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Presentation Requested: oral
Category: Environment, Large Scale Structure and Galaxy Evolution
Question: How has (or how will) ALMA (with other telescopes) help us better understand the impact of the environment on galaxy evolution? Can ALMA or one of the other new facilities detect the gas in the large scale structure, outside of galaxies? What can we learn from dwarf galaxies or galaxies in clusters and groups in the nearby Universe using ALMA + other facilities & how has this helped us understand galaxy evolution at higher redshifts?

CHILES The COSMOS HI Large Extragalactic Survey

High-resolution HI deep fields provide spatially and kinematically resolved gas maps at different redshifts, which are key to understanding galaxy evolution across cosmic time and to test predictions of cosmological simulations. Here, we present preliminary results for the first 180 hours of the COSMOS HI Large Extragalactic Survey (CHILES) done with the Karl G. Jansky Very Large Array (VLA). We take advantage of the expanded capabilities of the telescope to simultaneously probe the redshift interval 0¡z¡0.45 in one pointing of the COSMOS field. Once completed, the 1000 hours will result in approximately 300 HI images of galaxies in different environments. The rich set of data from the COSMOS field will allow us to fully study these detections. In addition, we expect to use ALMA to map the CO of these galaxies and fully explore the interplay between atomic and molecular hydrogen beyond the local Universe. We discuss the observations, data reduction, and present preliminary results of the first 180 hours of VLA time.