

Chemical Composition of Damped Lyman-alpha Galaxies

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Abstract

Absorption lines in quasar spectra probe interstellar gas in galaxies at various stages of evolution. They should thus provide powerful probes of the history of star formation and chemical enrichment in galaxies. A major obstacle in trying to understand the evolution of the strong quasar absorption lines known as the damped Lyman-alpha absorbers (DLAs) has been the small number of metallicity measurements at redshifts $z < 1.5$, an epoch spanning 70% of the age of the Universe. In recent spectroscopic surveys, we have tripled the metallicity samples for DLAs as well as those for the sub-DLAs at $z < 1.5$. We will discuss the results of these studies and their implications for the chemical evolution of the absorber galaxies. We will also discuss the nature of interstellar dust and the star formation rates in DLAs. Our studies of low- z DLAs are helping to understand the nature of the absorber galaxies and their relation to present-day galaxies.

This work is supported in part by U.S. NSF grants AST-0206197 and AST- 0607739, and NASA/STScI grant 9441.