

ZEEMAN DIAGNOSTICS FOR MEASURING BROWN DWARF MAGNETIC FIELDS .

Jeff Valenti , *STScI* .

Young brown dwarfs show signatures of strong surface magnetic fields, which may interact with circumstellar disk material, channeling accretion and transferring angular momentum. Atomic lines in spectra of brown dwarfs are too weak to serve as useful Zeeman diagnostics, but molecular lines are strong. Most molecular lines have negligible magnetic sensitivity, but numerous lightly blended FeH lines near 9900 Angstroms span the full range of magnetic sensitivity,

varying systematically with transition quantum numbers. FeH lines could be ideal magnetic diagnostics, except for the lack of theoretical or observed Landé factors. To remedy this situation, we fitted an FTS spectrum of a sunspot, determining empirical Lande-g factors and splitting patterns for FeH lines. We then use these empirical results to measure the surface magnetic fields on fully convective dwarfs.