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Presentation Requested: poster

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?

Tracing the galaxy evolution with void galaxies

Given the standard cosmological paradigm in which structure in the present-day universe formed through hierarchical clustering, galaxies in the currently most underdense regions, the cosmic voids, must be the least "evolved" ones, as they must have formed at later times than those in the dense regions. Void and cluster galaxies must therefore follow different evolutionary paths, that probe a distinct mix of "nature versus nurture" drivers (e.g., galaxy interactions) of the coevolution of galaxies and their central black holes. The void galaxies are then the arguably best test-bed for constraining the currently elusive coupling between the central accretion and star-formation activities, along with its cosmic evolution. I will present an in depth optical+WISE investigation of the void galaxies, with novel constraints for the previously proposed evolutionary sequence in which galaxies transform from star-forming via AGN to quiescence, as well as possible concrete ways in which ALMA observations of key examples of void systems could be exploited to map more directly the galactic duty cycle and its environmental dependence.