[구ST-05] Chemical Abundances of 93 Planet Host stars

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We obtained the spectra of 93 Planet host stars and 73 normal field stars in F, G, K type using BOES at BOAO. We measured the equivalent width of Fe and 13 elements lines using the automatic EW measurement program, TAME(Tools for Automatic Measurement of Equivalent-widths) and estimated the abundances by synth and abfind driver of MOOG code. Since the absence of planets in the normal field stars cannot be "completely" proved, this work focused on the chemical abundances and planet properties of planet host stars, which have the massive planets close to the parent star relatively. We carried out an investigation for the difference of abundances between stars with "Hot Jupiter" and normal field stars with no known planets. We examined the chemical composition of 12 elements, such as Na, Mg, Al, Si, Ca, Sc, Ti, V, Cr, Mn, Co, and Ni by EW measurements, and the S abundances were estimated using synthetic spectrum.

[구ST-06] Search for extrasolar planets around K-giants: α Arietis - planet or surface features?

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We report the detection of a low-amplitude 380.8-day radial velocity (RV) variations in oscillating K2 III star α Ari (HD 12929). We do not found the correlation between RV variations and equivalent widths of chromospheric activity indicators (Hα and CaII 8662 Åline). The bisector analysis shows that bisector velocity span (BVS) and RV variations are not strongly correlated with each other. These result suggest that the RV variations could have been produced either by planetary companion or by the surface spots. If this RV variation is indeed caused by a planetary companion, an orbital solution with a period of P = 381 days, a semi-amplitude of K = 41 m/s, and an eccentricity of e = 0.25 fits the data best. Assuming a possible stellar mass of $M_{\star}$ = 1.4-5.6 $M_{\odot}$, we estimate the minimum mass for the companion of $m \sin i$ = 1.8-4.5 $M_{\rm Jup}$ with an orbital semi-major axis of 1.2-1.9 AU. If confirmed, our finding gives a support to search for exoplanets around giant stars with multi-periodic oscillations.