

Fall 2019 Colloquium Speaker

Natalie Gosnell

Colorado College

November 1, 2019

3:10-4:00 pm

Physical Sciences Building 234

“Telling the Story of Blue Straggler Mass Transfer Through their White Dwarf Companions”

Abstract: Our understanding of stellar evolution is built upon a synergy between observations and theory. Open star clusters (groups of stars in our galaxy that formed at the same time out of the same material) provide a laboratory for testing stellar evolution theories and illuminate where our current understanding fails. In depth studies of open clusters reveal that evolved stars frequently do not agree with simple models, and instead follow alternative pathways in stellar evolution. These stars are often excluded from studies for being rare or anomalous, but we now know that they make up a considerable fraction of evolved stars. The majority of these alternative pathway stellar products are blue straggler stars, whose dominant formation mechanism was an outstanding question for almost six decades, but we now know that most blue straggler stars form through mass transfer from a giant companion, resulting in a binary system with what is now a blue straggler and a white dwarf. I will discuss my work on constraining the histories of blue straggler stars using ultraviolet spectroscopy from the Hubble Space Telescope, illuminating areas where our current understanding of mass transfer is insufficient.



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