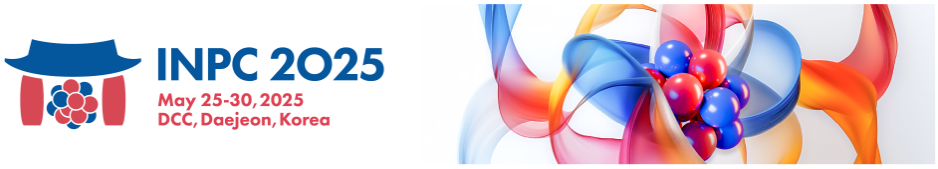

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Uncovering the Origin of Galactic Ancient Accretion Relics

Monday, 26 May 2025 17:35 (15 minutes)

In the paradigm of hierarchical structure formation, we expect that numerous low-mass galaxies had been accreted to the Milky Way and leave their stellar debris throughout the stellar halo, which can be identified through searching for stellar substructures of similar orbital properties among metal-poor stars. However, only with the help of analyzing the detailed elemental abundances of their members, we are able to confirm the origin of these substructures and study the chemical evolution of their progenitors. Based on the huge LAMOST database, a number of dynamical tagged groups (DTGs) of very metal-poor stars have been identified by Yuan+2020, and high-resolution follow-up observations have been obtained for a number of interesting DTGs. This talk will present the abundance analysis of one new retrograde substructure, which provides valuable information on the origin of the most ancient components in the Galactic halo. Moreover, we have for the first time identified an extremely r-process enhanced (r-II) star in the relics of Gaia-Sausage-Enceladus (GSE), which provides us a great opportunity to compare the r-process pattern in different stellar systems, and may shed some light concerning the astrophysical condition of different site of r-process nucleosynthesis.

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