Abstract Submitted
for the OSF09 Meeting of
The American Physical Society

A Spectroscopic Study of Stars and Star Clusters[1] ANTHONY WONG, Ohio Wesleyan University, SOEREN MEIBOM, Harvard-Smithsonian Center for Astrophysics — We present a study of spectra obtained with the Hectchelle spectrograph on the MMT for late-type stars in the open clusters M67 and NGC6811. We have tested and further developed codes for reducing and classifying Hectochelle spectra. We determine the effective temperature, surface gravity, metallicity, and projected rotational velocity from Hectochelle spectra via cross-correlation with synthetic template spectra. From analysis of solar spectra as well as spectra for members of the well-studied open cluster M67, we find that the most accurate and precise stellar properties are determined when the spectral region containing the Magnesium-B triplet is excluded from the cross- correlation. In this manner, we obtain an age for M67 of 3.9 Gyr. Finally, we use Hectochelle spectra for 1157 stars in the field of the open cluster NGC 6811 to identify 139 candidate cluster members. Our spectral analysis of the NGC 6811 members give a mean cluster radial velocity of 8.7 km/s, a mean cluster metallicity of -0.1, as well as a cluster age of $\sim$1 Gyr and a cluster distance of 955 pc, derived from isochrone fitting to the members in the color-magnitude diagram.

[1]Funding by NSF, DOD, and Smithsonian Institution.

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Date submitted: 17 Sep 2009 Electronic form version 1.4