

The HF Precise Radial Velocity Programme at DAO

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Abstract

A programme to measure precise radial velocities of late-type stars is being carried out at the 1.22-m telescope of the Dominion Astrophysical Observatory (DAO). Wavelength-calibration fiducials are imposed directly on the stellar spectra by passing the starlight through a controlled hydrogen fluoride (HF) absorption cell placed in front of the coude spectrograph. Presently, the primary targets of the programme are bright G, K, and M giants. Preliminary results confirm the low-amplitude, radial-velocity (RV) variability of the yellow giants discovered at the Canada-France-Hawaii telescope using the HF technique. These yellow giants and additional bright candidates are now being continually monitored at DAO. Preliminary results also indicate that the "yellow giant" variability extends to the early-M giants. In addition to the RV variations, the data also yield information on the simultaneous variability of the Ca II $\lambda 8662$ line, T_{eff} , as well as the R - I index of the stars.

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Selected late-type giants have been reported to be low-amplitude, radial-velocity variables (Walker et al. 1989; Smith et al. 1987; Irwin et al. 1989; Murdoch et al. 1992). Photometric variations have also been reported (Percy & Fleming 1992). Preliminary results from the on-going programme at DAO to monitor late-type stars with the HF precise-radial-velocity technique (Campbell, Walker & Yang 1988) have confirmed the reported low-amplitude, radial-velocity variability of α Boo, α Tau, and ϵ Peg. Additional targets β UMi, γ Dra, and especially the M-type stars (β Peg, β And, μ Gem, R Lyr, g Her, α Ori, α Her) also appear to be variable.

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