N03a Near Infrared Adaptive Optics Spectroscopy of Binary Brown Dwarf

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We present near infrared spectroscopy of low mass companions in a nearby triple system HD 130948. Adaptive optics on the Subaru Telescope allowed the spectroscopy of the individual components of the 0".13 binary system. The spectra of HD 130948B and C are very similar to each other. Based on the direct comparison with a series of template spectra we determined the spectral types of HD 130948B and C to be L4 $\pm$ 1. Taking the young age of the primary star into account (0.3 – 0.8 Gyr), HD 130948B and C most likely consists of a binary brown dwarf system.

AO/IRCS spectroscopy demonstrated should be potentially a powerful, and likely a standard technique in future, for understanding of the evolution of low mass star because only a handful of very close binary systems (0".1) discovered so far provide us good opportunities to know dynamical mass in a reasonable time scale (1-5 years). In the same time infrared spectra of each binary members is crucial for precise temperature determination. Thus a good combination of AO and a spectrograph designed for optimal performance with AO system is essential. Issues on spectral reduction specific on AO spectroscopy is also discussed.