Title

Mass distributions of neutron stars and white dwarfs in binary pulsar systems

Abstract

Pulsars in short orbital period binary systems are natural laboratories to obtain precise masses of neutron stars (NS) and their binary companions. The technique of pulsar timing allows the measurement of orbital and relativistic parameters of binary pulsars with precisions that are orders of magnitude better than any other techniques. These can in turn be used for precisely measuring the component masses. In this proposal, we aim to time a tailored set of binary pulsars whose mass measurements can be used to understand the equation of state and mass distribution of neutron stars, and the unexpected modalities observed in the mass distributions of white dwarfs. A significant fraction of these binaries are sources recently discovered with the MeerKAT telescope.