Physics & Astronomy Colloquium

Presents

Azalee Bostroem

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University of Arizona

Thursday, November 3, 2022
12:10 pm, Webster Room 11

Please meet our guest speaker and share in refreshments 11:45 a.m. -12:10 p.m. in the foyer on floor G above the lecture hall

"Using Supernova Observations to Study Their Massive Star Progenitors"

Although massive stars have a profound influence on the Universe at every scale, from the evolution of galaxies to the formation of the elements necessary for life, the answers to key questions about their mass loss and explodability are unknown. This is because massive stars are rare and the final phases of their evolution and explosions, as supernovae, occur on very short time scales. Over the last 5 years, wide-field surveys have greatly increased the number of supernovae discovered, with the potential to open a new window onto massive star evolution if we can connect supernovae to their massive star progenitors. I will discuss the current gold-standard of understanding the properties of massive stars from images taken prior to their explosions. I will then present new insights we are gaining into massive stars including which stars explode, how these stars lose mass, and which stars are the progenitors of hydrogen-rich supernovae all derived from recently developed post-explosion techniques including light curve modeling, nebular spectra modeling, and the combination of multi-wavelength observations. I will close by looking at the future of this work in the era of the light curves and sheer number of objects that will be discovered by the Rubin Observatory's Legacy Survey of Space and Time.

Host: Dr. Guy Worthey

ZOOM Information: Meeting ID: 965 8240 9398• Passcode: physastro