Special Issue

Symmetries and Asymmetries in Space Physics

Message from the Guest Editors

Symmetries, or the extent of deviation from them, may have diagnostic importance in various fields of space physics and space weather. The spatial asymmetries pose a permanent challenge and may also provide a clue to understanding the complexity of the underlying processes. Characteristic North-South differences in the solar magnetic field, solar wind, terrestrial magnetic field, and their interactions may have a substantial contribution to their description. The East-West asymmetries may be related, e.g., to the solar rotation or the Sun-Earth direction (dawn-dusk and noon-midnight differences, or semiannual variations); specific cases are the leading-following differences in the solar active regions. In addition to the geometric asymmetries, specific physical circumstances may also be informative, such as the magnetic flux imbalance in solar active regions. The Special Issue aims to gain new insights into the symmetric or asymmetric properties and processes of space, space weather, plasmas, and solar activity, as well as their underlying phenomena. We welcome your manuscripts on these topics, whether observational or theoretical.

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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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