

Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

2 November 2023

Participation Fee:

- € 670,- * for industry
- € 520,- * for universities/institutes
- € 180,- * for students/PhD student
(limited spaces; copy of students ID required)

* plus VAT

- The participation 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,-*).
- Digital proceedings will be provided by download link latest one day before start of the event. A printed handout is available on request (€ 50,-*).
- Upon receipt of registration confirmation via email you are signed-up for the event. The invoice will be sent via email.
- 25 % discount for participants from ECPE member companies.
- 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).
- The number of participants is limited to 35 attendees.

11/10/23

Organisational Information

Organiser ECPE e.V.
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Technical Chair Dr. Ilknur Colak,
Schneider Electric (FR)

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Venue Hotel Acca Palace
Via Nicotera 9
20161 Milan, Italy



Source photo: Hotel Acca Palace
Source graph front page: Fraunhofer IZM

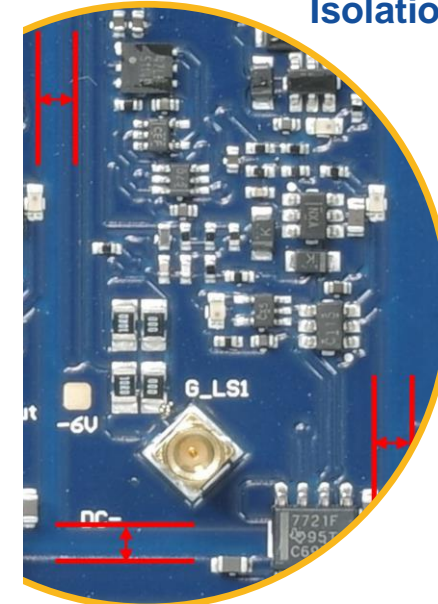


European Center for
Power Electronics e.V.

ECPE Tutorial

Isolation Coordination

8 - 9 November 2023
Milan, Italy



Isolation Coordination

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Isolation strength defines the security of devices during operation plus the user's safety. The aim of the isolation coordination is to ensure security and safety by a suitable design of creepage and clearance distances and the use of solid insulation, if applicable.

This tutorial provides an overview over physical basics and explains the basics of isolation coordination like overvoltage categories, pollution degree and the influence of altitude, for example.

You will learn about European standards for different applications, from medium voltage applications to automotive and aerospace. By means of examples you will learn about the work flow when you are responsible for isolation coordination.

This tutorial is interesting for engineers and technical staff new to the field of isolation coordination:

- Designers for electrical circuits, systems and applications in power electronics
- Test engineers
- Experts in packaging

The tutorial is chaired by:

Dr. Ilknur Colak, Schneider Electric (FR)
Dr. Vivien Grau, Robert Bosch (DE)
Prof. Andrea Cavallini, University of Bologna (IT)
Luca Lusuardi, Hofer Powertrain (LIE)

All presentations and discussions will be in English.

Programme

Wednesday, 8 November 2023

- 09:00 Registration & Welcome Coffee**
- 09:30 Welcome, Opening**
Gudrun Feix, ECPE e.V.
- 09:40 Basics and Mechanisms of Isolation**
- Breakdown Voltage/Field
- Materials
- Influences on Electric Strength
- Discharge and Breakdown Mechanisms
Vivien Grau

10:40 Coffee Break

- 11:00 Basics and Mechanisms of Isolation – cont.**
Vivien Grau

- 12:00 Basics of Isolation Coordination**
- Overvoltage Category
- Decisive Voltage Class
- Altitude
- Earthing Connection Type
Ilknur Colak

12:40 Lunch

- 13:40 Basics of Isolation Coordination – cont.**
Ilknur Colak

- 14:40 Standards**
Ilknur Colak, Luca Lusuardi

15:40 Coffee Break

- 16:00 Solid Insulation Assessment**
- Protection Design Process Flow
- Solid Insulation Simulation Methods
- Solid Insulation Verification
Luca Lusuardi

- 17:30 Open Questions from the 1st Day**

17:45 End of 1st Day

20:00 Dinner

Programme

Thursday, 9 November 2023

- 09:00 Start of 2nd Day**
- 09:00 Isolation Coordination on Power Electronics System/Converter Level**
- Node-to-Node Voltage
- Creepage and Clearance Distance
- Design Examples
- Tests and Measurements
Ilknur Colak

10:30 Coffee Break

- 11:00 Insulating Material Selection**
- Influence of Material Properties
- Material Testing Methods
Luca Lusuardi

12:30 Lunch

- 13:30 Application Specific Isolation Coordination – Automotive**
- Normative Framework
- Design Aspects in Automotive
- Electrical Testing in Automotive
Luca Lusuardi

- 14:30 Application Specific Isolation Coordination – Aerospace**
- Voltage Stress in Electrical Machines by High Switching Frequencies
- Insulation System of Rotating Machines
- PD at higher Altitudes
Andrea Cavallini

- 15:30 Final Discussion**

15:45 End of Tutorial