

Special Issue

Parameterized Complexity and Approximation in Data Management

Message from the Guest Editor

Parameterized complexity is a subfield of computational complexity theory that focuses on analyzing the inherent difficulty of computational problems by considering both input size and additional parameters. Unlike traditional complexity theory, which measures problem hardness solely based on input size, parameterized complexity introduces a more refined approach by examining how problem difficulty scales with respect to a specific parameter. Approximation algorithms are designed to solve NP-hard problems by providing feasible solutions in polynomial time while guaranteeing a quantifiable performance bound relative to the optimal solution. Both parameterized complexity and approximation algorithms are feasible methods for tackling computationally intractable problems. They have many natural applications in data management, which range from traditional conjunctive query processing to novel data mining problems.

This Special Issue of *Mathematics* aims to provide an overview of recent advances of parameterized complexity and approximation algorithms in data management. We invite research and review articles spanning theoretical, algorithmic, and applied contributions to the field.

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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