

Abstract Submitted  
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**Studying the Properties of Diffuse Atomic Halo Gas Surrounding the Milky Way and M83** PALLAVI MALADKAR, North Carolina School of Science and Mathematics, RONGMON BORDOLOI, Department of Physics, NC State University — Diffuse atomic gas permeating and surrounding galaxies constitutes a large fraction of galactic baryonic mass. When these gas clouds are gravitationally accreted, they can interact with the interstellar medium and contribute significantly to the galactic star formation rate. We focus on determining the spatial extent and kinematics of these gas structures along lines of sight to Messier 83. We employ absorption line spectroscopy and analyze 126 new spectra of pointings oriented inside and surrounding Messier 83. We measure the absorption line strengths and column densities of ionized Ca II gas observed around the Milky Way and Messier 83. We observe several cloud structures present in the region of Messier 83 as well as the Milky Way. We present a preliminary model for the thickness and extent of the cloud assuming constant density. In the future, we look to extend this research to parameterize the accretion rate of the gas structures surrounding Messier 83 and our own galaxy.

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