



Contribution ID: 1204

Type: **Talk**

## Stochastic Simulation of Galactic Cosmic-Rays in the Trapped Region beyond Heliopause

*Thursday 17 July 2025 16:20 (15 minutes)*

It was proposed previously that Galactic Cosmic-Rays(GCRs) are trapped in a region where the weak local interstellar magnetic field lines are spreaded apart by the heliopause in the northern hemisphere. Such a trapped region acts like a magnetic mirror for GCR particles. Once entering the trapped region from the outside interstellar space, GCR particles will encounter more complicated situation, besides the bouncing between the mirror points, they will move along the trajectories being perpendicular to the background magnetic field lines due to curvature/gradient drifts. As a result, some GCR particles will be trapped in the region, the nearly non-scattering movement along the magnetic field lines become slow, leading a total decrease of parallel diffusion. In this study, we will carry out the relevant stochastic simulation of GCRs based on the assumption that GCR particles do not move freely along the parallel direction of interstellar magnetic field. Some discussions about the work will be made base on our simulation results.

### Collaboration(s)

**Author:** GUO, XiaoCheng

**Presenter:** GUO, XiaoCheng

**Session Classification:** SH

**Track Classification:** Solar & Heliospheric Physics