Black Holes, Neutron Stars, and Gravitational Waves @ Black Sea



Contribution ID: 71

Type: Oral presentation

Black holes with primary hair

Monday 16 June 2025 09:40 (40 minutes)

In the context of higher order scalar tensor theories we will find explicit solutions with primary scalar charge evading classical no hair theorems. The large class of theories at hand are ultra violet departures from GR and will be given by specific analytic functions and will have certain symmetries. The scalar charge will be shown to be related to a conserved Noether charge associated to the global shift symmetry of the theories at hand. At a certain limit in between the mass and charge regular black holes will be constructed and properties of the solutions will be discussed. We will then discuss axial perturbations of these theories. The effective metric thus constructed will be shown to be a very particular extension of the Einstein frame. Axial gravitons will propagate in this frame quite different to the luminous frame. We will discuss the effects of this and what bounds can be put on the hair for stability.

Author: CHARMOUSSIS, Christos

Presenter: CHARMOUSSIS, Christos