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# EMERGE 2024

## THE SUMMER SCHOOL ON

# ELECTRICAL MACHINES AND DRIVES FOR GREEN TRANSPORTATION SYSTEMS

## II EDITION



## Modena, Italy

## 24<sup>TH</sup>-28<sup>TH</sup> JUNE 2024

### TECHNICAL ENDORSEMENT



UNIMORE  
UNIVERSITÀ DEGLI STUDI DI  
MODENA E REGGIO EMILIA



MOTORVEHICLE  
UNIVERSITY OF  
EMILIA-ROMAGNA

MODST  
CENTRO NAZIONALE PER LA MOBILITÀ SOSTENIBILE

IEEE



TECNOPOLO  
MODENA  
EMILIA-ROMAGNA



DEMOCENTER

## EMERGE 2024

### Electrical Machines and Drives for Green Transportation Systems

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.



**24<sup>th</sup> -28<sup>th</sup> June 2024**



**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 and research in the green transportation sector.
- To develop soft skills, techniques and methodologies for successful research, fund raising, 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. Sonia Leva, PoliMi, Senior Member, IEEE*
- *Prof. Michela Longo, PoliMi, Member, IEEE*
- *Prof. Emilio Lorenzani, UniMORE, Senior Member, IEEE*
- *Prof. Fabio Immovilli, UniMORE, Senior Member, IEEE*
- *Prof. Giampaolo Buticchi, The University of Nottingham Ningbo China, Senior Member, IEEE*
- *Prof. David Gerada, The University of Nottingham, Project DORNA coordinator*
- *Prof. Jose Antonino-Daviu, Universitat Politècnica de València, IEEE-IES EMTC chair*
- *Dr. Shafigh Nategh, PhD, Founder and CEO of SEDRIVE, Sweden, IEEE-IES EMTC Vice-chair*
- *Prof. Stefano Nuzzo, UniMORE, IEEE member*



## PROGRAM

### DAY 1 - MONDAY, 24<sup>TH</sup> JUNE

- **Opening ceremony - Welcome address.**
- **Testing of high performance electric powertrain components: challenges and solutions – Keynote.**  
Ferrari, Italy.
- **Electric racing motorcycle: current status and trends – Keynote.**  
Giovanni Puccetti, Ducati, Italy.
- **Semiconductors are shaping automotive applications – Keynote.**  
Marija Jankovic, ROHM Semiconductor Europe, Germany.
- **PhD poster session.**
- **Advanced Electrical Drivetrains for Propulsion and Traction Applications - Technical lecture.**  
Prof. Ayman El-Refaie, Marquette University, the US.
- **Hardware-in-the-Loop (HIL) for development and testing of electric motor drive control software – Live Demo.**  
Jovan Zelic, Typhoon HIL, Serbia.

### DAY 2 - TUESDAY, 25<sup>TH</sup> JUNE

- **Li-ion Batteries: challenges, testing and recycling – Keynote.**  
Giuseppe Corcione Reinova, Italy.
- **Design Challenges of WBG power converters for traction applications – Technical lecture.**  
Prof. Radu Bojoi, Politecnico di Torino, Italy
- **Modeling and development of electrified powertrain in off-highway vehicles – Keynote.**  
Stefano Fiorati, CNH Industrial, Italy.
- **A global network of charging infrastructures for electric boats – Keynote.**  
Michele Bolpagni, Aqua superPower Limited, Italy.
- **E-machine Design, Analysis and Optimization with Ansys- Live-Demo.**  
Francesco Papini, Ansys Italia srl, Italy.

### DAY 3 - WEDNESDAY, 26<sup>TH</sup> JUNE

- **Driving Sustainability: The Transformative Role of Artificial Intelligence in Mobility and Green Transportation – Technical lecture.**  
Prof. Seyed Mahdi Miraftebzadeh and Prof. Michela Longo, Politecnico di Milano.
- **Opportunities, Reliability Challenges and Potential Solutions in Wide-bandgap Device based Motor Drives – Technical lecture.**  
Prof. Xibo Yuan, China University of Mining and Technology, University of Bristol, UK.
- **High Performance Electrical Machines enabled by advanced manufacturing – Technical lecture.**  
Prof. Chris Gerada, University of Nottingham, UK.



## REGISTRATION AND PAYMENT

You can use the **following form** to registration.

This form must be sent to the Democenter-Sipe Foundation by email to: [formazione@fondazionedemocenter.it](mailto:formazione@fondazionedemocenter.it)

### 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](mailto:formazione@fondazionedemocenter.it).

# EMERGE 2024

## Electrical Machines and Drives for Green Transportation Systems

### PARTICIPANT REGISTRATION DETAILS

Name Surname.....  
Phone number.....E-mail.....  
Degree .....Job role.....

### AGENCY

Business Name.....  
tax code or VAT number.....Codice SDI (if need) .....  
Company activity.....  
Address.....Postal Code.....  
State.....City of.....Prov. ....  
Number of employees .....Phone .....E-mail.....

### BILLING DATA (only if different from the company data)

Header and address.....  
Tax code or VAT number.....Codice SDI.....

### PARTECIPATION FEE (sign the choice):

- ☐ **3 days registration: 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup> June - 400€ +Vat.**  
☐ **Special price for the second member of each company: 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup> June - 360€ +Vat.\***

\*10% discount starting from the 2nd member for each company.

## REGISTRATION

Registration must take place within 10th June sending the form by email to: [formazione@fondazionedemocenter.it](mailto:formazione@fondazionedemocenter.it).

For clarifications you can contact the Democenter Foundation on: 059 2058153.

## PAYMENT

The registration fee must be paid before the beginning of the course. Payment of registration fees is via bank transfer (currency Euros) to: **Fondazione Democenter-Sipe** IBAN: **IT44C0538712905000000551764** BIC **BPMOIT22 XXX Banca Popolare dell'Emilia - Romagna, Ag. 5 di Modena**. Democenter-Sipe Foundation will send the invoice upon receipt of the registration fee.

The data collected will be processed in accordance with the European data protection regulation (EU Reg. 2016/679). For more information on treatment, privacy and exercisable rights, see the information on the website [www.democentersipe.it/privacy/](http://www.democentersipe.it/privacy/)

Consent to the processing of your personal data with reference to the information received.

☐ YES ☐ NO

Date .....Stamp and signature.....