BOSTON UNIVERSITY

Astrophysics Seminar Monday, September 15, 2014

3:15 pm Refreshments CAS Room 500

3:30 pm Seminar CAS Room 502

Next Week

Karin Oberg Harvard University

Dust Chemistry



http://www.bu.edu/iar/seminars/ current-seminars/

Supernova Forensics

Alicia Margarita Soderberg

Harvard University Department of Astronomy

Abstract:

For several decades, observational studies of supernova (SN) explosions have focused almost exclusively on the strong optical emission that dominates the bolometric luminosity in the days following explosion. Yet many of the leading breakthroughs in our understanding of supernovae have been enabled by observations at other wavelengths. For example, through high energy observations, we now know that about 0.1% of all core-collapse supernovae produce relativistic outflows that give rise to gamma-ray bursts. The observed neutrino release from SN 1987A confirmed theoretical models for core-collapse explosions. More recently, my serendipitous X-ray discovery of SN 2008D in the act of exploding ("in flagrante delicto") revealed a novel technique to discover new supernovae and confirmed decades-old predictions for shock breakout emission. With the advent of the Expanded Very Large Array (EVLA) and the Atacama Large Millimeter Array (ALMA) -- the world's most sensitive radio telescopes -- our understanding of supernovae will soon be advanced by observations at longer wavelengths. Combining unique observations in the radio and mm-band with traditional optical supernova studies leads to the holistic study of cosmic explosions, shedding light on the nature of their progenitors, the physics of the explosions, the final stages of stellar evolution, and their role in the Universe.



725 Commonwealth Avenue Boston, MA 02215