time load-demand response. The talk shall conclude with a clear path on how applying DRS to the biggest pain points in the AI data center enables the AI revolution in a sustainable way that also lowers the barrier to increased utilization of microgrids and mitigation of fossil-fueled generators, while sacrificing nothing in reliability and time-to-market (TTM).

RTDS Technologies

De-risking Inverter-based Resources with Real-time Simulation of Power Electronic Converters and HIL Testing

PRESENTED BY:

Kurtis Toews

Real-time simulation of power electronic converters is becoming increasingly important as inverter-based resources, energy storage systems, and large converter-interfaced load interconnections increase. It is a growing challenge to ensure their reliable integration, compliance with standards and specifications, and stable operation of the bulk power system. Professionals need to be able to model and predict fast transient phenomena and complex control interactions in order to effectively study and de-risk these technologies. Converter OEMs, power system engineers, and researchers need assurance that their device models are reliable and accurate over a wide range of functions and operating conditions. This presentation will explore how real-time simulation and hardware-in-the-loop (HIL) testing are providing these critical capabilities across many applications within the power electronics and power systems industries. Attendees will learn the fundamentals of electromagnetic transient (EMT) simulation, the motivation for adopting real-time EMT simulation and HIL testing, HIL testbed components and considerations, and examples of how leaders are applying this technology to de-risk power electronics integration and support factory testing and commissioning. Key recent developments in the real-time simulation space, including black box control integration for software-in-the-loop testing of power electronics, will also be discussed.

SCAN FOR MOST CURRENT SCHEDULE

Saras Micro Devices

Saras Micro Devices Introduction – Powering AI with STILE

PRESENTED BY:

Bart Deprospo

Current power delivery network technology has reached its limit, restricting performance even though the processors and accelerator engines that power these data centers are fabricated using the most advanced micro-architectures and manufacturing process nodes. Faced with rising core counts, reduced operating voltages, higher current flows and adoption of chiplet-based architectures, power delivery network designers are being dually challenged by increased power density and reduced availability of passive-component real estate. The Saras Tile, or STILE™, offers a new paradigm for in-package power delivery that significantly improves efficiency and performance while freeing up package real estate to enable higher levels of chiplet integration. A multi-domain, substrate-embedded, passive module, STILE™ is designed to support the growing number of power rails within the package. STILE™ enables the move of power regulation from system board to package. STILE™ is designed to significantly improve the performance and efficiency of power delivery networks.

SIMPLIS Technologies

New Python Integration with SIMetrix/SIMPLIS used to Demonstrate Expanded Capability to Predict GaN and SiC MOSFET Switching Losses in SIMPLIS

PRESENTED BY:

Matthew Fortin

With the new Python integration with SIMetrix/SIMPLIS, anything that can be done with the proprietary SIMetrix script language can now be completed using the powerful and more familiar Python language.

Python can now be used to:

1. Open and edit schematics
2. Run a simulation using either SIMetrix Spice or SIMPLIS simulators
3. Obtain the data from the simulation
4. Post process the simulation results
5. Plot graphs in the SIMetrix environment from Python data

We demonstrate this use of Python to illustrate an expanded capacity to predict MOSFET switching losses for GaN and SiC devices in SIMPLIS. The MOSFET model extraction process in SIMPLIS now accommodates four-terminal MOSFET packages that include parasitic package inductances.

SCAN FOR MOST CURRENT SCHEDULE

STMicroelectronics

Compact, High-Efficiency LED Driver with CCM PFC and QR 2-Switch Flyback Topology Using 700V Smart Power GaN OmniGaN™

PRESENTED BY:

Rosario Attanasio

Gianni Vitale

This seminar introduces OmniGAN™, a new Gallium Nitride (GaN) device designed to enable next generation of compact and efficient power supply applications. OmniGAN™ integrates an internal driver, allowing direct interface with standard analog controllers, and features comprehensive protection functions, including overtemperature and desaturation protection. The reference design achieves >95% efficiency by utilizing GaN technology in both the power factor correction (PFC) and DC-DC sections. The PFC stage employs a single-boost continuous conduction mode (CCM) topology controlled by the L4985D, while the 2-Switch

Flyback converter operates in quasi-resonant (QR) mode. This seminar will highlight the key features of OmniGAN™ and demonstrate its application in advanced LED driver designs with PFC and Flyback topologies.

