

Abstract Submitted  
for the CUWIP21 Meeting of  
The American Physical Society

**Visual Identification of Jellyfish Galaxies in Galaxy Clusters Using Deep, High-Resolution Optical Images**<sup>1</sup> NATALIE RUGG, SHENMING FU, IAN DELL'ANTONIO, Brown University — Jellyfish galaxies, spiral galaxies undergoing ram-pressure stripping while entering the intracluster medium, reveal the dynamics and timescale of a gas-rich spiral transforming into a gas-poor elliptical galaxy. To identify smaller, higher-redshift jellyfish galaxies, I composited a deep, high-resolution image of galaxy cluster Abell 1650 from raw Dark Energy Camera visits, a process that my lab group has since repeated for 17 other clusters. After first removing bias and flat file signatures and cosmic rays, I calibrated the images to existing reference catalogues (GAIA, SDSS, and Pan-STARRS) and warped the images to form a skymap. I repeated this process for each filter band and coadded the resulting images together to create one multi-band image. Originally for dark matter microlensing of galaxy clusters, I have used these images to search for jellyfish galaxies, which are characterized by a unilateral trail of stripped, star-forming gas. I have identified over 25 candidates in 9 galaxy clusters using established visual criteria. Future work will entail calculating 3D velocities and determining the significance of jellyfish galaxies to the evolution of galaxies.

<sup>1</sup>Brown University Karen T. Romer Undergraduate Teaching and Research Award, NASA-Rhode Island Space Grant

Natalie Rugg  
Brown University

Date submitted: 04 Jan 2021

Electronic form version 1.4