Adam Burrows  
Princeton University  
Princeton NJ, USA  
  
***Talk Title:  "The Emerging Theory of Supernova Explosions"***  
Abstract:   
  
Core-collapse supernovae have challenged theorists and computational science for half a century. Such explosions are the source of many of the heavy elements in the Universe and the birthplace of neutron stars and stellar-mass black holes. However, determining the mechanism of explosion remains the key goal of theory. Though the synergistic operation of turbulence and neutrino heating seems implicated, and multi-dimensional simulations with some physical fidelity that have provided insight, we have yet to reproduce the phenomenon theoretically. In this talk, I will review the goals of supernova theory, the state of the field, and the contending explosion models.