Special Issue

Matrix Inequalities and Matrix Equations: Theory and Applications

Message from the Guest Editor

Matrix inequalities and matrix equations are central research topics in matrix analysis and applied mathematics, with broad applications in control theory, optimization, signal processing, quantum mechanics, machine learning, and beyond. Recent advancements in high-dimensional data analysis, complex system modeling, and intelligent algorithm design have driven continuous innovation in the theory and computational methods of matrix inequalities and equations, making them a hotspot for interdisciplinary research. Topics of interest include, but are not limited to, the following: matrix inequalities, operator inequalities, matrix equations, Lyapunov equations, Riccati equations, matrix norms, trace inequalities, eigenvalue inequalities, matrix convex functions, non-Hermitian matrices, linear matrix inequalities (LMIs), semidefinite programming (SDP), matrix decomposition, iterative algorithms, Krylov subspace methods, low-rank approximation, tensor network algorithms, and stochastic gradient methods. This Special Issue aims to collate cutting-edge research on matrix inequalities and matrix equations, bridging theoretical advancements and practical innovations.

Guest Editor

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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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