



# PHYSICS AND ASTRONOMY SEMINAR

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## **New Phenomena in Evolved Supergiants Revealed by TESS**

Massive stars drive the radiative, chemical, and kinematic evolution of their host galaxies. Despite the importance of these stars, the physical factors that govern their progression through the exotic evolved states that we observe them in are poorly understood. Thanks to TESS, high-quality light curves of massive stars in their evolved stages are revealing never-before-seen phenomena that may help answer our most urgent questions. In this talk, I will discuss the two “flavors” of variability revealed by TESS in cool supergiants and how they impact our understanding of massive stellar evolution: Stochastic low frequency variability (SLFV) previously known to exist in O and B stars appears to be ubiquitous across the upper HR-diagram. Simultaneously, we have found a new class of variable yellow supergiants that pulsate with frequencies above  $\sim 1 \text{ d}^{-1}$ . Both of these discoveries open the intriguing possibility of probing the interiors of massive stars in their final phases before core collapse. Finally, I will highlight our ongoing work coupling TESS data with high resolution spectroscopy to determine the nature of SLFV in cool supergiants.

Monday, May 3, 2021

2:00 p.m.

**Zoom link:** <https://uvic.zoom.us/j/82203756592>