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Running with BUFFALO on the Frontier

Monday, 16 August 2021 14:15 (15 minutes)

Galaxy clusters are the bridge between cosmology and astrophysics. They address fundamental questions from the smallest (kpc size) to the largest (cosmic web- size) scales. Given the importance of clusters in studying the evolution of galaxies and large scale structures, a significant amount of telescope time (from ground and space) has been allocated to observations of clusters. This includes dedicated programs that specifically target rich clusters: the Hubble Frontier Fields (HFF) and Beyond the Ultra Deep Frontier Fields Legacy Observations (BUFFALO).

I will present the data reduction pipeline and catalogs for the Frontier Fields survey and the subsequent BUF-FALO survey, which is built around deep observations of the six massive clusters and their parallel fields. The resulting data products represent the latest frontier in extragalactic astronomy, in preparation for JWST and other next-generation surveys. These particularly rich data, which include intracluster light and bright cluster galaxy modeling, as well as photometric redshifts and physical parameter measurements, spanning the near-UV to mid-IR, will enable unprecedented studies of cluster galaxies and their environment. I will also present some immediate applications of the dataset.

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