

Special Issue

Advanced Mathematical and Numerical Modeling in Electrodynamics and Photonics

Message from the Guest Editors

In recent years, intensive numerical modeling has become an important player in electromagnetic wave and nanophotonics research. Technological advances have allowed the design of complex structures at the wavelength scale of visible light, providing innovative optical functions and opening new applications, including metamaterials, microstructured optical fibers, nonlinear optics, plasmonics, graphene and 2D material devices, topological photonics, integrated quantum photonics, etc. In parallel, numerical and applied mathematics have provided very efficient new techniques that have profited from the increase in available computer power to provide us with the powerful computational methods necessary for the design of complex new structures. The purpose of this issue is to present the current state of the art of this research field in electromagnetic wave modeling and its wide panel of mathematical and computational tools: finite elements, boundary integrals, finite differences, discontinuous Galerkin, quasi-normal mode expansions, domain decomposition, absorbing boundary techniques, etc.

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Deadline for manuscript submissions

31 October 2025



Mathematics

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Impact Factor 2.2
CiteScore 4.6



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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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