Abstract Submitted
for the 4CF17 Meeting of
The American Physical Society

Understanding the role of a stars surface gravity on its spectrum
JESSICA GALBRAITH-FREW, INESE IVANS, Univ of Utah, APOGEE COLLABORATION — In order to properly model the stellar atmosphere of a star, you must first have an understanding of its effective temperature, surface gravity (gravitational acceleration at the surface of the star), chemical composition and atomic parameters. Having a correct model of the stellar atmosphere is important in determining accurate chemical abundances for different elements. Traditionally, astronomers use a set of spectroscopic constraints to hone in on the effective temperature, surface gravity, and chemical composition, while using laboratory results to understand the atomic parameters that define the transition. However, for solar-type unevolved stars in the infrared, the transitions used in spectroscopic constraints are difficult to measure in the data taken by the Apache Point Galactic Evolution Experiment (APOGEE). The APOGEE Stellar Parameter and Chemical Abundance Pipeline (ASPCAP) focuses on evolved stars but the solar-type stars in the sample can also provide information about the Milky-way Galaxy's chemical history. Dwarf stars however, have much higher surface gravities and other mechanisms that mimic surface gravity making there a need for better surface gravity determination. For this reason, we have explored new techniques to determine the properties of the stellar atmosphere. I will discuss the role of surface gravity on the spectrum of a solar-type star, and its impact on the abundances derived using spectroscopic techniques. .

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Date submitted: 21 Sep 2017 Electronic form version 1.4