

18th International Workshop on Optimization and Inverse Problems in Electromagnetism 2025

September 8 – 12, 2025 | Lodz, Poland

Preliminary Call for Papers

Dear colleagues,

on behalf of the organization committee, we are pleased to announce that the 18th International Workshop on Optimization and Inverse Problems in Electromagnetism will be held on **September 8 – 12, 2025, in Lodz, Poland**. The workshop will be organized by the Institute of Mechatronics and Information Systems, Faculty of Electrical, Electronic, Computer and Control Engineering of Lodz 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 topology optimization 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.

Lodz is a city of contrasts - It is full of factories and at the same time very green and avant-garde. Lodz dazzles with the splendor of factory palaces and amazes with artistic installations. The history of the city dates back six centuries, but the dynamic development of Lodz took place less than 200 years ago. At the beginning of the 19th century from the small village it became "promised land" offering thousands of work places. After the second world war, becoming the film capital of Polish, Lodz opened another important chapter of its history. In 2017, it was accepted into the UNESCO Creative Cities Network as a City of Film. Today it is a creative city, a city of festivals, a city that is being completely reworked and rediscovered. We invite members of the scientific community in universities, research centers and industry to attend the workshop and present their recent achievements.

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We are looking forward to meeting you all in Lodz at the OIPE 2025!

prof. Sławomir Wiak, DSc, PhD, MEng., dr h.c.

Chair OIPE 2025

Contact and further information

oipe2025@info.p.lodz.pl

Important dates

- Digest submission
(2 pages)
May 23, 2025
June 15 2025
- Notification of acceptance
June 20, 2025
- Doctoral course
September 12, 2025
- Full paper submission
September 30, 2025

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

Sławomir Wiak - chairman
Łukasz Szymański - vice chairman
Anna Firych-Nowacka - secretary
Łukasz Januszkiewicz
Katarzyna Wojtera
Łukasz Pietrzak
Grzegorz Zwoliński
Anna Tatarowska - office

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
- Design optimization

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 handling
- Robust optimization under uncertainty
- Objective functions and direct problems
- Algorithmic efficiency

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 nano-systems
- Non-destructive evaluation
- Sensors and actuators
- Smart applications
- Transportation and mobility
- High frequency and antenna design
- Benchmark problems

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 23, 2025~~ **June 15, 2025**. 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 20, 2025**. 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, likely in COMPEL or IJAEM journal, depending on the content and in other journals to be defined. Detailed information regarding the full paper submission can be found on the website. The submission deadline will be **September 30, 2025**.

PhD course

After the workshop (**September 12, 2025**) a one-day doctoral course is scheduled. International experts will teach PhD students and researchers entering the field in selected aspects.

Registration fee

- Regular: € 550,00 (early bird) / € 650,00 (late)
- PhD Student: € 250,00 (early bird) / € 350,00 (late)
- Accompanying person fee: € 250,00 (early bird) / € 350,00 (late)

Early bird fees are valid until **July 30, 2025**.

