

# PSU PHYSICS SEMINAR

## Blowing up a star: new 3-D views of the supernova remnant Cas A

**Dr. Lawrence Rudnick**

Distinguished Teaching Professor at the University of  
Minnesota

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**Place:** Science Building-I, Room 107

**Day:** Wednesday, January 14<sup>th</sup>, 2009

**Time:** 3.15 p. m.

### SUMMARY

Blowing up a star isn't as easy as it looks. For years, theorists have struggled to find the right conditions to drive a supernova explosion at the end of a massive star's life. In this talk, I will briefly review our understanding of how these explosions occur, and then describe the study of the debris hundreds of years later to reconstruct the explosions. This talk will focus on the supernova remnant Cassiopeia A, studied at gamma-ray, x-ray, optical, infrared and radio wavelengths, from ground and space-based telescopes. I will present our just-released first 3-D reconstruction of a supernova explosion, and the lessons it holds for what happens at the end of a star's life.

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Dr. Lawrence Rudnick is a Distinguished Teaching Professor at the University of Minnesota. He received his Ph.D. in Physics at Princeton in 1974. His research focuses on multi-wavelength observations of supernova remnants and radio/X-ray studies of clusters of galaxies and large-scale structure in the universe. He has been active in a wide range of public educational activities, including the public television shows Newton's Apple and DragonflyTV, the Minnesota Planetarium, and teacher professional development in the public schools.