
The Origins of HI Gas in Isolated Early-Type Galaxies

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Abstract

Early-type galaxies (ETGs) are preferentially found in galaxy cluster environments. They are thought to be the remnants of a series of wet and dry mergers resulting in red galaxies with negligible ongoing star formation. Isolated early-type galaxies (IEGs) are systematically bluer than their cluster counterparts, indicating higher star formation rates than those observed in cluster ETGs. In order to fuel star formation, IEGs must have a gas reservoir at their disposal. One potential origin for a gas reservoir is intergalactic medium (IGM) accreting onto IEGs. We have completed a preliminary study to begin characterizing the atomic hydrogen (HI) content of twenty IEGs using the Green Bank Telescope. In fourteen of these IEGs we have detected HI. One galaxy, KIG 870, has a multi-peaked HI profile that is highly asymmetric about the optical systemic velocity. With no known neighboring massive galaxies to contribute to the emission, KIG 870 is a candidate for IGM accretion or a recent merger.

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