APPLIED MATH SEMINARS

Vaidya Spacetime in Cosmology

By

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Abstract: In this talk, regarding that the real astrophysical black holes are non-stationary and non-isolated, and are living in non-empty backgrounds, we introduce a new analytical solution for the Einstein field equations, namely as the “Surrounded Vaidya Spacetime”. Then, we investigate its nature for describing the formation of naked singularities or black holes, the possible interactions of black holes with their backgrounds, as well as the associated timelike geodesics in the general form. Afterward, we study the special subclasses of this general solution namely as the Vaidya black hole surrounded by dust, radiation, quintessence, cosmological constant-like, and phantom fields in more detail. We discuss also the thermodynamical propoerties and dynamical evolutions of various apparent horizons associated with the Vaidya evaporating black hole surrounded by the cosmological fields of dust, radiation, quintessence, cosmological constant-like and phantom.

Date: October 4, 2018
Time: 14:40
Place: SA141 Mathematics Seminar Room

* Tea and cookies will be served before the talk. All are most cordially invited.