Special Issue

Applied Mathematics in Inverse Problems and Uncertainty Quantification

Message from the Guest Editors

Inverse problems are ubiquitous in many areas of science and engineering where the goal is to reliably determine the hidden properties of a system or process from observations of its output. Inverse problems are often ill-posed, meaning that small changes in the data can lead to significant variations in the solution. Additionally, due to non-trivial nullspace of the forward operator and measurement noise, solutions to inverse problems commonly arising in real-world applications cannot be uniquely determined. Uncertainty quantification plays a critical role in such problems by providing measures of the reliability and robustness of the inferred solutions. This Special Issue aims to present recent advances in the mathematical theory, numerical methods, applications of inverse problems and uncertainty quantification. The focus is on the development of innovative mathematical and computational tools for solving complex problems, as well as their practical applications in fields such as medical imaging, geophysics, finance, and materials science.

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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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