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).

22/11/24

Organisational Information

Organiser	ECPE e.V. Ostendstrasse 181 90482 Nuremberg, Germany www.ecpe.org
Technical Chair	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)
Technical Contact	Gudrun Feix, ECPE e.V. +49 911 81 02 88 – 15 gudrun.feix@ecpe.org
Organisation	Marietta Di Dio, ECPE e.V. +49 911 81 02 88 – 13 marietta.didio@ecpe.org
Venue	Amphi Berges Bâtiment GreEN-ER Grenoble INP – Ense3 and G2Elab 21 Avenue des Martyrs CS 90624 38031 Grenoble Cedex France

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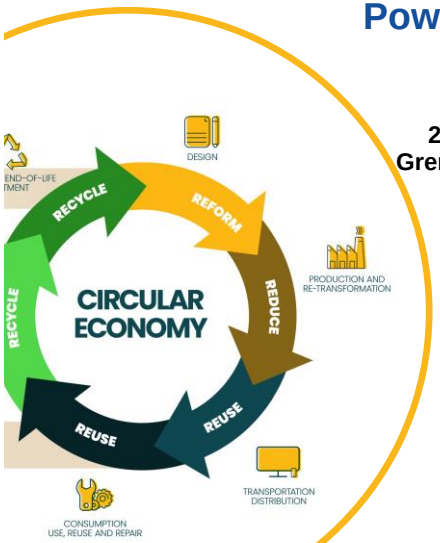
European Center for Power Electronics e.V.

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
Grenoble, France / hybrid

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**
Thomas Harder, ECPE

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**