

Interaction of Galactic Cosmic Rays with the Very Local Interstellar Medium

Friday, 29 July 2022 15:00 (30 minutes)

In 2012, during the centennial year of the discovery of cosmic rays, Voyager 1 crossed the heliopause and began making the very first in-situ observations of the surrounding interstellar medium. Joined by Voyager 2 in 2018, these twin spacecraft continue to provide critical measurements of cosmic rays in a surprising, previously-unexplored plasma regime from distinct vantage points. This talk will address key results from nearly a decade of cosmic ray measurements in the Very Local Interstellar Medium, focusing on the low-energy end of the spectrum (X to about 1 GeV). We will highlight such topics as: 1) the local interstellar cosmic ray spectra, 2) the boundary for solar modulation, 3) shock-related intensity enhancements linked to Sun-caused transients, and 4) unanticipated, long-lived episodes of pitch-angle anisotropy. Lastly, we discuss the implications of the Voyager's in-situ measurements in relation to recent advances in understanding about the global heliosphere, informed by over a decade of concurrent observations from NASA's Interstellar Boundary Explorer (IBEX).

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