

Abstract Submitted  
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**High Resolution Stellar Spectroscopy of Globular Cluster NGC 1261** DAN FILLER, INESE I. IVANS, JENNIFER SIMMERER, University of Utah — We have studied three stars in the globular cluster NGC 1261. A globular cluster is just what it sounds like, a spherical cluster of millions of stars. Their spectra contain elemental absorption lines. By determining the size (EW's) of the lines, we are able to ascertain stellar characteristics: the overall chemical enrichment from which they formed, how hot, and how dense they are. We combined our EWs with model stellar atmospheres (parameterized by specific values of temperature, density, turbulence, and chemical enrichment) and radiative transfer calculations to derive elemental abundances and stellar parameters. We then employed the derived abundances to determine the accuracy of the parameters in the following way. We minimized the trend between derived abundance and excitation potential (i.e. the atomic physics) to derive the temperatures. We adjusted the value of turbulence to minimize trends due to the broadening of absorption lines. And, we refined the value of density to equate derived enrichments for multiple ionization states of a given element. The result is that we have derived the temperatures, densities, and chemical composition of 15 elements in these objects 50,000 light years away.

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