

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

Speaker: Dr. Andy Howell -- Las Cumbres Observatory Global Telescope Network

Topic: Revealing the Progenitors of Supernovae with a Global Robotic Telescope
Network

Time: 3:00 PM, Friday, September 4, 2015 (refreshments served at 2:45 PM)

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

Abstract:

I'll talk about three things:

1. The progenitors of nature's best standard candles, Type Ia supernovae, have long been a mystery, but evidence has been mounting that the merger of two white dwarf stars can account for some or perhaps all of SNe Ia. However, in two recent papers we have found SNe with an early blue/UV flash, interpreted as evidence of the supernova ejecta hitting a main sequence or red giant companion star. The results can only be described as "shocking."
2. In the quest to understand superluminous supernovae, which can be 100 times brighter than core-collapse supernovae, we have found intermediate luminosity supernovae. However, their properties are not at all what was expected.
3. The Las Cumbres Observatory Global Telescope Network (LCOGT) is an 11 node network of one and two meter robotic telescopes spanning the globe. We have now begun the LCOGT Supernova Key Project, which will collect the largest sample of low-redshift supernovae ever obtained: lightcurves and spectroscopy on 600 supernovae over 3 years for use in cosmology, understanding explosions, and determining supernova progenitors. I'll show how we are automating every step of the observing and data reduction process, and using it in support of space missions and ground based-surveys.