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DANIEL AMARO: Geodesic Structure of the Einstein-Euler-Heisenberg Black Hole Spacetime

Monday, 17 February 2020 19:00 (30 minutes)

We derive the electrically charged static black hole spacetime of the Einstein-Euler-Heisenberg theory, in terms of the Plebański dual variables. This solution is a non-linear electromagnetic generalization of the Reissner-Nordström solution and it is characterized by three parameters: mass M, electric charge Q_e, and Euler-Heisenberg non-linearity parameter A. We study the trajectories of massive (charged and uncharged) and massless test particles in this spacetime. We also study the propagation of light, where the orbits of photons are analyzed by means of the effective Plebański pseudo-metric related to the geometrical metric and to the electromagnetic energy-momentum tensor. The shape of the shadow of the black hole is also presented and discussed.

Session Classification: SHORT TALKS

Track Classification: SYMPOSIUM ON BLACK HOLES AND GRAVITATIONAL WAVES