

Special Issue

Numerical Simulation and Analysis of Rock Mechanics Engineering Geology

Message from the Guest Editor

We are pleased to announce this Special Issue of the *Mathematics* journal, entitled "Numerical Simulation and Analysis of Rock Mechanics Engineering Geology". With the increasing complexity of problems related to rock mechanics, from tunnel stability to earthquake-induced landslides, numerical simulations have become indispensable for understanding multi-scale, multi-physics phenomena. This Special Issue invites original research to advance our understanding of mathematical approaches and to address critical challenges in rock mechanics and engineering geology. Contributions should focus on innovative numerical methods—such as finite element analysis, discrete element modeling, or machine learning—applied to rock mass behavior, fracture dynamics, fluid–rock interactions, and geological hazard forecasting.

- numerical modeling of rock mechanics
- machine learning-enhanced geomechanics
- multiphase flow simulation (CFD-DEM coupling)
- inverse problems in geological parameterization
- uncertainty quantification in rock engineering

Guest Editor

Dr. Alireza Ahangar-Asr

School of Computing, Science and Engineering, University of Salford,
Salford M5 4WT, UK

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

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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

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Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 17.3 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the second half of 2025).