

# Joint Nuclear and Astrophysics Seminar

- When: Friday February 28<sup>th</sup> at 12.00PM
- Where: Room 228 Cyclotron Institute
- Speakers: Shuya Ota and Jennifer Marshall

## Chemical abundances near the surface of AGB stars

Shuya Ota

Stellar nucleosynthesis requires hot and dense environments, which are typically, except for binary stars, achieved at deep inside of stars. Observations are, however, mostly available from only near the surface of the stars. Thus, for properly assessing impact of nuclear reaction rates on final chemical abundances of the stars by comparing with astronomical data, it is important to perform simulations of surface abundances including transport mechanisms of created elements from the bottom to stellar surface. I will present the results of our recent nuclear physics experiments to determine key reaction rates for the s-process nucleosynthesis and also discuss impact of the new rates on the s-process with simulated final abundances in AGB (Asymptotic Giant Branch) and massive stars.

## Next generation studies of stellar nucleosynthesis with the Maunakea Spectroscopic Explorer

Jennifer Marshall

The Maunakea Spectroscopic Explorer (MSE) is a planned next generation astronomical observatory that is completely dedicated to obtaining spectroscopic observations of millions of astrophysical objects. With science goals spanning all of astronomy, from the study of exoplanet composition to investigating the cosmology of the early Universe, MSE will provide key next-generation science capabilities that will revolutionize the field. In this talk I will review the current design status of the project and overview the capabilities of the facility to study detailed stellar chemical abundances that will shed new light on nucleosynthetic processes.