STMicroelectronics

GaN and the 800V AI Data Center Architecture PDB

PRESENTED BY:

Jeff Halbig

High current AI chipsets are pushing the migration to higher DC voltage buses to efficiently distribute power. 800V or +/-400V high voltage DC buses require a new Power Delivery Board (PDB) DC/DC conversion stage to lower the voltage for server rack distribution. Unprecedented power density requirements must leverage modern topologies in combination with the latest in power semiconductor switch technology, specifically GaN MOSFETs. The seminar will review the ST PDB solution, how it fits into the latest AI server power architectures, and the newly released ST Power GaN portfolio that is at the core of enabling its ultra-high efficiency and power density.

Tektronix

Fast Out of the Gate: Measuring Gate Driver Performance in SiC Systems

PRESENTED BY:

Bill Driver

Kevin Hermanns

Eugen Stumpf

As silicon carbide power devices enable faster switching and higher voltage operation, accurate gate driver testing becomes critical to system performance and reliability. This presentation examines key gate driver measurement challenges, including turn-on and turn-off delay times, switching losses, short-circuit protection behavior, and gate voltage integrity. Practical measurement approaches using oscilloscopes and signal generators are discussed to support clear signal visualization, accurate debugging, and reliable validation of SiC gate driver behavior under fast-switching conditions.

Texas Instruments

Reimagining Data Center Power Architecture

PRESENTED BY:

Pradeep Shenoy

SCAN FOR MOST CURRENT SCHEDULE

The surge in AI computing is creating unprecedented power demands that exceed the capabilities of traditional data center power architectures. While advancements in individual components remain vital, transforming the entire power delivery network requires a comprehensive system-level approach. The shift to 800V DC distribution represents a fundamental reimagining of data center power architecture, enabling rack densities exceeding 1MW while simultaneously addressing critical challenges in efficiency, reliability, and sustainability. This architectural evolution, coupled with advanced wide-bandgap semiconductor technologies, is imperative to support the next decade of AI infrastructure growth.

Tower Semiconductor

Tower's Power Management Technologies: Achieving Highest System Efficiency & Integration

PRESENTED BY:

Dr. Mete Erturk

In this talk, Dr. Mete Erturk, Co-General Manager of Tower Semiconductor's power management business unit, will discuss Tower's latest innovations as a specialty foundry, with emphasis on power management for AI processor power delivery. Dr. Erturk will cover Tower's latest offerings in both 200mm and 300mm BCD, and highlight the novel features the company is introducing to enable its customers achieve the highest system efficiency and integration across a variety of end markets. Part of the presentation will focus on power delivery for AI processors, where Tower is providing industry-leading technologies.

Würth Elektronik

Percolation in Power Inductors: Silent Performance Shifts Under Thermal and Voltage Stress

PRESENTED BY:

Efrain Bernal Alzate

Percolation phenomena in composite magnetic materials can lead to subtle yet impactful changes in the behavior of power inductors when exposed to elevated temperatures and voltages.

These microstructural transitions affect particle connectivity within the molded structure, influencing magnetic permeability, inductance stability, and core losses. While often unnoticed during standard qualification, these effects become critical in demanding environments such as automotive and industrial power electronics, where thermal and electrical stress are prevalent.

This presentation explores the physics behind percolation, its role in altering magnetic pathways, and the resulting impact on energy storage and conversion efficiency. Practical design considerations and mitigation strategies are discussed to ensure reliable performance under extreme operating conditions.

Würth Elektronik

Parasitic in Push-pull transformers: How Interwinding Capacitance and Leakage Inductance Drive EMI/EMC Results on Auxiliary Power Supplies

PRESENTED BY:

Vidal Gonzalez

Meeting EMI requirements such as CISPR 25 and CISPR 32 is a key challenge in isolated power converter design. This presentation explores how transformer parasitics such as the interwinding capacitance and leakage inductance contribute to conducted and radiated emissions, with a focus on push-pull topologies.

Würth Elektronik

Interfacing to Current Transformers

PRESENTED BY:

George Slama

Measuring current is an important aspect of energy management. Whether it is within a power supply or external to it, measuring ac currents (unipolar or bipolar, sinusoidal or rectangular) with isolated current sense transformers looks easy but does require attention to a few important details. Why are there so many similar circuits and what is the difference? Where are the measurement errors? What precautions are needed to protect the analog to digital conversion? Using the new REDEXPERT current selector to find the right part. This session explains how the current transformer works and sorts through the most common circuits to help you decide which is correct for your application.

SCAN FOR MOST CURRENT SCHEDULE

Würth Elektronik

EMI Optimization of a Buck Converter

PRESENTED BY:

Octavian-Tudor Stroe

Among the different topologies, buck (step-down) regulators are the most widely used, as they efficiently convert higher DC bus voltages (e.g., 12 V, 24 V, or 48 V) to the lower levels required by processors, sensors, and communication interfaces. Other topologies, such as boost, buck-boost, flyback, and SEPIC, extend this capability, offering step-up, inverting, or flexible input-output conversion ratios to meet application-specific requirements.

