

Special Issue

Symmetry/Asymmetry in Computer Network Design: Innovations in Security and Communication

Message from the Guest Editors

The field of computer network architecture is evolving rapidly with technologies like 6G, IoT, and decentralized systems. These advances demand secure, scalable, and flexible architectures to ensure reliable data transmission and network integrity. This Special Issue explores how symmetry in network structures and protocols supports security-by-design approaches—such as Recursive InterNetwork Architecture (RINA)—to address challenges in scalability, resilience, and performance. We aim to showcase innovative research using symmetry as a core principle in network design. Symmetry can enhance routing, load balancing, and fault tolerance—key for next-generation networks. We welcome submissions including symmetrical network topologies, recursive protocols, and the role of symmetry in secure communications for 6G and IoT applications. Covered topics include:

- Symmetrical and RNA design principles
- Security-by-design frameworks in network architectures/protocols
- Symmetry applications in 6G and IoT networks
- RINA and its security aspects
- Fault-tolerant symmetrical topologies
- Algorithms for symmetrical configuration and network optimization

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About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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