Europium abundances in the Milky Way thick disk and stellar halos

Miho Ishigaki*[1], Wako Aoki[1], and Masashi Chiba[2]

[1]National Astronomical Observatory of Japan (NAOJ) – 2-21-1, Osawa, Mitaka, Tokyo, JAPAN, Japan
[2]Tohoku University Astronomical Institute – 6-3, Aramaki, Aoba-ku, Sendai, JAPAN, Japan

Abstract

In the solar-system material, more than 90% of europium (Eu) is considered to be synthesized in the rapid neutron-capture process (r-process). Consequently, europium is one of the key elements, which gives us clues to unveil the astrophysical sites of the r-process as well as the chemical evolution of neutron-capture elements in the Milky Way (MW) Galaxy. We studied abundances of elements including europium in 97 nearby metal-poor stars belonging to the MW thick disk, inner and outer stellar halo components. The high-resolution spectra taken with the High Dispersion Spectrograph (HDS) mounted on the Subaru Telescope were used to estimate the chemical abundances of the sample stars under the assumption of the Local Thermodynamic Equilibrium (LTE). We show that, in the sample stars with metallicity ([Fe/H]=logX_Fe – logX_Fe, sun, where X_Fe=N_Fe/N_H) above about -1.5, relative abundance ratios of the alpha-elements (Mg and Si) and the europium in the inner and outer halo subsamples show different trends with [Fe/H] from those seen in the thick disk subsample. We present highlight results of our data and the possible implications to the origin and evolution of the r-process elements in our Galaxy

*Speaker