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HIGH RESOLUTION SPECTROSCOPY OF PLANET BEARING STARS

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We present here the first steps of an extended spectroscopic survey in order to characterize the stellar hosts of extra-solar planets. We have selected several known stars with planets and using high resolution spectroscopy, we have studied their properties.

The spectroscopic observations of these stars were obtained in July 2004 using the 9-m Hobby-Eberly Telescope (HET) at McDonald Observatory in Texas (USA), with the High Resolution Spectrograph (HRS). The wavelength range covers from 4200 to 7880 Å in 70 orders. The spectral resolution is R = 120,000.

The data reduction was performed using standard IRAF subroutines for echelle spectra where the wavelength calibration was obtained by taking spectra of Th-Ar lamp and afterward the spectra have been normalized by a polynomial fit to the observed continuum. The measurements of equivalent width (EW) have been made using splot routine in IRAF and MIDAS integration routines. The abundances are being measured using severals synthesis programs, MOOG (Sneden 1993), ATLAS9 code (Kurucz 1993) and Starmod (Barden 1985). With these programs, a synthesized stellar spectrum is constructed and compared or subtracted from the original image.

This work is a first view of nine planet bearing stars of a larger sample from a spectroscopic survey carried on during several observing runs. The study is to characterize these stars by measuring their metallicity, lithium abundances, activity level, and other spectroscopic features in order to improve the previous studies of lower spectroscopic resolution (Laws et al. 2003; Santos et al. 2004; Israelian et al. 2004; etc.), find trends in the planet host stars and use them as a criteria to select other stars as planet bearing candidates in a more focused study of radial velocities with the Exoplanet Tracker (ET) at Kitt Peak. ET is a dispersed fixed-delay interferometer that consists of a wide angle Michelson interferometer followed by a medium resolution spectrograph (see Ge 2002, and references therein).

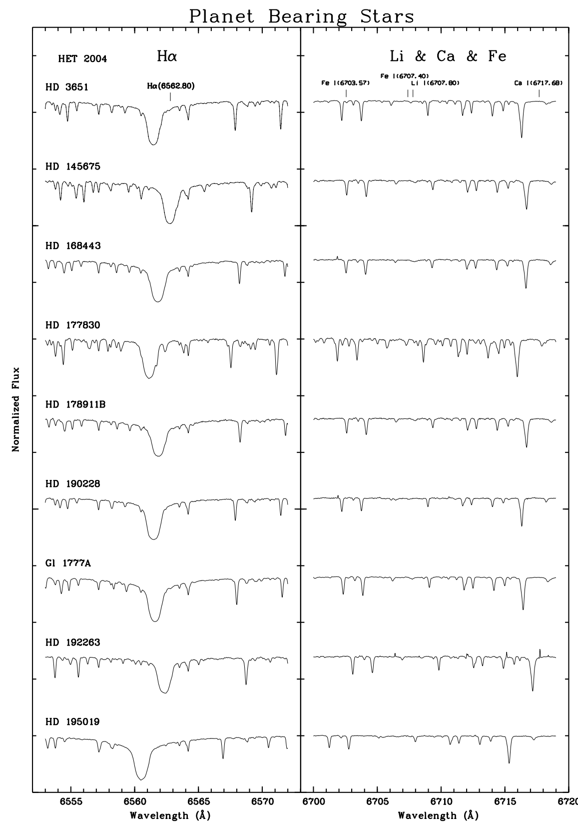

Fig. 1. We plot an example spectra of the stars in two different spectral regions, one centred in Hα line (left side) and other that contains Lithium I (6707.8 Å), Ca I (6717.78 Å) and Fe I (6707.4 Å) (right side) lines.

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