

Announcement of a Special Issue
Advances in Space Research

Astrophysics of Cosmic Rays in the Multi-messenger Era

Papers are encouraged for a special topical issue of *Advances in Space Research* (ASR) entitled **Astrophysics of Cosmic Rays in the Multi-messenger Era**.

In recent years, the field of astrophysics has witnessed significant discoveries related to cosmic rays (CRs), thanks to the development of new experimental techniques and technology integrated into instruments launched into space and the upper atmosphere. These instruments include PAMELA, Fermi-LAT, AMS-02, CALET, DAMPE, NUCLEON, and ISS-CREAM. Ground-based gamma-ray telescopes, such as H.E.S.S., LHAASO, MAGIC, and VERITAS, along with the water Cherenkov detector HAWC, have also been able to investigate CR fluxes in distant regions. Additionally, the birth of gravitational wave astronomy (LIGO and Virgo) and the detection of the first astrophysical neutrinos by IceCube have marked significant milestones in the field. Meanwhile, older instruments like Voyager 1 and 2, constructed using technology from the 1970s, continue to provide unique information from interstellar space.

This issue will showcase recent spectacular discoveries in multi-messenger astrophysics and new measurements of the CR species' spectra and isotopic composition. Direct measurements of gamma-ray and neutrino emissions from particle accelerators and interstellar space, as well as new findings on CRs at very high and ultra-high energies, will also be highlighted. The issue encourages contributions in the form of innovative experimental approaches and theoretical analyses that address questions related to the “Origin” of cosmic messengers.

Papers must be submitted electronically to <https://www.editorialmanager.com/AISR>. To ensure that all manuscripts are correctly identified for inclusion into the special issue, authors must select “**Special Issue: Astrophysics of Cosmic Rays**” when they reach the "Article Type" step in the submission process.

The general format for submission of papers can be found on the *ASR* Elsevier web site at <http://www.journals.elsevier.com/advances-in-space-research/>

Submitted papers must be written in English and should include full affiliation postal addresses for all authors. Only full-length papers will be considered for publication, subject to peer review by a minimum of two reviewers. There are no page limits although the length of the paper should be appropriate for the material being presented. While the deadline for submissions is **May 31, 2025**, papers will be published electronically as soon as they are accepted. The printed issue will be assembled within a reasonable time with late papers being printed in regular issues of *ASR*. All articles will be typeset at no cost to the author. There is a charge for printing color figures; there is no charge for color figures on the electronic version.

Dr. Eun-Suk Seo and **Dr. Igor V. Moskalenko** are the Guest Editors for this Special Issue. Questions can be directed to Dr. Seo (seo@umd.edu) and Dr. Moskalenko (imos@stanford.edu) or to the Co-Editor for Special Issues, Dr. Peggy Ann Shea (sssrc@msn.com).