Hubble Space Telescope

Cycle 15 AR Proposal

Probing the Galaxy Population at z~7-10 Using Archival ACS + NICMOS data

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Scientific Category: COSMOLOGY

Scientific Keywords: GALAXY FORMATION AND EVOLUTION, HIGH REDSHIFT GALAXIES, HUBBLE DEEP FIELDS

Total Budget Amount: $140,000

Legacy: Yes

Abstract

Recent searches for galaxies at z>=7 have placed a great deal of emphasis on obtaining ultra deep infrared observations to probe down to extremely faint luminosities, either through gravitational lensing or by extremely deep observations with NICMOS. However, to fully understand the evolution of a galaxy population, it is important to cover significant areas as well, both to probe evolution at the bright end of the luminosity function and to locate objects capable for follow-up in other wavebands. We propose to complement current deep studies of the high redshift universe by conducting a comprehensive search for z>=7 objects in all HST fields in the archive with deep ACS and NICMOS data. Particular emphasis will be given to the NICMOS data over the GOODS fields. With current data, we expect to more than quadruple the sizes of current z>=7 samples. In addition to the clear science objectives of this search, the legacy of this program will be a homogeneous reduction of all NICMOS data (~1500 orbits) over the two GOODS fields.

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