ICTS Seminar

Title : Characterizing deviations from General Relativity around quiescent compact objects

Speaker : Jeandrew Brink, Rhodes University, South Africa

Date : Friday, November18, 2016

Time : 2:00 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : In the next 10 years, ground and space based gravitational wave experiments in addition to sensitive radio telescopes such as Meer-kat, FAST the SKA and high energy measurements such as those conducted by XMM-Newton and Fermi LAT will permit us to probe the strong field region around black holes and experimentally deter-mine the extent to which the spacetime satisfies the Kerr hypothe-sis. In this talk I look at implementation strategies for carrying out orbital tests of the Kerr hypothesis with the focus on the extreme mass ratio inspiral(EMRI) paradigm. Pulsar timing provides some of the most accurate clean tests of GeneralRelativity(GR) to date. Measurements of J0737-3039 over the last 13 years are beginning to require sophisticated timing models sensitive to the spin and internal structure of the Neutron stars involved. I comment on the regions of validity of the existing well tested timing models. I also point out other theoretical and observational challenges faced in testing GR in the EMRI regime either by detecting gravitational waves or pulsed radio emission.