The Multinational Power Electronics Association

PSMA
Packaging Committee Meeting

John Bultitude, Brian Narveson, Ernie Parker
Co-chairman

August 24th, 2022

PSMA is a not-for-profit organization and a CO-SPONSOR OF APEC

1985-2020

Agenda

Conference Update

- IWIPP August 24-26, 2022
- 3-D PEIM February 1-3, 2023

APEC 2023 Session Planning

- APEC 2023 Industry Session topic recap
- **Member Survey & Recruitment of Speakers Discussion**
- **Submission September 2, 2022**

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International Workshop on Integrated Power Packaging 2022

- IWIPP August 24-26, 2022 **OPEN**
- Location Change to Grenoble, France hosted by G2E Labs, University Grenoble Alps
- Hybrid Virtual and In-person Conference
- Connect with world's top power, device, integrations and system researchers
- Partnership opportunities are available
- http://iwipp.org
- **Registration Now Open**

IWIPP is Sponsored By:

The Fourth International Symposium on 3D Power Electronics Integration and Manufacturing

3D-PEIM 2023

Feb 1-3, Miami, Florida

General Chair
P M Raj
(Florida International University)
Associate Professor

Technical Co-Chair
Vanessa Smet
(Georgia Institute of Technology)
Assistant Professor in Mechanical Engineering, GT

Technical Co-Chair
John Bultitude
(KEMET)
Vice President, Technical Fellow

Brian Narveson, Narveson Consulting, U.S.A – Finance Chairman
Arnold Alderman, Anagenesis, Inc. U.S.A. – Publicity Chairman

The Fourth International Symposium on 3D Power Electronics Integration and Manufacturing

Call for Papers is Open http://www.3d-peim.org/call-for-papers/submission-information/

Deadline Extended to September 2, 2022

Program at a Glance

Session	Chair
S2: IVR for Computers and Servers	Siddarth Ravichandran
S3: Multiphysics Design & Tools	Rajen Murugan
S4: Additive Manufacturing	Peter Friedrichs
S5: Manufacturing Technologies	Jason Rouse
S7: Materials I Interconnects & Lead Attachments	Andy Mackie
S8: Materials II Substrates & Encapsulants	Ninad Shahane
S9: High Power Module Integration	Cyril Buttay
S11: Thermal Management and Reliability	Patrick McCluskey
S12: Passive Component Integration	John Bultitude
S13: Low Power & Telemetry	Shubhendu Bhardwaj

Plenary Speakers

Professor Fred C. Lee Virginia Tech, “PCB based Integrated Magnetics”

Prof. Katsuaki Suganuma, University Osaka, “Superior heat dissipation by low-pressure Ag sinter joining and real-time AI lifetime prediction for SiC power module”

Dr. Michael Guyenot, Bosch, “Highly integrated low inductance SiC power modules”

Dr. Brandon Passmore, Wolfspeed, “Finite-Element Predictive Modeling for Power Modules”

Dr. Mahadevan Iyer, Amkor, “Emerging Power electronics packaging and system integration for automotive applications”

Dr. Deepak Divan, Georgia Tech, “Soft-switching topologies for automotive and aircraft”

Working with Technical Committee & Session Chairs for Keynotes/Invited Speakers

APEC 2023 Industry Session

Top 10 Topics for APEC 2023

1. Innovations in interconnection to improve reliability and performance – Amphenol, Tyco, Harting, Semikron - Kevork Haddad, Peter Beckedahl (SEMIKRON International GmbH, Germany)
2. Meeting the thermal challenge of high density packaging-Ganesh Subbarayan-Purdue, Sreekant Narumanchi-nrel,Sreekant Narumanc
3. Challenges of manufacturing high density power Danfoss-Andy Mackie, ASE, AMS, Wolfspeed, ST –Micro, Infinieon, Oakridge National Lab- Burak Ozpineci (GQ)
4. Voice of the customer on packaging- Tesla, automotive, John Deere, CAT, Cummins,
5. Transportation – Airplanes, Electrified ships & locomotive (check with Transportation Committee), GE (Wabtec) (locomotives), ABB, Siemens, Alston (Fiat), Bombardier (John Mills), Fiat, Dynex

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APEC 2023 Industry Session

Top 10 Topics for APEC 2023

6. System level packaging innovations (Wolf Speed, Vitesco (Continental) Dennis Stevens
7. Qualification of manufacturing process for power integrated with micro-electronics or other manufacturing topics – Matt Kelly IPC, AMS, ASE
8. Components – Magnetics (Fred Lee VT, Intel, Delta) or Film Capacitors - Kemet –(JB) challenges; smaller with higher voltage, corona discharge & creepage issues, new materials (Multec carbon nanofiber?)
9. Internet of Things – Mike Hayes has contacts
10. Flexible packaging Applications – Mike Hayes has contacts

Review Draft Session Submission Due September 2, 2022

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APEC 2023 Industry Session Speaker Recruitment August Actions

The Topics from the survey were reviewed and discussed and the following actions assigned:

1. Innovations in interconnection **- Andy Mackie to recruit leading edge speaker**
2. Meeting the thermal challenge of high-density packaging - **John B. to review Ganesh Subbarayan as potential speaker – John B review & contact Justin Weibel, Purdue University**
3. Challenges of manufacturing high density power Danfoss - **Andy Mackie to ask them to present**
4. Voice of the customer on packaging – **Brian to contact Eric Swenson IBM**
5. Transportation – **Brian to review with Thomas Foulkes (PSMA Committee) Andy Mackie to contact Mark Poliks/Chuck Woychik on Flexible power packaging**
6. System level packaging innovations - **Brian to contact Dennis Stevens (Vitesco)**
7. Components – Magnetic Integration – **John B./Brian to discuss potential speakers with Raj**
8. Internet of Things – **Jason Rouse to contact Scott Hayes at NXP**
9. Flexible packaging Applications – **John B. to contact Chris Jorgensen (IPC)**

Deadline September 2, 2023

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APEC 2023 Industry Session

Brian to review draft proposal for following areas

- Innovations in Interconnection and components: Subu Iyer, UCLA or Muhannad Bakir, Gerogia Tech
- Meeting the thermal challenges of high-density power packaging: Justin Weibel, Purdue University
- Manufacturing challenges and qualification of 3D packaging: Charles Woychik, SkyWater Florida
- Voice of the customer on 3D packaging
- Power packaging for electrified transportation
- Internet of Things power packaging
- Packaging power for flexible applications

John B. to submit proposal by September 2, 2022 Dealdline

Next Committee Meeting:

Friday September 9, 11:00am CDT

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