Boston University College of Arts & Sciences
Institute for Astrophysical Research

2017-2018 Astrophysics Seminar Series

What Can Modeling Chemical Abundance Ratio Distributions in Dwarf Galaxies Tell Us?

The chemical abundances found in stars convey a wealth of information on stellar evolution from stellar nucleosynthesis (e.g., stellar core burning, AGB phase burning, explosive supernova phase fusion, etc.) to stellar remnant explosive nucleosynthesis (e.g., white dwarf and neutron star mergers). Their chemical abundances also convey information on their likely galactic origins, i.e., are they formed in the bulge/disk of the Milky Way (in situ) or are they originally from an accreted dwarf galaxy or major merger (ex situ)? To make use of the information stellar chemical abundances provide I have constructed semi-analytic models of the chemical abundance ratio distributions (CARDs) found in ultra-faint dwarf (UFD) galaxies (Lee et al. 2013) to better constrain the relative contributions to r-process element enrichment (e.g., Barium, Europium, etc.) from core-collapse supernova and neutron star mergers (Lee & Frebel 2018 [in prep]). These CARDs can also provide useful information for reconstructing the accretion history of Galaxy (Lee et al. 2015). In my talk, I will explain how these CARD models and statistical analysis methods can be used to gain better insights into the origins of the Galactic halo, origins of individual r-process enhanced stars in the UFDs and the origin of r-process elements themselves.

Monday, April 23 at 3:30PM
725 Commonwealth Avenue
Room 502

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