Special Issue

Solutions of Integrable PDEs: Solving, Properties and Applications

Message from the Guest Editors

Integrable PDEs (partial differential equations) are a special class of PDEs that can be solved exactly, meaning that an explicit expression for the solution can be obtained. This contrasts with non-integrable PDEs, where exact solutions are generally not possible, and numerical methods must be used. Integrable PDEs have been studied extensively over the past several decades, and many powerful mathematical methods have been developed for their analysis. These methods include the inverse scattering transform, the inverse spectral method (including Riemann–Hilbert problems), the method of dressing transformations, the Painlevé test, and the Lax pair method. Integrable PDEs have important applications in many areas of science and engineering, including fluid mechanics, quantum field theory, nonlinear optics, and soliton theory. Some examples of integrable PDEs include the Korteweg–de Vries equation, the nonlinear Schrödinger equation, and the sine-Gordon equation. The study of integrable PDEs has led to many important insights into the nature of nonlinear phenomena and has opened up new avenues for research in a wide range of fields.

Guest Editors

Dr. Hayman Thabet

Prof. Dr. James F Peters

Prof. Dr. Subhash Kendre

Deadline for manuscript submissions

closed (30 November 2024)

Mathematics

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 4.6

mdpi.com/si/170816

Mathematics
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
mathematics@mdpi.com

mdpi.com/journal/mathematics

Mathematics

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 4.6

mdpi.com/journal/mathematics

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).

MDPI