

Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

19 November 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).

24/10/24

Organisational Information

Organiser ECPE e.V.
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90482 Nuremberg, Germany
www.ecpe.org

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Prof. Dr. Johann Kolar, ETH Zürich (CH)
Prof. Dr.-Ing. Christine Minke, Clausthal
University of Technology (DE)
Prof. Dr. Jean-Luc Schanen, Grenoble
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Venue Amphi Berges
Bâtiment GreEN-ER
Grenoble INP – Ense3 and G2Elab
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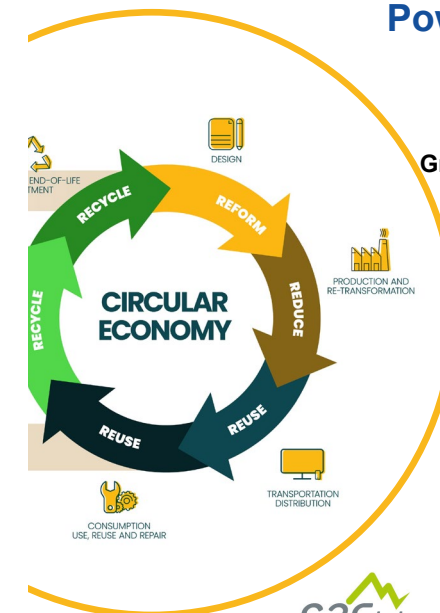
European Center for
Power Electronics e.V.

Hybrid Event

ECPE Workshop

Eco-Design Approaches of Power Electronics

26 - 27 November 2024
Grenoble, France / hybrid



in cooperation with



ECPE Hybrid Workshop

Eco-Design Approaches of Power Electronics

26 - 27 November 2024
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Power electronics is one of the key technologies for the energy transition. Energy supply from renewable resources, electrolyzers for hydrogen production, e-mobility, efficient variable speed drives, industrial process technologies, and small / lightweight power supplies are unthinkable without power electronics. However, this perspective considers only one part of a converter's life cycle, i.e. the realised energy or CO₂ emission savings during its useful life, but not the environmental burden (climate impact / CO₂eq emissions, water usage, release of toxic substances, etc.) which are accrued during manufacturing nor the disposal at the converter's end-of-life and the loss of raw and valuable raw materials. Considering the growth in global population and the extension of renewable energy usage and given a typical lifetime of 20 years for power converters, power electronics alone might account for an estimated 5TW worth of electronic waste per year. In this workshop we would like to discuss approaches, how this environmental burden can be lightened. We will discuss how the environmental impact of power converters can be investigated to learn about the status quo. Design for repair, reuse, and recycling, and necessary material and process developments are also part of the discussion. An insight into existing and upcoming regulations will be provided.

The workshop is chaired by:

Dr. Jonas Huber, ETH Zürich (CH)

Prof. Dr. Johann Kolar, ETH Zürich (CH)

Prof. Dr.-Ing. Christine Minke, Clausthal University of Technology (DE)

Prof. Dr. Jean-Luc Schanen, Grenoble Institute of Technology – GE2Lab (FR)

All presentations and discussions will be in English.

Draft Programme

Tuesday, 26 November 2024

09:30 Registration / Webex started

10:00 Welcome, Opening
Gudrun Feix, ECPE e.V.

Introduction

10:10 Resource Efficient Circular Economy Compatible Power Electronics
Jonas Huber, ETH Zürich (CH)

10:55 Towards Sustainability and Circularity of Power Electronics
Christine Minke, Clausthal University of Technology (DE)

11:25 A Selection of Challenges and Bottlenecks for Sustainable Power Electronics
Boubakr Rahmani, EVEA (FR)

Materials

11:55 AAO-Technology: A Recyclable IMS for Low Voltage Power Electronics
Simon Petillon, Hahn-Schickard-Gesellschaft (DE)

12:25 Vitrimers as 3R Materials: Challenges and Opportunities for Electronics
Marina Labalette, IRT Saint Exupéry (FR)

12:55 Lunch Break

13:55 Biodegradable Materials for Enhancing Circularity of Power Electronics PCBs
Vincent Grennerat, GE2Lab (FR)

14:25 Low Melting Solder Alloys for Long Misson Profile Applications
Andreas Karch, Indium Corporation (GB/DE)

Methodologies

14:55 PELCA: an Open-Source Research Software for Power Electronics Life Cycle Assessment Considering Reliability and Repairability
Nicolas Degrenne, Mitsubishi Electric (FR)

15:25 Environmental Compatibility – A New KPI of Multi-objective Power Electronics Design
Luc Imperiali, ETH Zürich (CH)

15:55 Coffee Break

16:25 On-board Charger – Design and Sustainability Screening
Christine Minke, Clausthal University of Technology (DE) / Regine Mallwitz, Tech. University Braunschweig (DE)

16:55 State of the art in the recycling of power electronics as a basis for targeted eco design approaches
Sebastian Schormann, REMONDIS Electrorecycling (DE)

17:25 End of 1st Day

19:30 Dinner at Restaurant „L'Epicurien“
1 Place aux Herbes, 38000 Grenoble, France

Draft Programme

Wednesday, 27 November 2024

08:00 Webex started

Semiconductors

08:30 Eco-Design in ST: a Sustainable Journey
Cyril Colin-Madan, ST Microelectronics (IT)

09:00 Energy Budget for the Lifecycle of Si and SiC Power Semiconductors for Railway and Solar Applications
Renato Minamisawa, Fachhochschule Nordwestschweiz (CH)

Design for Circularity

09:30 Mid term Follow Up on EU Project EECONE Dedicated to More Circular Electronics
Jean-Christophe Crebier, GE2Lab (FR)

10:00 Toward Innovative Life Cycles to Keep the Value of Power Electronics
Maud Rio, G-SCOP Laboratory / Université Grenoble Alpes (FR)

10:30 Coffee Break

Norms and Regulations

11:00 Fulfilling New EU Requirements for Companies to Quantify and Report their Efforts in Eco-designing their Products
Henri Cuin, Terraquota (DE)

11:30 PECTA – An Energy Efficiency Initiative of the International Energy Agency (IEA) including LCA
Roland Brüniger, Swiss Federal Office of Energy (CH)

Application and Industry

12:00 Life Cycle Analyses and their Contribution to a More Sustainable Converter Design
Franz Musil, Fronius International (AT)

12:30 Lunch Break

13:30 Preparation of a Life Cycle Analysis for a PV Inverter – Challenges and Best Practice
Anna-Lisa Sas, SMA Solar Technologies (DE)

14:00 Application of Eco Design & Circularity in Industrial Context
Djamila Saou, Schneider Electric (FR)

14:30 Panel Discussion: Eco-design of Power Electronic Systems – From Vision to Reality

15:30 End of Workshop