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Abundances of EMP stars

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Understanding the mass distribution of the first generation of massive stars and the yields of individual elements they injected into the intergalactic medium is one of the central questions in modern astrophysics. Among the most powerful observational clues to address this issue are the elemental abundance patterns of extremely metal-poor (EMP) stars. These stars are believed to have formed from gas clouds enriched by a small number of supernova events and have preserved the chemical signature of those events to the present day. As such, they provide a unique opportunity to empirically constrain the nucleosynthetic yields of individual supernovae.

Over the past decade, wide-field photometric and spectroscopic surveys of the Milky Way's stellar populations have efficiently identified these rare EMP stars. Follow-up high-resolution spectroscopic observations allow detailed statistical analyses of their elemental abundance patterns. In this talk, I will review what we have learned about nucleosynthesis and chemical evolution in the early universe based on results from these investigations. I will also present prospects for ongoing, wide-field surveys targeting Galactic stellar populations.

Author: Dr ISHIGAKI, Miho (National Astronomical Observatory of Japan)

Presenter: Dr ISHIGAKI, Miho (National Astronomical Observatory of Japan)

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