

SAN DIEGO STATE UNIVERSITY DEPARTMENT OF PHYSICS AND DEPARTMENT OF
ASTRONOMY COLLOQUIUM

Speaker: Dr. Nadia Blagorodnova (California Institute of Technology)

Topic: Luminous Red Novae: the Cool Transients

Time: 12:30 PM, Monday, November 14, 2016 (refreshments served at
12:15 PM)

Place: Room 215, Physics-Astronomy Building (PA-215)

Abstract:

Luminous red novae (LRNe) are unusual and fascinating events discovered in our nearby Universe. During outburst, their luminosities are in between novae and supernovae and their temperatures are unusually cold, resembling M or K type giant stars. Their lightcurves, while quickly fading in the optical, do usually remain bright in IR wavelengths, revealing the formation of warm dust surrounding the main star. Such observables have been associated with the onset of extremely dense, massive stellar envelopes. NIR spectroscopy has been the key to identify the presence of elements and molecules with different excitation temperatures, suggesting that the dust is organized in a disk-like geometry. Although the origin of such unusual events is still very speculative, several models agree on a possible binary progenitor. At the moment, only four Galactic and four extragalactic LRNe have been found, although their numbers are expected to increase in the nearby future. In my talk, I will describe the observational properties of LRNe and discuss the proposed scenarios to explain the nature of the outburst. Finally, I will present the initial results of an ongoing follow-up of LRNe candidates from the iPTF survey.