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Title: SHIELD: Observations of Three Candidate Interacting Systems

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Abstract

Abstract: The “Survey of HI in Extremely Low-mass Dwarfs” (SHIELD) is a multiwavelength study of local volume low-mass galaxies. Using the now-complete Arecibo Legacy Fast ALFA (ALFALFA) source catalog, 82 systems are identified that meet distance, line width, and HI flux criteria for being gas-rich, low-mass galaxies. These systems harbor neutral gas reservoirs smaller than $3 \times 10^7 M_{\odot}$, thus populating the faint end of the HI mass function with statistical confidence for the first time. In a companion poster, we present new Karl G. Jansky Very Large Array D-configuration HI spectral line observations of 32 previously unobserved galaxies. Three galaxies in that study have been discovered to lie in close angular proximity to more massive galaxies. Here we present VLA HI imaging of these candidate interacting systems. We compare the neutral gas morphology and kinematics with optical images from SDSS. We discuss the frequency of low-mass galaxies undergoing tidal interaction in the complete SHIELD sample. Support for this work was provided by NSF grant 1211683 to JMC at Macalester College.

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