



17th International Workshop on Optimization and Inverse Problems in Electromagnetism 2023

September 17 – 20, 2023 | Graz, Austria

Call for Papers

Dear colleagues,

on behalf of the organization committee, we are pleased to announce that the 17th International Workshop on Optimization and Inverse Problems in Electromagnetism will be held on **September 17 – 20, 2023, in Graz, Austria**. The workshop will be organized by the Institute of Fundamentals and Theory in Electrical Engineering, Faculty of Electrical and Information Engineering of Graz University of Technology.

The aim of this workshop is to discuss and share recent developments in optimization and inverse methodologies and their applications to the design and working principle of electromagnetic devices. A special focus will be put on machine learning techniques and optimal energy management.

It will also provide an opportunity to meet experts working in several cutting-edge research fields in engineering, mathematics and physics, in the general framework of the innovation in electromagnetic methods and applications. The conference program will consist of invited lectures, oral presentations and poster sessions.

Graz is the second largest city in Austria, located in the southeastern corner of the country and home to around 300.000 people. Visitors of the Styrian capital highly appreciate the easy walking distances between most hotels, sights and restaurants. The Old Town is one of the best-preserved city districts in Central Europe and listed in the UNESCO World Heritage List. A significant landmark of the city is the romantic Uhrturm (Clock Tower), situated on top of the Schlossberg mountain, with a clock still using its original mechanism from 1712.

We invite members of the scientific community in universities, research centers and industry to attend the workshop and present their recent achievements.

We are looking forward to meeting you all in Graz at the OIPE 2023!

Alice Reinbacher-Köstinger
Chair OIPE 2023

Contact and further information

oipe2023@tugraz.at
<http://oipe2023.tugraz.at>

Important dates

- Digest submission
(2 pages)
May 15, 2023
- Notification of acceptance
June 15, 2023
- Doctoral course
September 21, 2023
- Full paper submission
September 30, 2023

International steering committee

- P. Di Barba, Italy, *Chair*
- M. Ziółkowski, Poland, *Scientific Secretary*
- D. Baumgarten, Austria
- G. Crevecoeur, Belgium
- L. Dupré, Belgium
- A. Formisano, Italy
- L. Gerbaud, France
- J. Haueisen, Germany
- D. Lowther, Canada
- C. Magele, Austria
- I. Marinova, Bulgaria
- R. Martone, Italy
- A. Reinbacher-Köstinger, Austria
- M. Repetto, Italy
- A. Salvini, Italy
- B. Sareni, France
- A. Savini, Italy
- J. K. Sykulski, UK
- S. Wiak, Poland
- F. Wurtz, France
- I. Yatchev, Bulgaria

Local organizing committee

- Alice Reinbacher-Köstinger
- Christian Magele
- Eniz Mušeljčić

Scientific Topics

Theoretical aspects and fundamentals

- Mathematical theory and formulation of inverse and optimization problems
- Neural meta-modelling
- Regularization techniques
- (Model) order reduction
- Identification problems
- Sensitivity analysis

Algorithms

- Machine learning techniques for optimization and inverse problems
- Reconstruction techniques
- Deterministic, stochastic and hybrid techniques
- Multi-objective and multi-level optimization
- Heuristic approaches
- Design of experiments
- Constraints
- Robust optimization under uncertainty
- Objective functions and direct problems
- Numerical efficiency
- Numerical problems

Applications

- Optimal energy management
- Biomedical engineering
- Control systems
- Coupled problems
- Electrical machines
- Industrial and biomedical tomography
- Information and communication systems
- Large scale systems
- Mechatronics
- Micro- and nanosystems
- Non-destructive evaluation
- Design optimization
- Sensors and actuators
- Smart applications
- Transportation and mobility
- High frequency and antenna design

Software methodologies

- Parallel and distributed computing, GPU
- Soft computing and artificial intelligence

Digest submission

Authors are encouraged to submit a two-page digest due by **May 15, 2023**. A template of the digest is available on the workshop website.

All contributed papers will undergo a peer reviewing procedure to determine their suitability for presentation. Notification of the acceptance of the contribution will be given on **June 15, 2023**. Digests of contributions included in the workshop program will be part of the workshop proceedings.

Publications

Authors of accepted contributions are invited to submit a full paper that will be considered for publication in COMPEL or IJAEM journal, depending on the content. Detailed information regarding the full paper submission can be found on the website. The submission deadline will be **September 30, 2023**.

Doctoral course

After the workshop (**September 21, 2023**) a one-day doctoral course is scheduled. International experts will teach PhD students and researchers entering the field in selected aspects.

Registration fee

- Regular: € 500,00 (early bird) / € 550,00 (late)
- PhD Student: € 320,00 (early bird) / € 350,00 (late)

Early bird fees are valid until **June 30, 2023**.



OIPE 2023
September 17-20, Graz, Austria