SEMINAR NOTICE

Department of Physics and Engineering Physics
University of Saskatchewan

SPEAKER: Dr. Masoud Ghezelbash
Department of Physics & Engineering Physics

TOPIC*:* ***Exact Solutions to the Einstein Field Equations Coupled to the Matter Fields***

DATE: Tuesday, January 17, 2017

TIME: 3:30-4:30 p.m.

PLACE: Physics 103

ABSTRACT:

The building blocks of gravitational physics in four and higher dimensions, to explore and understand the realm of the gravitational physics, are the exact analytical solutions to the Einstein field equations coupled to various matter fields. In this talk, inspired by the known membrane solutions in M-theory, we construct and investigate new classes of the exact solutions to Einstein gravity coupled to the electromagnetic field and the dilation field. The theory has two different coupling constants for the coupling of the dilation field to the electromagnetic field and to the cosmological constant. We systematically solve the field equations and find the exact solutions for the metric functions, the electromagnetic field and the dilation field. We show that the solutions are regular and the cosmological constant depends on the dilation coupling constant which may take any positive, zero or negative values. We discuss the novelty and the physical properties of the solutions.

Coffee and Cookies will be served in the Physics lounge at 3:00 p.m. for those attending the seminar.