

Abstract Submitted
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Distinct Metal-Poor Populations in the Milky Way Seen by APOGEE CHRISTIAN HAYES, University of Virginia, APOGEE COLLABORATION — The Apache Point Observatory Galactic Evolution Experiment (APOGEE) has obtained high-resolution infrared spectra (from 1.5 to 1.7 μm) for $\sim 146,000$ stars using the Sloan Digital Sky Survey (SDSS) 2.5-m Telescope (Majewski et al. 2015). From their APOGEE observed spectra, radial (Doppler) velocities, stellar parameters (e.g., surface temperatures and gravities), and chemical abundances of 21 different elements have been determined for a large fraction of these stars. Using this large sample of stars, we examine those with a metal composition (i.e., all elements heavier than helium) less than about 1/10 that of the Sun. These metal-poor stars trace the early history and evolution of our Milky Way galaxy, and we find that in this sample there appear to be two unique stellar populations based both on chemical abundances and observed radial velocities. This is consistent with the findings of previous studies that used samples smaller by about an order of magnitude. Finally, we use the chemical and kinematic differences between these two populations to explore their distinct origins, and their place in the history and evolution of our Galaxy.

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