Abstract Submitted
for the 4CF14 Meeting of
The American Physical Society

Getting the Most Out of Stellar Spectrum Fits TIMOTHY ANDERTON, University of Utah — Stellar spectra can be rich sources of information including effective temperature, surface gravity, rotation rate, and chemical enrichment of various elements. However what quantities are derivable from a spectrum is a complex question. A prime example is the potential to measure chemical enrichment which is a complex function of temperature, surface gravity, level and type of enrichment, observed spectral range, signal-to-noise, and spectrograph resolution. One solution is to attempt to measure all potentially measurable quantities and throw away quantities determined with low precision. However in practice this can introduce large undesirable covariances into our set of measurements. Moreover this strategy is inapplicable when dealing with nuisance parameters for which it is difficult or impossible to know a priori what a good parameterization might be. We present a method to automatically determine the optimal parameterization for both physical and nuisance parameters to use in fitting stellar spectra based on the adoption of a fit metric which takes into account both goodness of fit and model complexity combined with a search methodology which slowly expands the number and type of parameters being fit until an optimum is found.

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Date submitted: 12 Sep 2014 Electronic form version 1.4