April 12th, 2017
Wednesday Astronomy Seminar

Title: A new window into supernovae and their progenitors with Las Cumbres Observatory

Abstract:
I'll describe the six year effort to observe 1000.nearby supernovae in unprecedented detail, including sooner after explosion than was previously possible. This is possible because of Las Cumbres Observatory, a global robotic network of eighteen 2 meter, 1m, and 0.4m telescopes. The network allows us to take observations within minutes of triggering observations, to observe continuously without being interrupted by daytime, to rarely miss observations due to weather, and to build large samples of supernovae with a relatively small team. As a result, we are discovering new classes of supernovae, and making new discoveries about their progenitors based on their early data. One new finding is that it a large fraction of massive stars (even normal red giants) have mass loss episodes within days to weeks of exploding. This is a surprise from a stellar evolution perspective and remains poorly understood. I'll also show several new types of supernovae, including one perplexing event that remains bright for years, with multiple peaks in the light curve.