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HALO7D Extension Survey: Analysis of Keck DEIMOS Spectra and Velocities of Milky Way Halo Stars in the COSMOS Field¹ ESHA UMBARKAR, Woodside Priory School, California, RYAN CHO, St. Paul's School, New Hampshire, PURAGRA GUHATHAKURTA, KEVIN MCKINNON, CONSTANCE ROCKOSI, MIRANDA APFEL, University of California Santa Cruz, HALO7D TEAM — The stellar halo of the Milky Way (MW), an extended sparse component that surrounds the main disk, is composed mostly of old stars and contains vital clues about the MWs cannibalism history. In this research project, we analyzed DEIMOS multislit spectra of stars in the COSMOS field from the HALO7D survey, a multidimensional HST+Gaia+Keck study of the MW halo. Based on the known Gaia-based apparent magnitudes of the target stars, we calibrated the spectra slitmask by slitmask. This process allows us to explore the effects of the Earths atmosphere and the DEIMOS spectrograph on the spectra. We present the line-ofsight velocity distributions of the stars, categorized in two ways: (1) spectral type, and (2) color-magnitude diagram. We compared our data to the prediction of the Besanon model, a simple smooth analytical model of the MW. The model stars were grouped in the same two ways as the data. There is generally good agreement between the data and the Besanon thin and thick disk predictions, but, as has previously been noted, the Besanon halo density profile is shallower than observed. These kinds of data and model comparisons provide insight into the structure and substructure (departure from smoothness) of the MW, revealing information about its accretion history.

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