Special Issue

Mathematical Foundations of Blockchain Technology

Message from the Guest Editor

Blockchain technology relies on a robust mathematical framework that ensures security, decentralization, and efficiency. The mathematical foundations of blockchain involve key areas such as cryptographic primitives, consensus mechanisms, distributed algorithms, and game theory. Structured mathematical models play a crucial role in analyzing and optimizing blockchain protocols, ensuring their scalability, security, and reliability. This Special Issue aims to explore the algebraic, analytic, and computational aspects of blockchain technology, focusing on the mathematical principles underlying cryptographic security, consensus protocols, smart contract verification, and decentralized ledger systems. Special attention is given to the design of efficient algorithms that enhance blockchain performance and security while addressing theoretical challenges in distributed computing. We invite original research that advances the mathematical understanding of blockchain, addresses key challenges, and fosters interdisciplinary collaboration among experts in mathematics, cryptography, and distributed systems to drive innovation in the field.

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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