EMERGE
2023

The Summer School on

ELECTRICAL MACHINES AND DRIVES FOR GREEN TRANSPORTATION SYSTEMS

11-15 September 2023

MODENA, ITALY

emergephd.unimore.it

TECHNICAL ENDORSEMENT

UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

MOTORVEHICLE UNIVERSITY OF EMILIA-ROMAGNA

RETE ALTA TECNOLOGIA EMILIA-ROMAGNA HIGH TECHNOLOGY NETWORK
TECNOPOLO MODENA

MOST

SPONSORS

DEMOCENTER

Ansys

Typhoon HIL

Particleworks EUROPE

Electrical Machines and Drives for Green Transportation Systems - EMERGE 2023

The Summer School on '**Electrical Machines and Drives for Green Transportation Systems**' is organized by the **University of Modena and Reggio Emilia** in cooperation with **MUNER - The Motorvehicle University of Emilia-Romagna**, the **Electrical Machine Technical Committee of the IEEE IES** and **DORNA project** with support of **Tecnopolo di Modena**, **Democenter Foundation**, **MOST**, **Ansys** and **Particleworks.**

It's a unique event in Europe for **young researchers and PhD students** to exchange experience and technical information about their projects and meet representatives from top industries in the transportation field. **Engineers from Industry** are also welcomed, it is an opportunity for them **to stay updated with the latest research in electric transportation** thanks to the flexible formula of single day registrations.

The Summer School starts with **two Industry Day covering keynote presentations from industry experts** as well as a dialogue session for detailed face-to-face discussions. **The rest of the week is dedicated to high-level lectures from several experts from academia but also from industry**, related to the following thematic technical areas:

Electrical Machines Design and Modeling

Electrical Drives and their Control

Electrical Drives Reliability and Monitoring

Industrial and Transport Applications of Machines and Drives

Sessions related to the development of **soft skills**, **techniques and methodologies for successful research**, **fundraising, effective leadership and entrepreneurship will also be covered**.

11th -15th September 2023
h 9.00 - 18.00
Department of Engineering Enzo Ferrari - Via P. Vivarelli 10, 41125 Modena (Italy)
All speeches and lessons will be in English.

Read more: https://www.emergephd.unimore.it/

OBJECTIVES

- Foster closer interaction between academia and industry and provide young engineers with a platform to collaborate on sustainable solutions, facilitate networking, and discuss innovative developments.
- Engage young engineers and researchers in a positive, reciprocal relationship with academia and industry, and actively contribute and share perspectives to help advance the electrification in the transportation sector.
- To attend lectures on the latest development end research in the green transportation sector.
- To develop soft skills, techniques and methodologies for successful research, fund rising, to be the leader of tomorrow and drive the electrical revolution in transportation.

SCIENTIFIC COMMITTEE

- Prof. ***Davide Barater*****,** UniMORE, IEEE-IES EMTC Secretary (Summer school Chair)
- Prof. **Giovanni Franceschini,** UniMORE
- Prof. ***Emilio Lorenzani***, UniMORE
- Prof. ***Jose Antonino-Daviu*****,** Universitat Politècnica de València, IEEE-IES EMTC chair
- Dr. ***Shafigh Nategh*****,** PhD, Founder and CEO of SEDRIVE
- Prof. ***Fabio Immovilli*****,** UniMORE
- Prof. ***Stefano Nuzzo*****,** UniMORE
- Prof. ***David Gerada*****,** The University of Nottingham, Project DORNA coordinator
- Prof. ***Giampaolo Buticchi*****,** The University of Nottingham Ningbo China

PROGRAM

DAY 1 - *MONDAY, 11TH SEPTEMBER*

- **Opening ceremony - Welcome address.**
  UniMore Rector, MUNER president, IES rappresentative, IES EMTC, Giovanni Franceschini & Davide Barater – Unimore.
- **The challenge of electrification in high performance cars –** *Keynote.*
  Ugo Sitta, Head of Power Electronics development, Ferrari, Italy.
- **Current Status and Trends in Electrical Machines used in Transportation Application –** *Keynote.*
  Shafigh Nategh, PhD, Founder and CEO of SEDRIVE, Sweden.
- **Electric powertrains for offroad e-Mobility –** *Keynote.*
  Dmitry Svechkarenko, R&D Team Manager at ABB Corporate Research, Sweden.
- **PhD poster session.**
- ***Live-Demo* - Particle simulation for oil-cooled e-motors: fluid and solid temperature prediction using Particleworks.**
  Michele Merelli is Business Development Specialist and CAE Engineer at Particleworks Europe and Enginsoft, Italy.

