

[ST07] Potassium Abundance of Metal-Poor Stars

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We have derived potassium abundances of metal-poor stars with metallicities $-3.0 < [\text{Fe}/\text{H}] < -0.5$ using K I resonance doublet 7665Å and 7699Å lines of high-resolution BOES spectra. The non-LTE corrections were done due to significant large NLTE effect up to 0.2-0.7 dex. $[\text{K}/\text{Fe}]$ increase with decreasing metallicity in the range of $-1.0 \leq [\text{Fe}/\text{H}] \leq 0.0$ and decrease slowly in the range of $[\text{Fe}/\text{H}] \leq -1.0$. It was known that potassium is mainly produced by explosive oxygen burning and their nucleosynthesis is closely coupled to the α -elements. We will discuss the $[\text{K}/\text{Fe}]$ trend along the metallicity and their relation to the other α -elements like silicon and calcium.

[ST08] Morphology of the near-infrared color-magnitude diagrams for metal-poor globular clusters in the Galactic bulge

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J, H and K' images of sixteen metal-poor globular clusters in the Galactic bulge are used to investigate the morphological parameters of the near-infrared color-magnitude diagram. Parameters to describe the RGB shape such as the colors at fixed magnitude of $M_K = M_H = \{-5.5, -5, -4, -3\}$, the magnitudes at fixed color of $(J-K)_0 = (J-H)_0 = 0.7$ and the RGB slope are determined from the fiducial normal points of the CMDs. The near-infrared magnitudes of the RGB bump and the RGB tip are also measured from the luminosity function of RGB stars. The derived RGB parameters of the observed clusters are likely to follow the previous empirical relationship between the RGB parameters and the metallicity of metal-poor halo globular clusters and metal-rich bulge clusters. Using the results, we will discuss the role of the metal-poor bulge clusters to the formation and early evolution of the Galaxy.