Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

02 October 2024

Participation Fee:

€ 720,– *	for industry
€ 525,– *	for universities/institutes
€ 180,– *	for students/PhD student (limited spaces; copy of students ID required)

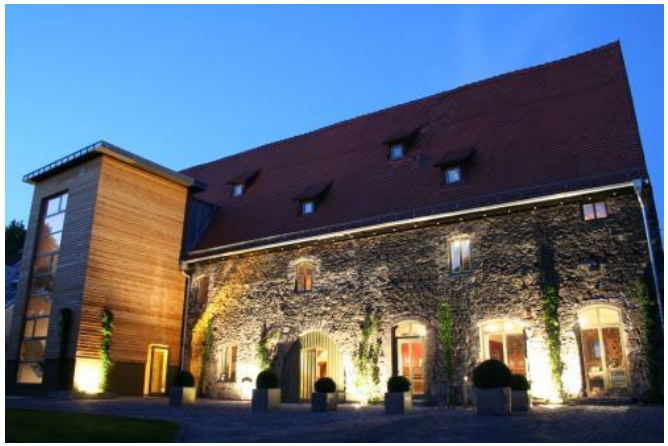
* plus VAT

- The on site participation fee includes dinner, lunches, coffee/soft drinks and digital proceedings. The reduced (PhD) students fee includes all except for dinner (can be booked for an extra fee of € 50,-*)
- The online participation includes remote access via the meeting software Webex and digital proceedings.
- Digital proceedings will be provided by download link latest one day before start of the event. A printed handout is available on request.
- Upon receipt of registration confirmation via email you are signed-up for the event. The invoice will be sent via email.
- Three participants from each ECPE member company free of charge. Allocation in sequence of registration.
- 10% discount on university/institute fee for participants from ECPE competence centres.
- Further information (hotel list and maps) will be provided after registration and can be found on the ECPE web page.
- Cancellation policy: Full amount will be refunded in case of cancellation upon to 2 weeks prior to the event. After this date 50 % of the fee is non-refundable (replacement is possible).

21/06/24

Organisational Information

Organiser	ECPE e.V. Ostendstrasse 181 90482 Nuremberg, Germany www.ecpe.org
Technical Chair	Karl-Friedrich Becker Fraunhofer IZM, Germany Shiori Idaka Mitsubishi Electric Europe, Germany
Technical Contact	Gudrun Feix, ECPE e.V. +49 911 81 02 88 – 15 gudrun.feix@ecpe.org
Organisation	Ingrid Bollens, ECPE e.V. +49 911 81 02 88 – 10 ingrid.bollens@ecpe.org
Venue	Best Western Premier Hotel Villa Stokkum Steinheimer Vorstadt 70 63456 Hanau-Steinheim or online via Webex



Source: Best Western Premier Hotel Villa Stokkum
Source graph front page:

European Center for Power Electronics e.V.

Hybrid Event

ECPE Workshop

Materials Innovations for Advanced Power Packaging – Substrate, Interconnection and Encapsulation

9 - 10 October 2024
Hanau, Germany/ hybrid

ECPE Hybrid Workshop

Materials Innovations for Advanced Power Packaging – Substrate, Interconnection and Encapsulation

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Power electronics packaging is a dynamic and multidisciplinary field. On the one side it enables full performance of power semiconductors, and on the other side it determines the performance of a power converter. Power semiconductors with a wide bandgap become commercialized more and more. They offer not only a higher breakdown voltage, but also higher operating temperature and faster switching. Packaging concepts and materials need to be adapted to these needs. Processability for new packaging concepts, low dielectric losses or high breakdown voltage are only some characteristics, materials for power packaging must provide. In this ECPE workshop, we will have a look at new developments and trends in materials needed for building power electronic discretes, modules and converters. We will cover trends in interconnection technologies for chips and large areas, we will discuss developments in potting and encapsulation, and take a look at new substrates as basis for many modules. Embedding power electronic semiconductors or passives into PCBs finds its way into commercial products step by step, so we will as well look at ongoing activities in this field, especially the development of FR4 and other PCB materials especially suited for power electronics with its need for high temperature stability and low CTE. Material characterization and inspection methods will be introduced. An overview over existing and upcoming EU regulations on materials will complete the programme.

The workshop is chaired by:

Karl-Friedrich Becker, Fraunhofer IZM (DE)
Shiori Idaka, Mitsubishi Electric Europe (DE)

All presentations and discussions will be in English.

Draft Programme

Wednesday, 09 October 2024

09:30	**Registration / Webex started**
10:00	**Welcome, Opening and Introduction into the Topic** TBD
Interconnection Technologies	
10:10	**Pressureless Ag Sintering** Battist Rábay, Nano-Join (DE)
10:40	**Comparison of Sintering vs. Soldering Technology for Module Attach Applications** Florian Seifert/Manu Vaidya, Heraeus (DE)
11:10	**TBD** Tetsu Yonezawa, Hokkaido University (JP)
11:40	**TBD** Olav Birlem, Nanowired (DE)
12:10	**TBD** N.N.
12:40	**Lunch break**
Potting/ Encapsulation	
13:40	**Characteristic Values of Silicone Gels as Basis for Thermo-Mechanical Simulation** Martin Rütters, Fraunhofer IFAM (DE)
14:10	**Compression Molding Technology for Power Packages** Tina Thomas, Fraunhofer IZM (DE)
14:40	**Epoxy Molding Compounds for High Temperatures** Akihiro Nozaki, Resonac (JP)
15:10	**Break**
15:40	**Reliability Analyzes of Power Electronics Encapsulations using Impedance Spectroscopy** Paul Gierth, Fraunhofer IKTS (DE)
16:10	**Dealing with Aging Behaviour of Mold Materials** Ole Hölck, Fraunhofer IZM (DE)
16:40	**Exploring Advanced Plastic Material Technology in Power Module Advancements** Masashi Endo, Sumitomo Bakelite Europe (BEL)
17:10	**Ceramic Encapsulation to Harness the Full Potential of Wide-Bandgap-Based Electrical Power Systems** Christophe Féry, Heraeus (DE)
17:40	**End of 1st Day**
19:30	**Dinner**

Draft Programme

Thursday, 10 October 2024

08:00	Webex started
Substrates	
08:30	**TBD** N.N.
09:00	**Application of Organic Insulating Sheet to Power Module** Shiori Idaka/N.N., Mitsubishi Electric Europe (DE)
Embedding	
09:30	**Low CTE Substrate Materials** Helmut Kröner, Resonac Europe (DE)
10:00	**TBD** N.N.
10:30	**Break**
11:00	**Embedded Power Packages and Modules – A Look at Innovative Material and Interconnect Approaches** Lars Böttcher, Fraunhofer IZM (DE)
11:30	**TBD** N.N.
Material Characterization and Inspection Methods	
12:00	**Impedance Spectroscopy as a Material Characterization Technique for Power Electronics** Philipp Natzke,APS - ETH Zurich (CH)
12:30	**TBD** N.N.
13:00	**Lunch break**
14:00	**TBD** N.N.
Cleanliness	
14:30	**Purity Risk Analysis and Cleaning After Sintering** Helmut Schweigart, Zestron
15:00	**Inline oxide removal by Openair-Plasma** Nico Coenen, Plasmatreat GmbH
15:30	**Overview over EU Regulations for Materials** Otmar Deubzer, Fraunhofer IZM (DE)
16:00	**End of Workshop**