

Abstract Submitted
for the TSF14 Meeting of
The American Physical Society

What does the distribution of satellites around galaxies 8-11 billion years ago tell us about their dark matter halos?¹ LALITWADEE KAWINWANICHAKIJ, CASEY PAPOVICH, RYAN QUADRI, Texas A&M University, ZFOURGE TEAM, CANDELS TEAM — We present the statistical study of the dependence of the satellite galaxies distribution on the stellar mass and star-formation activities of their massive central galaxies at $1 < z < 3$, using the deep near-IR from FourStar Galaxy Evolution Survey (ZFOURGE) and the Cosmic Assembly Near-IR Deep Extragalactic Legacy Survey (CANDELS) to select a sample of galaxies at $z < 3$ to low masses ($10^9 M_\odot$). The satellites distribution is derived by measuring the projected radial number density of galaxies around centrals and random positions to account for the contamination from foreground and background galaxies. For the massive centrals ($\log(M/M_\odot) > 10.78$), there are more satellites around quiescent centrals compared with those around star-forming centrals with a significant of 2.7σ even after accounting for differences in the stellar mass of quiescent and star-forming centrals. To understand this observation, we use a semi-analytic model. At fix halo mass of central galaxies, we find that the difference between the number density of satellites around quiescent and star-forming galaxies is not significant. The excess of satellites around quiescence is due to more massive halos of the quiescent compared with those of star-forming central at fixed stellar mass.

¹This work is supported by the National Science Foundation through grants AST-1009707 and AST-0808133, the Space Telescope Science Institute, Texas A&M University, and the George P. and Cynthia Woods Institute for Fundamental Physics and Astronomy.

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Date submitted: 01 Oct 2014

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