[박ST-09] Chemical Abundances in Metal-Poor Stars

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We present the abundances of 30 elements from Li(Z=3) to Hf(Z=72) in 35 metal-poor stars with metallicity of -3.0<[Fe/H]<-0.5 with high resolution(R~30,000) and high signal-to-noise ratio(S/N>120) echelle spectra obtained with Bohyunsan Optical Echelle Spectrograph(BOES) mounted at Bohyunsan Optical Astronomical Observatory(BOAO). Equivalent widths were measured by means of gaussian fitting. Atmospheric parameters were determined through a self-consistent fine analysis using Fe I and Fe II lines with 1-D plane-parallel LTE Kurucz models. The elemental abundances were derived using LTE line analysis and Li, C, Ba, La, and Eu abundances were derived through spectrum synthesis technique. Hyperfine structure splitting was calculated with the latest atomic abundance for Ba, La, and Eu. [K/Fe] increases with decreasing metallicity in the range -1.0<[Fe/H]<0.0 and slowly decreases in the range of [Fe/H]<-1.0 similar to that of alpha-elements. The ratio of [Mn/Zn] in stars with [Fe/H]<-1.0 decreases toward low metallicity and it means that more Zn was produced than Mn under metal-poor condition and it is preferred that highly energetic explosion(hypernova) took place more frequently under metal-poor circumstance. The abundance patterns of heavy neutron-capture elements in metal-poor stars are in good agreement with the solar systemp r-process abundance pattern. The abundance by only s-process of Ba, La, and Ce was calculated from Eu abundance using solar system s- and r-process material fraction and the s-process material firstly shown up at [Fe/H]~-2.3 in our sample.

[구ST-10]Extremely metal-poor stars in the Galactic bulge

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During the last two years, we have performed Ca H&K uvby photometry of selected Galactic bulge fields and globular clusters using the CTIO 1m telescope. Our preliminary results showed many extremely metal-poor stars as predicted by cosmological simulations. Implication of our results and future plan will be discussed.