

Astronomy Seminar

January 11, 2017

Title: The explosive possibilities of sub-Chandrasekhar mass white dwarfs

Abstract: The thermonuclear disruption of a white dwarf that has approached the critical Chandrasekhar mass has become a familiar concept in astrophysics. Less familiar are the variety of explosive outcomes possible on sub-Chandrasekhar mass white dwarfs (outside of novae). In this seminar, I will discuss some of the possible explosions occurring on sub-Chandrasekhar white dwarfs accreting a helium-rich envelope. In particular, I will focus on my low Mach 3D hydrodynamics models of the roiling, convective burning that occurs in this envelope prior to an explosive runaway. These systems may serve as attractive progenitors for type Ia supernovae, in addition to other transients that could be seen by next-generation surveys such as the Large Synoptic Survey Telescope.

Best,
Adam