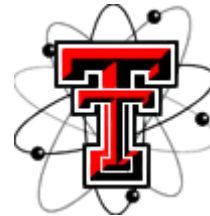


*Physics & Astronomy Colloquium -  
Fall 2020*



**Tuesday, Aug 25<sup>th</sup> at 3:30 pm**

(Zoom colloquia: Please find the meeting information below)

**Dr. Thomas Kupfer**

Physics & Astronomy, Texas Tech University

**The most compact binaries in the Galaxy: Imminent  
Supernovae and Gravitational Wave Sources**

The most compact binary stars have physical separations between components smaller than the Earth-Moon distance and orbital periods less than about 60min. They are sources of low-frequency gravitational waves as will be probed by the Laser Interferometer Space Antenna, are crucial to our understanding of compact binary evolution and offer pathways towards one of the most luminous explosions in the universe: Type Ia supernovae. Although the known sample is still inhomogenous, ongoing and upcoming large scale sky surveys have the potential to discover and study them with well understood biases and selection effects. In this talk I will present an overview of the field and some early results from a dedicated imaging survey of the Milky Way's stellar plane to find these compact binaries. As part of this survey we have already discovered a new class of accreting He-star binaries and a new class of pulsating stars. Finally, I will provide an outlook on how upcoming large imaging surveys like the Rubin Observatory Legacy Survey of Space and Time (LSST) will allow us to collect and study a homogenous sample of different populations of these unique binary stars in the future.

**Zoom meeting ID: 995 291 7599 Passcode: PHAS**

(Find more information at Department Colloquia Webpage)