

Exploring the Galactic Cosmic Rays at the lowest energies

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Abstract. The solar wind prevents the lowest-energy Galactic cosmic rays (GCR) from entering the Heliosphere. Consequently, space probes have thus far been unable to sample them. We suggest that astrochemistry may provide a handle on these particles. Clouds in the interstellar medium (ISM) are sites of chemical-reaction networks that produce various molecular species detectable by their radioastronomical signatures. Highly ionizing low-energy cosmic rays are thought

to be the principal agents of molecule production in clouds. Some anomalous abundances, e.g., of deuterium molecules, have been detected. Could studies of the foregoing networks of reactions and their products yield clues to the fluxes and energy spectra of the lowest-energy GCR in the ISM? Other approaches to this problem are also cited.

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