

Call for Papers

**2nd International Colloquium "Power generation
and electromechanical energy conversion"**
Opatija, Croatia, 6 – 9 June 2027



<https://icpgeec.org/>

The Croatian National CIGRE branch in cooperation with the Faculty of Electrical Engineering and Computing in Zagreb and Zagreb University of Applied Sciences are organizing the **2nd International Colloquium "Power generation and electromechanical energy conversion 2027"**

VENUE

The Colloquium will take place in Amadria Park, set on the seafront in the centre of Opatija, next to the Lungomare promenade. Hotel offers modern accommodation with views of Kvarner Bay and direct access to extensive wellness facilities. The hotel features air-conditioned rooms with free WiFi, satellite TV and private bathrooms with walk-in showers. Selected room types also include balconies and views of Kvarner Bay.



ABOUT OPATIJA

The modern history of Opatija began in the middle of the 19th century, when Villa Angiolina was built. At that time, many famous personalities from the metropolises of Zagreb, Vienna and Budapest came to Villa "Angiolini" and Opatija and enjoyed the climatic advantages offered by its location. Opatija became a fashionable destination for the Austrian imperial family and the Austrian nobility. Soon luxury hotels, residences and villas were built. The first luxury hotel – Hotel "Quarnero" (today "Grand Hotel Kvarner") –

was built in 1884. The hotel Crown Princess Stephanie was opened in 1885. The first travel guide about Opatija was published in Vienna in



1883 under the title Abbazia, Idyll of the Adriatic.

Opatija, with its Riviera, is located in the Kvarner Bay on the Adriatic Sea below the Učka Mountains, where the Učka Nature Park with numerous opportunities for outdoor activities is located.

The peculiarity of the location and climatic advantages enabled the early development of health tourism. Today Opatija is a tourist destination that offers numerous cultural, entertainment and sports events, congresses and gastronomic offer.

BACKGROUND AND SCOPE

Croatian National Committee of CIGRE (www.hro-cigre.hr) together with the Faculty of Electrical Engineering and Computing in Zagreb and Zagreb University of Applied Sciences are organizing the 2nd Colloquium on Power generation and electromechanical energy conversion which will gather specialists from the academic community, research institutes, original equipment manufacturers, electric utilities and industrial world. The Colloquium is supported by the CIGRE A1 committee. The event is the perfect place to exchange ideas, ask questions and express opinions, renew old acquaintances and make new friendships. The aim is to bring together researchers from the rotating machines production, universities, and utilities in order to present and discuss their research results and latest advances in the fields of design, development and maintenance of generators (hydro and turbo), electrical motors, renewable energy sources and vehicles.

PROGRAM & MAIN TOPICS

The Colloquium will last for four days. The papers will be presented in the morning and afternoon, in oral sessions and poster sessions. The CIGRE tutorial will be held as well. Papers regarding all aspects of rotating electrical machines (synchronous and asynchronous) and power generation are encouraged.

The papers will be divided into seven main topics:

1. Advanced Design and Numerical Modelling of Electrical Machines

- Multiphysics and coupled-field analytical/numerical modelling
- Virtual prototyping and digital twin development
- High-efficiency, high-speed, and superconducting machine design
- Design challenges in specialized industrial and transport applications

2. Operation and Performance of Converter-Fed Rotating Machines

- Impact of high-frequency switching and transients on insulation
- Loss evaluation, stray losses, and advanced cooling optimisation
- Mitigation of shaft voltages, bearing currents, and EMI
- Machine behaviour under non-sinusoidal supply conditions

3. Large Power Generators, Industrial Motors, and Grid Support Equipment

- Testing, commissioning, and revitalisation of large generators and industrial motors
- Synchronous compensators and high-inertia machines for grid stability
- Advanced excitation, AVR, and auxiliaries for system stability and fault ride-through

4. Advanced Materials, Components, and Manufacturing Technologies

- Novel magnetic materials (amorphous, nanocrystalline, advanced steels)
- Next-gen insulation systems, high-temperature materials, and resins
- Additive manufacturing (3D printing) and innovative winding technologies

5. Diagnostics, Monitoring, and Asset Management

- Online condition monitoring, advanced sensing, and non-destructive testing
- Predictive maintenance, remaining life prognosis, and AI diagnostics
- Lifecycle management, life extension, retrofitting, and uprating

6. Sustainable Generation, Storage, and Hybrid Energy Schemes

- Design and operational needs for generators in renewable systems
- Hybrid generation, battery integration, and microgrid applications
- Impact of renewable integration on duty cycles, fatigue, and grid codes
- Sustainability, recycling, and circular economy for energy assets

7. E-Mobility and Specialised Traction Drives

- High-power-density drives (PM, SynRM) for EV, marine, and aviation
- Modelling, thermal management, and safety of batteries and fuel cells
- Grid integration, charging infrastructure, and V2G interactions

IMPORTANT DATES

31 January 2027

Full paper submission due date

15 March 2027

Notification of acceptance

6 – 9 June 2027

Colloquium at the Hotel Amadria Park, Opatija, Croatia

More details are given on the following link: <https://icpgeec.org/call-for-papers>
For more information please contact us on registration@icpgeec.org

TECHNICAL COMMITTEE

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Branko Tomičić (Croatia)
Christian Kreischer (Germany)
Aaron Doyle (Canada)
Hamed Hashemi Dezaki (Netherlands)

WORKING LANGUAGE

The working language for the Colloquium is English. All printed materials, presentations and discussions will be in English.

PAPER SUBMISSION

Participants who intend to present their written contributions are invited to submit a one-page extended abstract and full paper using the template and submission system at: <https://icpgeec.org/author-center/>

PUBLICATION OF PROCEEDINGS

All papers will be published in the proceedings and distributed to participants of the Colloquium. Selected number of papers will be published in Journal of Energy.