However, the fast switching transitions inherent to these regulators introduce electromagnetic interference (EMI) and noise. Both conducted emissions (propagating through supply lines) and radiated emissions (coupling through space) can degrade system performance and jeopardize compliance with international standards such as CISPR 32 / IEC 55032. As a result, careful consideration of converter topology, passive component selection, PCB layout, and filter design is essential to balance efficiency, dynamic response, and EMC behavior.

In particular, the choice of capacitor technology, storage inductors, switching frequency, and semiconductors directly affects both efficiency and EMC. For regulators handling relatively high input and output currents, achieving a compact, reliable, and cost-effective solution requires striking a compromise between efficiency, size, damping, and filter performance. Additional input and output filtering is often required to meet emission limits, but these filters themselves can introduce losses or instability if not carefully designed.

Zhejiang ThanTech Technology Co.,Ltd

New generation high power density MHz power inductor for GPU VRM application

PRESENTED BY:

Qing LU

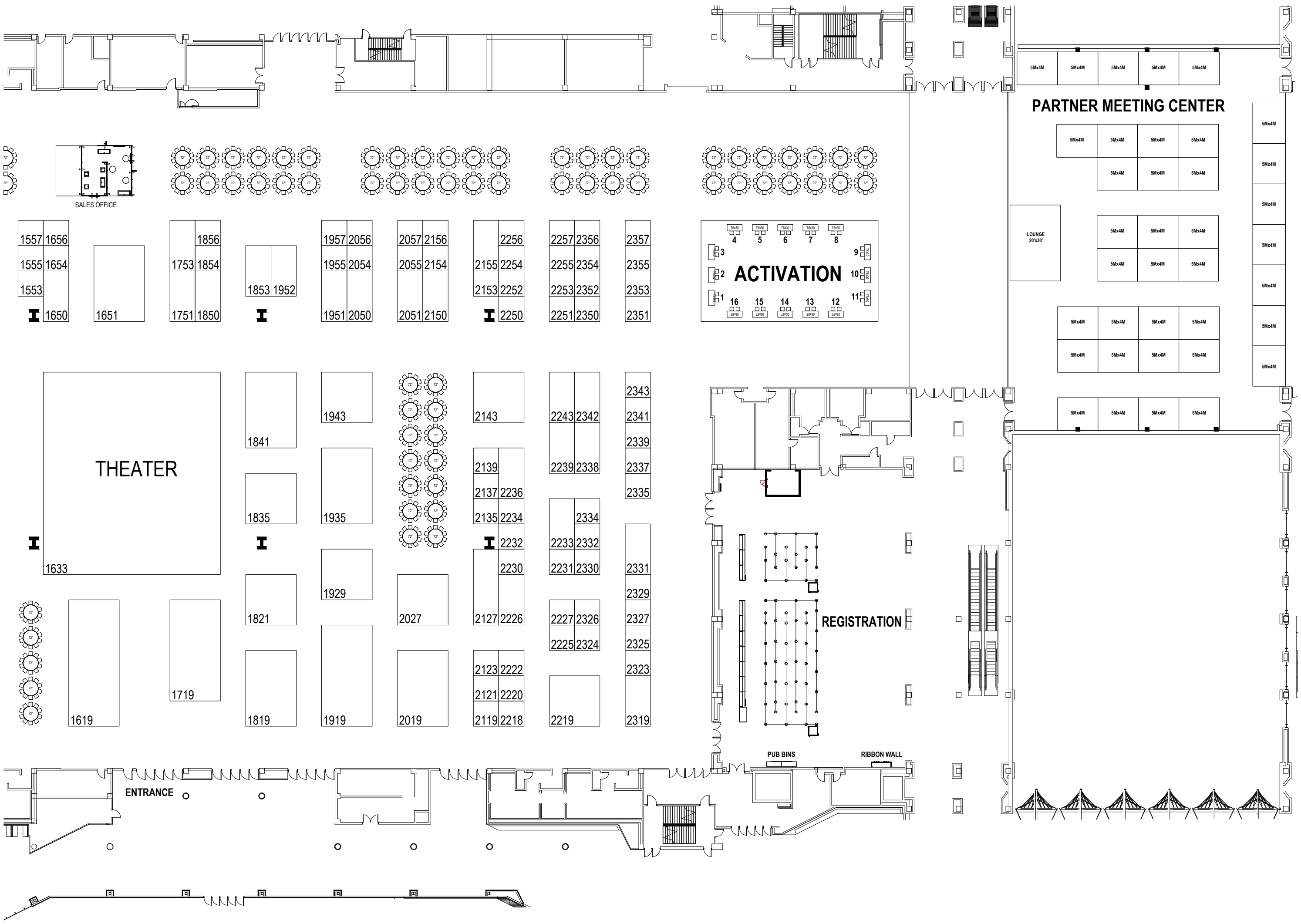
With the rapid development of global AI, the demand for computing power has risen sharply, and the performance requirements for computing power have also increased accordingly, which has promoted the development of GPU power and efficiency. As an important power supply module of GPU, VRM's power density and efficiency have also been improving year by year. To be one of the key components of VRM, power inductor plays a very important role in the efficiency and power density of VRM. In this PPT, we mainly introduce the new generation of high-power-density MHz high-frequency power inductor, it adopts a completely new metal magnetic powder material and metal sintering technology. The developed copper-iron sintered inductors have extremely low high-frequency losses, higher initial inductance, excellent DC superposition characteristics, good heat dissipation performance, and smaller volume that enhance the power density and efficiency of GPU VRM.

