Astrophysics Seminar

The E-Nova Project: A Multi-Wavelength Initiative to Probe the Ejecta and Environments of Novae

Prof. Laura Chomiuk
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Tuesday, December 10 ◆ 12:30 P.M.
Room 184 Nieuwland Science Hall

When imagining a nuclear explosion, we often picture strong, spherical shock waves, like a bomb or supernova; however, nature's most common thermonuclear explosions look nothing like this, showing delayed and multiple phases of mass ejection that can last for months after the nuclear fuel is ignited. These most common explosions are novae—thermonuclear runaways on the surfaces of accreting white dwarfs—and their complexities are best revealed with an intensive multi-wavelength observational program highlighting radio and X-ray data—our E-Nova Project. I will discuss our recent results, featuring observations from the newly-upgraded Karl G. Jansky Very Large Array, and spotlighting sources like the recurrent nova T Pyx (which is challenging our basic assumptions about accretion on white dwarfs) and the four novae that have been detected in gamma rays to date (an emission process that was not predicted and remains an intriguing mystery). The implications for Type Ia supernova progenitors will also be discussed.

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