

Special Issue

The Matrix Theory of Graphs

Message from the Guest Editor

The topic of the matrix theory of graphs investigates the relationship between the graph theory and their associated matrix representations and it explores the matrix properties of the graphs from the point of view of linear algebra, as well as the consequences that these results have for the graphs themselves. This includes the study of

- the adjacency matrices,
- incidence matrices,
- path matrices,
- distance matrices, and
- Laplacian matrices, etc.

On the other hand, one can also define a graph according to the properties of a certain algebraic structure (for example, the commuting graph or the zero-divisor graph). The most important examples of such graphs are prescribed to the full matrix ring (or semiring) and the group of invertible matrices over a ring (or semiring). The four main cases of research interest in this area are:

- realizability,
- the problem of uniqueness,
- connectivity and diameter,
- other properties (metric dimension, chromatic number, etc.).

Guest Editor

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Deadline for manuscript submissions

closed (30 January 2023)



Mathematics

an Open Access Journal
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Impact Factor 2.2
CiteScore 4.6



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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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