[포ST-15] Abundances of refractory elements for stars with extrasolar planets : New samples

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We investigate the chemical differentiation in F, G, K type stars with and without planets to extend the work by Kang et al. (2011) to various spectral types. Since the primordial chemical composition has been preserved in the stellar atmosphere, stellar metallicity can provide the information on the primordial material, which is the potential building block of planets. Therefore, we can explore the favored conditions for planet formation through the comparison of chemical compositions between planet-host stars (PHSs) and stars without planets. In this work, we analyze 19 F, G, and K type stars. In each spectrum, we measure equivalent widths (EWs) of Fe, Na, Mg, Al, Si, Ca, Sc, Ti, V, Cr, Mn, Co, and Ni using TAME (Tools for Automatic Measurement of Equivalent width). The abundances of these species can be derived with the measured EWs and MOOG code (Sneden 1973). Like results by precedent studies, we find that planet-host stars have abundances higher than stars without planets. The typical difference in the abundances of Na, Mn, Co and Ni is 0.4 ± 0.2dex. In addition, as found in Kang et al. (2011), Mn is the most different element between PHSs and comparison stars.

[포ST-16] The X-ray Emission Properties of G308.3-1.4 and Its Central X-ray Sources

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We have initiated a long-term identification campaign of supernova remnant candidates in X-ray regime. In the short-listed unidentified sources from the ROSAT All Sky Survey, we have chosen the brightest candidate, G308.3-1.4, as our pilot target for a dedicated investigation with Chandra X-ray Observatory. Our observation has revealed an incomplete shell-like X-ray structure which well-correlated with the radio feature. Together with the spectral properties of a shocked heated plasma, we confirm that G308.3-1.4 is indeed a supernova remnant.

A bright X-ray point source which locates close to the remnant center is also uncovered in this observation. Its spectral behavior conform with those observed in a rare class of neutron stars. The properties

of its optical/infrared counterpart suggests the evidence for a late-type companion star. Interestingly, possible excesses in B-band and H-alpha have been found which indicate this can be an accretion-powered system.

With the further support from the putative periodicity of ~1.4 hrs, this source can possibly provide the direct evidence of a binary system survived in a supernova explosion for the first time.