Special Issue

Numerical Analysis: Inverse Problems – Theory and Applications

Message from the Guest Editor

A plenty of problems in mathematics, economics, physics, biology, chemistry, engineering, in particular, e.g., optics, radar, acoustics, communication theory, signal processing, medical imaging, geophysics, astronomy, remote sensing, machine learning and other disciplines can be reduced to solving an inverse problem in an abstract space, e.g., in Hilbert and Banach spaces. It is called an inverse problem because it starts with the results and then calculates the causes. Solving inverse problems is a nontrivial task that involves many areas of Mathematics and Techniques. In case the problem is ill-posed small errors in the data are greatly amplified in the solution, therefore, regularization techniques using parameter choice rules with optimal convergence rates are necessary. While inverse problems are often formulated in infinite dimensional spaces, limitations to a finite number of noisy data, and the practical consideration of recovering only a finite number of unknown parameters, may lead to the problems being recast in discrete form, which are typically ill- conditioned. Papers involving all those above mentioned topics are welcome.

Guest Editor

Prof. Dr. Christine Böckmann

Institut für Mathematik, Universität Potsdam, Karl-Liebknecht-Str. 24-25, D-14476 Potsdam OT Golm, Germany

Deadline for manuscript submissions

closed (31 December 2021)

About the Journal

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

Editor-in-Chief

Prof. Dr. Francisco Chiclana
School of Computer Science and Informatics, De Montfort University, The Gateway, Leicester LE1 9BH, UK

Author Benefits

High Visibility:
indexed within Scopus, SCIE (Web of Science), RePEc, and other databases.

Journal Rank:
JCR - Q1 (Mathematics) / CiteScore - Q1 (General Mathematics)

Rapid Publication:
manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.4 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).