Special Issue

Mathematical Modeling of Fault Detection and Diagnosis

Message from the Guest Editor

We are pleased to invite you contribute to the Special Issue on "Mathematical Modeling of Fault Detection and Diagnosis," which will be published in *Mathematics*. This Special Issue will focus on the latest advancements in mathematical modeling for fault detection and diagnosis across various systems. This Special Issue focuses on the essential role of mathematical modeling in fault detection and diagnosis across various engineering systems, addressing challenges in ensuring system reliability, safety, and efficiency. In recent years, the application of advanced mathematical models has become crucial for improving fault detection and diagnosis. However, the inherent challenges, such as incomplete or imbalanced data and complex system behaviors, can affect the performance of these models. This Special Issue aims to highlight the latest research on mathematical approaches—such as statistical modeling, optimization techniques, machine learning, artificial intelligent and real-time diagnostic systems—to overcome these challenges and improve fault detection in manufacturing, aerospace, energy, and other industrial sectors.

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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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).

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