



Symmetry and Its Application in Wireless Communication

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Message from the Guest Editors

Dear Colleagues,

In today's digital era, the challenges of high-speed communication and big data processing have become paramount in the field of wireless communication. Symmetry, as a fundamental mathematical concept, is crucial in addressing the complexities encountered in high-speed and big data communication. This Special Issue aims to delve into the theory of symmetry and its practical applications in high-speed big data communication. We will explore not only the fundamental principles, but also the novel methodologies and technological innovations of symmetry theory in high-speed communication systems.

Moreover, this Special Issue will particularly highlight research on Multiple Input Multiple Output (MIMO) communication and array antenna technologies, focusing on their utilization of symmetry. MIMO technology has been widely employed to enhance data transmission rates and spectrum efficiency in communication systems, while array antennas play a crucial role in improving signal quality and enhancing communication coverage. The application of symmetry theory in MIMO system design, channel modeling, precoding, decoding techniques, as well as in array antenna design,





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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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