Special Issue

Advanced Applications of Partial Differential Equations in Mathematical Biology

Message from the Guest Editors

Partial Differential Equations (PDEs) play a pivotal role in advancing our understanding of complex biological systems by providing a robust framework to describe spatial and temporal dynamics, with wide applications from cellular dynamics to organ-level mechanics. This Special Issue will focus on various applications of PDEs to important biological problems, highlighting novel mathematical models, cutting-edge computational methods, theoretical and analytical approaches, and the integrating of artificial intelligence. We invite researchers to submit original research work as well as review articles on the application of PDEs to mathematical biology. Potential topics include, but are not limited to, the following:

- Advances in mathematical models of various biological systems using partial/ordinary differential equations;
- Stability analysis, i.e. bifurcations, chaos, etc.;
- Multiscale and multiphysics large-scale modelling;
- Reduced-order models of complex physiological systems;
- Numerical methods for solving complex PDE systems;
- Integrating artificial intelligence with PDE, i.e., physics-informed neural networks.

Guest Editors

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Deadline for manuscript submissions

closed (31 October 2025)

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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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