15th International Conference on Modelling and Simulation of Electric Machines, Converters and Systems, ELECTRIMACS 2024

electrimacs2024.uji.es

CALL FOR PAPERS

Following previous successful conferences held since 1984, the 15th edition of the biennial **International Conference of the International Association for Mathematics and Computers in Simulation, ELECTRIMACS 2024,** will be held from 27 to 30 May 2024 in the city of Castelló de la Plana (Spain) and organised by the Universitat Jaume I.

The objectives of the conference are to provide scientific and professional interactions for the advancement in the fields of modelling, simulation, design optimization, control implementation, numerical methods and machine learning applied to the electrical domain. Recent development of complex systems such as distributed power systems, smart grids, electrical machines, electric vehicles, renewable energy and energy storage systems, power electronics and components, spatial, air borne and naval applications, among others, are encouraged.

The conference will only feature oral presentations. **All the papers presented at the conference will be published either in a Springer book (appearing as book chapters), or in a special issue of the journal "Mathematics and computers in simulation (MATCOM)", Transactions of IMACS, printed by Elsevier, appearing as journal papers.** Detailed information is available at http://electrimacs2024.uji.es.

IMPORTANT DATES:

Deadline for submissions: 1st December 2023 → extended to 20th December 2023

Acceptance notification: 15th February 2024 **Submission of final manuscript:** 15th March 2024

TECHNICAL AREAS AND TRACKS:

Topics of interest regarding research related to the electric world and divided into four main technical areas. These include but are not limited to:

- **Modelling, Simulation, and Identification Technical Track.** Topics: diagnostics in electrical systems; modelling methods and software development; modelling and simulation of power systems, power electronics and drives, distributed generating systems, electric machines and transformers, batteries, and fuel cell systems; electromagnetic fields and compatibility; emerging electrical technologies; simulation methodologies for design and analysis of electromagnetic devices; hardware in the loop emulation; and thermal problems.
- **Systems' Design and Optimization Technical Track.** Topics: system identification and optimization methods and theory; computer-aided design and optimization of power converters, protections, energy storage systems, electric machines, power systems; multiphysic issues; power system and power converter architectures; methods and techniques for energy management.
- **Control and Power Management Technical Track.** Topics: optimal, feedback, and stochastic control; filtering; linear and nonlinear systems control and programming; digital implementation and control applied to electrical systems; real time simulation methods; rapid control prototyping of electrical systems; embedded systems; fuzzy logic and applications; genetic algorithms and evolutionary computing; model predictive, robust, sliding mode networked control of electrical systems and machines; identification/diagnostic/ prognostic techniques applied to electrical systems; and power quality.

- **Numerical Methods and Machine Learning Technical Track.** Topics: artificial intelligence's potential to boost electrical systems performance; grid condition monitoring and predictive maintenance; electrical market variables pattern recognition; energy storage systems degradation analysis; renewable energy generation and electric demand forecast; applications in electric vehicles; estimation of state-of-charge and state-of-health in batteries; signal modelling; robot locomotion; electrical systems' parameter identification; energy flows prediction; and electrical faults forecasting.

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KEYNOTE SPEAKERS:

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CONFERENCE VENUE

The host university: Jaume I

Electrimacs 2024 will be held at the Universitat Jaume I of Castelló (UJI), one of the youngest and more dynamic universities in Spain with currently around 14,000 full time students and more than 1,500 teaching and research staff members. Established in 1991, UJI is set upon a modern campus and develops, nowadays, a total of 32 bachelor's degrees, 42 master's degrees, 21 doctoral programs and around 190 specialisation and expert courses.

The host city: Castelló de la Plana

Castelló de la Plana is the capital city of the province of Castellón, in the autonomous Valencian community, Spain. It is situated north of Valencia city on a fertile plain next to the Mediterranean sea. Founded originally on top of the nearby La Magdalena Hill, the village was moved to its present site on the plain by king Jaume I of Aragon (after whom the public university of the city was named) in 1251. It was made the provincial capital in 1833 and in 1873 was given the status of a city. Historic landmarks include the 14th-century Gothic-style Santa María Church, with a detached belfry 50 metres high (1591–1604), the 17th-century town hall, and the old Casino building (1814). Also the Planetarium, located next to the beach of the city is a very visited place.

According to the 2018 census, Castelló has a population of 174,264 inhabitants, ranking as the fourth most populated city in the Valencian Community (after Valencia, Alicante and Elx). It is noteworthy that the Prime Meridian, or Greenwich Meridian, intersects the 40th parallel at Castelló de la Plana and is commemorated with a monolith at the Meridian Park (Parc del Meridià) located at the exact point where this occurs.

Regarding economy, oranges and coloured tiles are the main products exported from the city's port, El Grao de Castelló, located 4 km away from the city centre. The port has a fishing tradition as well as various chemical factories, an oil refinery, and two combined-cycle power stations. Tourism is also of great importance and focused on the gorgeous local beaches that integrate the so-called Costa del Azahar (or Costa dels Tarongers, Oranges Coast).

Other touristic highlights in the surroundings are the coastal villages of Benicàssim and Peníscola as well as the astonishing locations of Morella, the Columbretes Islands (just 60 km offshore) and the great fluvial cave of Sant Josep (Saint Joseph) in the town of La Vall d'Uixó. Finally, the rock art caves at the Valltorta Museum, declared by UNESCO as a heritage of humanity, are one of the historical jewels of the region.

How to reach to Castelló de la Plana

By plane: there are two airports close to the city, one 30 km north (Aeroport de Castelló), and another one 70 km south (Manises, Aroport de València). Both can be reached by bus or metro/train.
By train: existing high-speed train connections with Barcelona, Madrid (via València), as well as a regional and very frequent interconnection service with València itself (www.renfe.es).
By bus: there are bus routes that connect the city with villages in the province and with other Spanish cities such as: Barcelona (www.alsa.es), or Madrid (www.avanzabus.com).
By car: the city is well connected north and south via de A7 dual carriageway.