DAY 2 - *TUESDAY, 12TH SEPTEMBER*

- **Electrification in commercial vehicles –** *Keynote.*
  Shaohong Zhu, Electric Machine Engineer at Cummins, The United Kingdom.
- **The frontier of electrification in agriculture and off-highway vehicles –** *Keynote.*
  Diego Troncon, Electric Machines Technical Project Leader in the Electrification System Integration, CNH Industrial, Italy
- **Modern technics and methodologies for Testing Power Electronics Equipment –** *Keynote.*
  Marcin Szlosek, R&D Department Manager ABB PL, Poland.
- **Electric Propulsion and e-Machine technologies -** *Technical lecture.*
  David Gerada, The University of Nottingham, UK.
- ***Live-Demo* – Design and Optimization of Power Electronics with Ansys.**
  Antonio Camarda - Senior Application Engineer, Ansys.

DAY 3 - WEDNESDAY, *13TH SEPTEMBER*

- **From idea to commercialisation -** *Soft skill lecture.*
  Christian Kumar, director of Maverx Academy, Maverx Foundation, Italy.
- **Funding and pitching -** *Soft skill lecture.*
  Christian Kumar, director of Maverx Academy, Maverx Foundation,Italy.
- **Maserati Museum -** *Factory tour.*
- **Panini Museum -** *Cars exhibition.*
- **Hombre Farm -** *Tasting Experience.*

DAY 4 - *THURSDAY, 14TH SEPTEMBER*

- **Insulation in electrical machines for green transportation: challenges and solutions -** *Technical lecture. Prof. Andrea Cavallini, University of Bologna, Italy*
- **Modern Design and manufacturing of induction machines for transportation electrification -** *Technical lecture. Prof. Gerard Capolino, distinguish lecturer IEEE, France*
- **Powertrains with multiphase motors supplied by multilevel converters -** *Technical lecture.*
  Prof. Carlo Cecati, University of L'Aquila, Italy
- **Advanced methods for condition monitoring of electric motors based on the analysis of electrical quantities -** *Technical lecture.*
  Prof. Jose Antonino Daviu, Universitat Politècnica de València, Spain.

DAY 5 - *FRIDAY, 15TH SEPTEMBER*

- **Additive manufacturing applied to electrical machines -** *Technical lecture.*
  Prof. Elena Bassoli, University of Modena and Reggio Emilia, Italy.
- **Final pitch presentation: discussion and feedback -** *Soft skill lecture.*
  Christian Kumar, director of Maverx Academy, Maverx Foundation,Italy.
- **Final test for ECTS.**

Read more on speakers here: https://www.emergephd.unimore.it/speakers/

REGISTRATION AND PAYMENT

If You are a ***PhD student***, register on page: https://www.emergephd.unimore.it/registration/ or click here.

Payment of registration fees is via **bank transfer.** After registration you will receive the information on how to proceed with the payment.

The **full registration** includes:

- full event registration for 5 days
- Social dinner (Day 4)
- Cultural excursion (Day 3)
- Welcome cocktail (Day 1)
- Lunches and coffee breaks
- digital proceedings

Full registration fees:

- **IES student members – €250**
- **IEEE student members – €450**
- **IEEE non member – €600**
- **Full registration Fee waiver for PhD students involved in EU project DORNA**

All costs here reported are VAT excluded. 22%VAT is to be applied to the registration cost.

Read more and pre-register here: https://www.emergephd.unimore.it/registration/

CONTACT

For general information, administrative questions and registration procedure, please contact:
Democenter Foundation, Via P. Vivarelli, 2 (c/o Campus DIEF) 41125 Modena – Italy.
Phone number: +39 059.2058153
Email address: formazione@fondazionedemocenter.it.