

Special Issue

Mathematical Methods for AI-Enhanced Wireless Communications in Smart Cities

Message from the Guest Editor

This Special Issue aims to bring together cutting-edge research that integrates mathematical modelling, optimization theory, stochastic processes, graph theory, and machine learning algorithms for the design, analysis, and implementation of AI-driven wireless communication systems in smart cities. We seek high-quality original research and review papers that achieve the following:

- Develop novel mathematical frameworks to model, analyze, and optimize wireless networks empowered by AI technologies.
- Propose new algorithms for resource allocation, channel estimation, mobility management, and network scalability using rigorous mathematical formulations.
- Utilize graph neural networks (GNNs), game theory, control theory, and geometric deep learning to enhance performance, adaptability, and intelligence in urban communication infrastructures.
- Explore applications of intelligent reflecting surfaces (IRS), federated learning, and edge AI within the context of urban environments, backed by solid mathematical foundations.

Guest Editor

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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.

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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).