SCAN FOR MOST CURRENT SCHEDULE

EXPO HALL FLOOR PLAN

as of February 4, 2026

EXPO HALL FLOOR PLAN



EXHIBITOR LISTING *as of February 4, 2026*

EXHIBITOR	BOOTH #
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AC Power Corp. (Preen)	2234
Achromat Corp.	245
ACME Electronics Corporation	451
Acopian Power Supplies	619
Advanced Energy	704
Advanced Test Equipment Rentals	2232
Aehr Test Systems	332
Aishi Capacitors	929
Aismalibar North America	221
Allstar Magnetics	205
Alpha and Omega Semiconductor	2127
AmberSemi	834
AMETEK Programmable Power	728
Anbon Semiconductor (Int'l) Limited	2153
Apex Microtechnology	1357
Asahi Kasei Microdevices	2254
ATS Technology Services, Inc.	701
Autotest Company	1424
AVL	222
B&K Precision	601
Batten & Allen	244
Berkeley Power and Energy Center (BPEC)	2345
BH Electronics, Inc.	1355
Boschman Advanced Packaging Technology	2051
Bourns, Inc.	1835
Broadcom Inc.	2239
BTCOIL USA LLC	220
CalRamic Technologies, LLC	304
Cambridge GaN Devices	1550
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Central Semiconductor	918
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Classic Coil Company	2356
Cleverscope	611
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Coil Winding Specialist, Inc.	935
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CoolCAD Electronics	237
Cougar Electronics	234
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ELYTONE ELECTRONIC CO., LTD.	842
Empower Semiconductor, Inc.	712
Evans Group (Capacitors) — Evans | Paktron | UTC | Eulex + ECI (Magnetics)	1030
EXXELIA SAS	1150
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Ferrotec (USA) Corporation	352
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Hengdian Group DMEGC Magnetics Co., Ltd.	643
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Hitachi Energy Ltd, CHPGS	201
Holy Stone International	2230
Hotland International Corp	927
HUBEI CTWELL Electronics Co.,Ltd.	200
HUIZHOU CLICK Electronics Co., Ltd	804
HVM Technology, inc.	939
HVR Advanced Power Components	2137
HZDR Innovation GmbH	202
IAS (IEEE Industry Applications Society)	424
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Impedyme Inc.	230
imperix Ltd	824
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Infineon	1619
InfraTec Infrared LLC	1557
INNO Instrument	2353
Innovative Thermal Solutions Inc.	300
iNRCORE, LLC	645
INSTEK America Corp	235
Inter Outstanding Electronics Inc	1555
ITECH Electronics	519
ITG Electronics, Inc.	1220
IWATSU	801
Jantek Electronics Co., Ltd.	2354
JARO Thermal	336
Johanson Dielectrics, Inc	316
Johns Hopkins University	206
Jovil Universal LLC	1157
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Luminus Devices, Inc., featuring APC-E and Sanan Semiconductor	1951
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Magna-Power Electronics	1226
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Magnetic Metals Corporation	457
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Marel Power Solutions	2154
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Superworld Electronics (S) Pte Ltd	353
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Vision Technologies Co. Ltd	213
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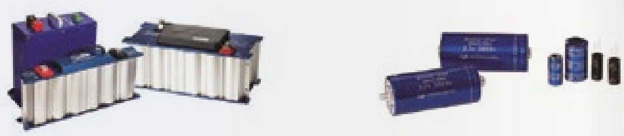

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