Contribution ID: **16** Type: **Pop III supernova yields**

Nucleosynthesis yield of primordial supernovae by bipolar jet-induced explosion

Tuesday, 4 December 2018 12:10 (20 minutes)

Recent stellar nucleosynthesis yield survey of massive star has demonstrated the needs of highly aspherical explosion in massive stars, i.e. bipolar jet-induced explosion [Grimmett et al., MNRAS **479**, 495 (2018)]. Such explosion model is known to be the candidate for explaining the carbon-enhanced metal-poor stars. However, so far there is very little understanding to explore or constrain the properties of such jet model. In this presentation we will report our recent progress on the simulation results and nucleosynthesis yields of the bipolar jet-induced supernovae based on our array of two-dimensional hydrodynamics models with nucleosynthesis. By using the massive star models of masses from 40 – 80 $M_{\rm sun}$ as the progenitors, we study how the nucleosynthesis yield depends on the energetics of the jet, including the energy injected by the jet, the jet duration, the jet geometry and so on. The applications to the carbon-enriched metal-poor stars, and the influences of this model on the odd-number elements (e.g. K, Cl, Sc), are discussed.

Affiliation

Kavli IPMU, The University of Tokyo

Talk/Poster

Talk

Primary author: Dr LEUNG, Shing Chi (Kavli IPMU, The University of Tokyo)

Co-author: Prof. NOMOTO, Ken'ichi (University of Tokyo)

Presenter: Dr LEUNG, Shing Chi (Kavli IPMU, The University of Tokyo)

Session Classification: Supernova Yields