

Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

19 April 2021

Participation Fee:

- € 320,- * for industry
- € 290,- * for universities/institutes
- € 120,- * for students/PhD students
(limited spaces; copy of students ID required)

* plus VAT

- The participation fee includes lectures and digital proceedings (provided 1 day prior to the event by email).
- Participation by eb conference tool (Webex). Access data will be provided by email.
- Upon receipt of registration confirmation via email you are signed-up for the event. The invoice will be sent by email.
- ECPE members are able to register 1 participant free of charge, 25 % discount for further participants.
- 10 % discount for participants from ECPE competence centres.
- Cancellation policy: Full amount will be refunded in case of cancellation up to 1 week prior to the event. After this date and in case of no-show 50 % of the fee is non-refundable (substitutes are accepted anytime).
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17/03/21

Organisational Information

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Dr. Bas Vermulst, Technical Chair
Eindhoven University of Technology (NL)



Prof. Michael A. E. Andersen,
Technical University of Denmark (DK)



Petar Ljushev,
DaniSense (DK)



Dr. Jan Schellekens,
Applied Micro Electronics (NL)



Jeroen van Duivenbode,
ASML (NL)



Dr. Mark van Helvoort, PMP, PBA
Philips (NL)



Joost van Straalen,
Prodrive Technologies (NL)

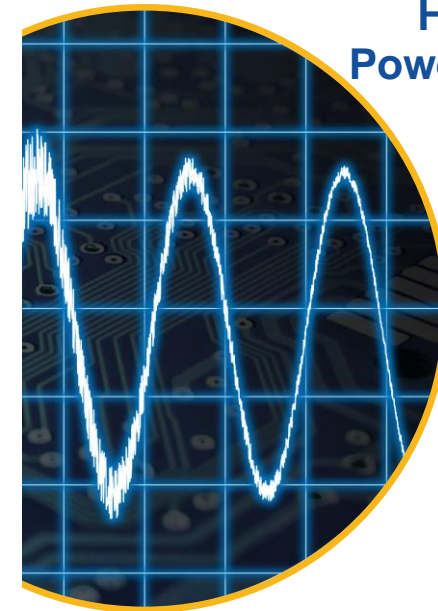


European Center for
Power Electronics e.V.

Digital Event

ECPE Online Tutorial

High-Precision Power Electronics



21 – 22 April 2021

ECPE Online Tutorial

High-Precision Power Electronics

21 – 22 April 2021

Power amplifiers are used in high-precision applications such as high accuracy positioning systems (e.g. semiconductor lithography), where any error in the current translates to a positioning error; magnetic resonance imaging, where current errors directly relate to image distortion; audio amplifiers; electron microscopy, and so forth. Most of these applications require high voltages and high currents (up to MW levels), while maximum current and voltage errors are in the ppm range. In comparison, inverters for grid applications are found in the same power range, but a THD of a few percent is often deemed quite acceptable. Moreover, high precision applications typically require much larger bandwidths (up to 100s of kHz) with almost zero phase delay, making modelling and control very important topics as well. Such challenges require the engineer to take a vastly different design approach compared to more traditional applications, such as traction inverters.

Target Group

This tutorial is aimed at engineers and researchers who are engaged in power electronics, and want to improve their background knowledge and understanding of high precision systems and converters, including recent developments and future trends. Various academic sessions cover a range of fundamental topics such as component modeling, topologies, and compensation techniques. Industry sessions are included to give detailed insight in the challenges and solutions for several state-of-the-art high-tech applications.

Course Instructors:

Prof. Michael A. E. Andersen, Techn. University of DK
Dr. Bas Vermulst, Eindhoven University of Technology
Dr. Jan Schellekens, Applied Micro Electronics
Jeroen van Duivenbode, ASML
Joost van Straalen, Prodrive Technologies
Dr. Mark van Helvoort, PMP, PBA, Philips
Petar Ljushev, DaniSense

All presentations and discussions will be in English.

Programme

Wednesday, 21 April 2021

08:30 Webex will be started

09:00 **Welcome, Opening**
Gudrun Feix, ECPE e.V.

09:15 **Introduction to High-Precision Applications**
Bas Vermulst

10:00 **Break**

10:10 **Academic Session 1: Non-Linearities in Passive and Active Components**
Bas Vermulst

10:55 **Break**

11:00 **Academic Session 2: Topologies & Filtering**
Jan Schellekens

12:00 **Lunch**

12:45 **Academic Session 3: Modulation & Compensation**
Bas Vermulst

13:45 **Break**

13:50 **Industry Session 1: High-Precision in Semiconductor Lithography (Part I)**
Jeroen van Duivenbode

14:20 **Break**

14:25 **Industry Session 1.: High-Precision in Semiconductor Lithography (Part II)**
Jeroen van Duivenbode

14:55 **Break**

15:00 **Industry Session 1.: High-Precision in Semiconductor Lithography (Part III)**
Jeroen van Duivenbode

15:30 **Wrapping up & discussion**

16:00 **End of 1st Day**

Programme

Thursday, 22 April 2021

08:30 Webex will be started

09:00 **Industry Session 2: High-Precision Current Sensing using Flux-Gate Technology (Part I)**
Petar Ljushev

09:45 **Break**

09:55 **Industry Session 2: High-Precision Current Sensing using Flux-Gate Technology (Part II)**
Petar Ljushev

10:25 **Break**

10:30 **Industry Session 3: High-Precision in Medical Imaging (Part I)**
Mark van Helvoort

10:45 **Break**

10:55 **Industry Session 3: High-Precision in Medical Imaging (Part II)**
Mark van Helvoort

11:40 **Break**

11:50 **Industry Session 4: Developing Gradient Amplifiers for MRI (Part I)**
Joost van Straalen

12:35 **Lunch**

13:15 **Industry Session 4: Developing Gradient Amplifiers for MRI (Part II)**
Joost van Straalen

14:00 **Break**

14:15 **Academic Session 4: High-def Audio Amplifiers (Part I)**
Michael A. E. Andersen

15:00 **Break**

15:10 **Academic Session 4: High-def Audio Amplifiers (Part II)**
Michael A. E. Andersen

15:55 **Final Discussion**

16:30 **End of Tutorial**