

Molecular Hydrogen in DLAs at high redshift

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Abstract. Damped Lyman α absorbers (DLAs) have H I column densities greater than 10^{20} cm^{-2} , and they are believed to originate in gas associated with protogalaxies that lie along our line of sight to background quasars. The physical conditions within DLAs can reveal the star formation history, determine the chemical composition of the associated ISM, and hence document the first steps in the formation of present day galaxies. Here we present recent developments in the spectra-simulation code Cloudy which incorporates the microphysics of molecular hydrogen in detail. We use our new methods to derive the physical conditions in high redshift DLAs which show molecular hydrogen.

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