

AT Seminar - Probing Stellar Evolution, Dynamics, and Fundamental Physics with Millisecond Pulsar Binaries

Pulsars are the ultra-dense rotating remnants of massive stars that exploded at the ends of their lives. Millisecond pulsars are normal pulsars that have been "recycled" and been brought back from the dead by a binary companion. I will discuss new results on binary systems consisting of millisecond pulsars and other stars. Drawing upon recent results, I will explore areas where these binaries help give independent constraints on the nature, properties, and evolution of compact binary systems. I will focus on what can be learned from "fast" millisecond pulsar binaries: those systems that are moving across the sky quickly enough that the Shklovskii effect significantly affects their spin-down behavior. In some of these systems anomalous spin-down behavior has led to clues about their nature, formation, and evolution.