



REPORT

ENUMATH 2023

by **Adélia Sequeira*** and **Ana Silvestre****

The ENUMATH 2023 Conference was held at the Instituto Superior Técnico (IST), in Lisbon, Portugal. It was the 14th of a series of conferences that started in Paris (1995), followed by Heidelberg (1997), Jyväskylä (1999), Ischia Porto (2001), Prague (2003), Santiago de Compostela (2005), Graz (2007), Uppsala (2009), Leicester (2011), Lausanne (2013), Ankara (2015), Bergen (2017) and Egmond aan Zee (2019).

The central goal of the Local Organizing Committee, composed by **Adélia Sequeira** (Chair), **Ana Silvestre** (Co-Chair) and **Jorge Tiago**, from IST and CEMAT, University

of Lisbon, **Telma Guerra**, from IPSetúbal and CEMAT, **João Janela**, ISEG and CEMAPRE, University of Lisbon, **Marília Pires**, CIMA, University of Évora, and **Svilen S. Valtchev**, IPLeiria and CEMAT, was to fulfill the objectives of the ENUMATH conferences, namely to provide a forum for presenting and discussing novel and fundamental advances in numerical mathematics and challenging scientific and industrial applications on the highest level of international expertise.

The Scientific Program of ENUMATH 2023 included

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Plenary talks:

Habib Ammari

ETH, Zurich, Switzerland

From condensed matter theory to sub-wavelength physics

Paola Francesca Antonietti

MOX, Politecnico di Milano, Italy

Mathematical and numerical modeling of neurodegenerative diseases

Peter Bastian

University of Heidelberg, Germany

Multithreaded multilevel spectral domain decomposition

Mária Lukáčová-Medvidová

University of Mainz, Germany

What is a limit of numerical methods for compressible flows?

Jean-Marie Mirebeau

University of Paris-Sud, France

Discretization of anisotropic PDEs using Voronoi's reduction of positive quadratic forms

Daniel Peterseim

University of Augsburg, Germany

Numerical solution of nonlinear eigenvector problems

José A. Carrillo de la Plata

University of Oxford, UK

Primal Dual methods for Wasserstein gradient flow

Carola-Bibiane Schönlieb

University of Cambridge, UK

From differential equations to deep learning for image analysis

Luís Oliveira e Silva

IST, University of Lisbon, Portugal

Challenges in numerical modeling of extreme plasma physics in the laboratory and in astrophysics

Alessandro Veneziani

University of Emory, USA

The role of applied mathematics in the design of coronary stents

Sara Zahedi

KTH, Royal Institute of Technology, Sweden

Conservative cut finite element methods

Minisymposia (some of them with several sessions),

Contributed talks and

Poster presentations.

The winner of the Best Poster Award (sponsored by CIM) was **Charlotte Milano**, from Reims Mathematical Laboratory (LMR), University of Reims Champagne Ardenne, France, with a poster entitled *Numerical Methods for electromagnetic cartography in medical imaging*. Two honorable mentions were awarded to **Lisa Grandjean**, also from the University of Reims Champagne Ardenne, and **Alessio Fumagalli**, from Politecnico di Milano, Italy.

Overall, ENUMATH 2023 was an inspiring meeting, both for scientific interactions and informal discussions, involving leading experts and young scientists from 31 different countries, with special emphasis on contributions from Europe.

As in the previous editions of the conference, the participants were invited to submit a short paper for the ENUMATH 2023 Proceedings to be published by Springer, as a volume of the series Lecture Notes in Computational Science and Engineering.