

Special Issue

Symmetry and Asymmetry in Intelligent Detection Mechanisms for Modern Security Systems

Message from the Guest Editors

In today's digital landscape, the principles of symmetry and asymmetry form the foundation of secure communication system design and analysis. Symmetric key cryptography, where the same key is used for both encryption and decryption, and asymmetric cryptography, which relies on public-private key pairs, together ensure data confidentiality, integrity, and authentication. However, the rapid escalation of cyber threats has created a pressing need for novel, lightweight cryptographic primitives and hybrid frameworks that combine computational efficiency with strong security. Furthermore, the convergence of cryptography with artificial intelligence, machine learning, blockchain, and quantum-resilient technologies calls for innovative methods that intelligently utilize symmetric and asymmetric structures. This Special Issue will focus on exploring how symmetry/asymmetry principles are applied and extended in cryptographic systems and other data security frameworks. We invite original research articles and review papers that contribute to the understanding and advancement of symmetry/asymmetry in data security systems.

Guest Editors

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Deadline for manuscript submissions

31 July 2026



Symmetry

an Open Access Journal
by MDPI

Impact Factor 2.2
CiteScore 5.3



mdpi.com/si/250364

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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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