

TESTING THEORIES OF GRAVITY WITH RELATIVISTIC BINARY PULSARS

Pulsars in relativistic binary systems are excellent probes of gravitational dynamics in the quasi-stationary strong field regime. Long term measurements of pulse arrival times from such pulsars enable theory-independent measurements of relativistic parameters that can then be used for testing several theories of gravity such as General Relativity and scalar-tensor theories of gravity. Assuming a theory of gravity, such experiments also provide highly precise measurements of neutron star masses and insights on their equation of state. In this talk, I will summarise the recent results from long term timing campaigns of binary pulsars, with particular importance to a pulsar-white-dwarf system, PSR J1141-6545. I will then demonstrate how observations with the MeerKAT telescope will significantly improve the precisions at which we are able to perform such tests of gravity in the immediate future.