Special Issue

Quantum-Augmented Networks: Foundations, Models and Architecture

Message from the Guest Editors

We invite a wide range of submissions for this Special Issue that explore models and performance-optimized frameworks for quantum–classical hybrid network development. These submissions may include papers addressing topological network structures, optimization algorithms for bandwidth and routing, information-theoretic approaches to quantum–classical interfaces, or cryptographic security across domain boundaries. We also welcome mathematical contributions addressing congestion avoidance, fault tolerance, interoperability, and scalability using graph theory, optimization mathematics, and algebraic frameworks that lay the foundations for quantum augmented networks. This interdisciplinary Special Issue aims to establish rigorous mathematical and hybrid architectures supported by formal performance guarantees tools for analyzing efficiency, reliability, and security in emerging quantum augmented network systems. Researchers working at the intersection of quantum information, classical networking, and mathematical theory are encouraged to submit original work that will help define the formal underpinnings of next-generation quantum-augmented communication infrastructure.

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Deadline for manuscript submissions

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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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