CORDIALLY INVITES YOU TO A COLLOQUIUM BY:

SPEAKER: Dr. Jeandrew Brink  
*National Institute of Theoretical Physics, Stellenbosch, South Africa*


DATE: Thursday, June 28, 2012

TIME: 12:00 pm

Venue: Seminar room of STEC (Science & Technology Education Centre) in the Ground floor of H1 block

Abstract

The Square Kilometre Array (SKA) and gravitational wave detectors such as advanced LIGO and LISA will augment existing optical, X-ray and infrared measurements of candidate black holes and allow us to conclusively determine their structure. This in turn makes it possibly to test some of the underlying tenets of General Relativity which include the no-hair theorems and assumptions such as cosmic censorship and causality. In this talk I review existing observational data of the closest candidate black hole Sgr A*. I highlight what new measurements are possible using the SKA and the detection of a pulsar in close orbit around Sgr A*.

I then take a careful look at the mathematical aspects of the problem and give a general formulation of the idea of mapping spacetime around black holes and unambiguously identifying their structure. In conclusion I focus on the nature of geodesic orbits in stationary axi-symmetric spacetimes. I discuss their dynamical behaviour and observational implications in the event that the central black hole is not a Kerr black-hole.