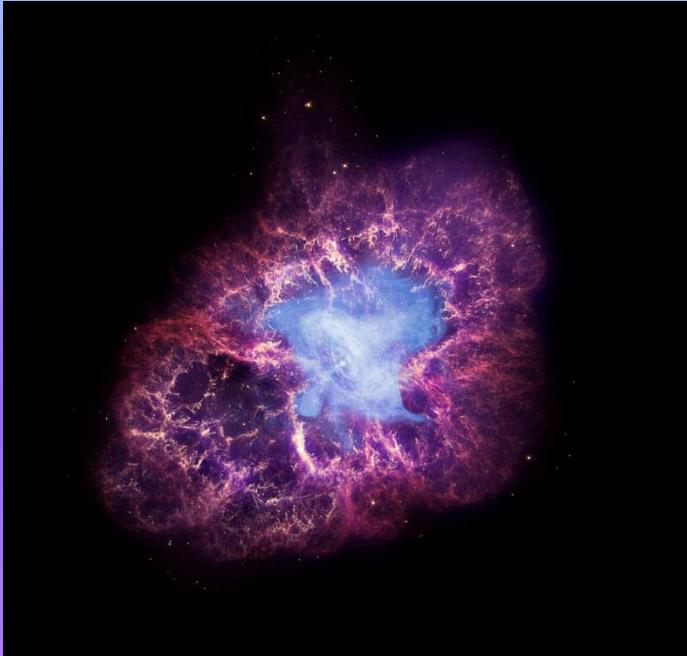




University of Wisconsin Stevens Point

THURSDAY, APRIL 3, 2014, 7:30 p.m.
Room 170 TNR
(Trainer Natural Resources Building)

FREE PUBLIC LECTURE



← The Crab nebula (NGC 1952), a supernova remnant whose core contains a pulsar spinning 30 times per second. The pulsar is estimated to have a diameter of 18 miles.

Composite image from Chandra, Hubble, and Spitzer.
Image credit: NASA.



Megan DeCesar, Ph.D.
UW-Milwaukee

Pulsars: The Universal Timekeepers

ABSTRACT: Pulsating neutron stars, or pulsars, are the densest directly observable objects known to exist in the universe. Every aspect of these objects is extreme — their magnetic fields are billions to trillions of times as strong as the Earth's, their cores are denser than the nucleus of an atom, and although they are as large as a city, many pulsars spin faster than a kitchen blender. The fastest-spinning pulsars keep time as well or better than atomic clocks, and the pulses of light emitted with each spin provide a unique opportunity for astronomers to study exotic physics occurring in and around these objects. I will discuss some important discoveries that have been made through pulsar timing, and will describe how we can use pulsars to study extremely dense matter, test Einstein's theory of general relativity, and search for gravitational waves.

About the speaker: Megan DeCesar is a postdoctoral research associate at UW-Milwaukee. She received her bachelor's degree from the Pennsylvania State University and her Ph.D. from the University of Maryland. Her research involves studies of pulsars at radio, X-ray, and gamma-ray wavelengths, with the goals of discovering new pulsars, understanding their emission geometry, constraining the physics of the very dense matter of which they are composed, and testing the accuracy of general relativity. She has been active in public outreach since her undergraduate years and is honored to have the opportunity to share her research with the Stevens Point community and the UW-Stevens Point Physics and Astronomy Department.

Megan DeCesar's visit to the UW-Stevens Point campus is financially supported by the UW System Women and Science program and by the UW-Stevens Point Department of Physics and Astronomy.