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On the Modelling and Measurement of Dwarf Galaxy Tucana III BRANDON BUNCHER, College of William and Mary — Measurements of the mass distribution of the universe using a variety of independent techniques indicate that there exists a significant portion of mass that does not interact via light. There is mounting evidence that this missing mass, or "dark matter," exists in high concentrations in ultra-faint dwarf galaxies. These galaxies, however, have remained hard to find due to difficulties with detecting them at high resolution. The Dark Energy Survey (DES) has revolutionized the study of dwarf galaxies by providing high resolution, deep-field images of these systems. In this project, we perform measurements on Tucana III, a tidally disrupted dwarf galaxy in the Tucana constellation orbiting the Milky Way, in order to improve our understanding of the dark matter distribution of the Milky Way. We isolated the galaxy using an isochrone selection algorithm, then performed measurements of the position angle, tail length, tail width, and tail offset. The results of this project will aid in future dark matter observational studies, as well as shed light on the behavior of dwarf galaxies and other Milky Way satellites.

> Brandon Buncher College of William and Mary

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