

# Identifying Yellow Supergiants Binaries in the Magellanic Clouds

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**ABSTRACT:** Binary evolution theory predicts that the Hertzsprung Gap — the area of the Hertzsprung-Russell diagram occupied primarily by intermediate temperature evolved stars — is home to multiple populations of binary systems with varied evolutionary histories. Recent works have constrained the binary fraction of evolved populations of massive stars in local galaxies such as red supergiants and Wolf-Rayet stars, but the binary fraction of yellow supergiants (YSGs) in the Hertzsprung Gap remains unconstrained. We have developed a method to distinguish single YSGs from binary YSHs using optical and ultraviolet photometry, and have applied this method to identify candidate YSG binaries in the Magellanic Clouds, finding a preliminary binary fraction of 30-60%. In this talk I’ll explain how we developed this method, report our initial results, and discuss our plans for future work.

**BIO:** Anna O’Grady is a McWilliams postdoctoral fellow at Carnegie Mellon University in Pittsburgh. She completed her PhD in astronomy and astrophysics at the University of Toronto, and her BSc in physics and applied math at Memorial University of Newfoundland and Labrador. Anna’s research involves observations of stellar populations in nearby galaxies, and uses those observations to put constraints on rare or unknown classes of massive stars



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