

Abstract Submitted
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A New Echelle Spectrometer for Measuring UV Branching Fractions of Fe-group Ions MICHAEL WOOD, JAMES LAWLER, University of Wisconsin-Madison — Unexpected trends in relative Fe-group abundances are observed in old, metal-poor stars which may offer insights into the history of nucleosynthesis in the Galaxy. Abundances are traditionally derived using lines in the neutral species, though Fe-group elements are predominately singly-ionized in the photospheres of stars of interest. Using weak UV lines connected to the ground and low metastable levels of Fe-group ions eliminates errors associated with departures from LTE, resulting in more accurate abundances. A new echelle spectrograph combined with an aberration corrected cross dispersion system has been developed to measure accurate branching fractions for these UV lines. This instrument is capable of recording spectra at high resolving power with very broad wavelength coverage. The instrument is also free from the multiplex noise of a FTS, making it ideal for measuring branching fractions of weak lines. These branching fractions are combined with published radiative lifetimes to produce accurate transition probabilities for UV lines connected to the ground and low metastable levels of singly-ionized Fe-group elements. Instrument design and recent results will be highlighted.

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