

Evolved stars as tracers of the origin of elements in the Universe.

Thursday, 21 October 2021 09:00 (25 minutes)

The chemical evolution of galaxies is governed by the chemical yields from stars, especially from Asymptotic Giant Branch (AGB) stars. Observations from Post-Asymptotic Giant Branch (post-AGB) stars serve as exquisite tools to quantify and understand AGB nucleosynthesis. Our studies have shown that AGB nucleosynthesis is riddled with complexities. In this talk, I will present the invaluable constraints provided by post-AGB stars, the intriguing chemical diversity observed and its implications on element/isotope production in AGB stars and stellar nucleosynthetic yields. I will also present the observed effects of binarity on AGB nucleosynthesis. To cement the gaps in our understanding of AGB nucleosynthesis, we have initiated a strategically designed multi-wavelength spectroscopic study that combines studies of the chemical composition of the photospheres of post-AGB stars covering a wide range of initial masses and metallicity environments (in the MilkyWay and external galaxies) combined with studies of gas and dust in their circumstellar environments. This not only reveals the internal nucleosynthetic processes but also reveals the chemo-dynamical processes that greatly affect the production and evolution of chemical elements and their isotopes. In this talk, I will elaborate on how HRMOS can provide the possibility to optimise our efforts in the optical regime by providing high-spectral resolution and a large spectral coverage coupled with high multiplexing.

Type

invited talk

Primary author: KAMATH, Devika (Macquarie University)

Presenter: KAMATH, Devika (Macquarie University)

Session Classification: Day 4