

Abstract Submitted  
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**Studying the Accretion History of the Milky Way** WILLIAM HUANG, Lynbrook High School, SOFIYA BELOVICH, Lawrenceville School, PUJITA TANGIRALA, Saint Francis High School, IONA XIA, Monta Vista High School, PAULO VILLAFANA, STAR Teacher Program, MIRANDA APFEL, CONSTANCE ROCKOSI, PURAGRA GUHATHAKURTA, University of California Santa Cruz — An important goal of cosmology is to determine the Milky Way’s accretion history, the history of dwarf galaxies accreting to form the stellar halo. Each individual accretion event forms a unique structure in the halo, and these features, known as substructure, explain the galaxy’s accretion history. To examine substructure, we compare data of the HALO7D survey fields from the Gaia space observatory to the Besançon model of the Milky Way, which notably has no substructure. A comparison between galactic latitude and number of stars illustrates that both the Besançon model and Gaia data show an increase in stars near low latitudes, but little variation due to substructure. Similar trends were found between proper motion and color, with larger ranges of proper motion corresponding with increasing color while magnitude is constant. Due to the large error in Gaia parallax, the inverse relationship between distance and proper motion present in the Besançon model was absent in Gaia data. We determined that proxies such as proper motion versus color demonstrate a similarity between the Milky Way and Besançon model, but do not yield substructural information. Future work includes comparison of LOS velocity from Keck DEIMOS spectra of stars in these fields.

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