Geometric Foundations of Gravity 2025



Contribution ID: 26

Type: Talk

Schwarzschild black holes embedded in a Dehnen-type dark matter halo with quintessence

We consider a Schwarzschild-like BH immersed in both a Dehnen-type DM halo and a surrounding quintessence field. We derive the composite spacetime metric and analyze its geometric features, including horizon structure, curvature invariants, and the classical energy conditions. We then investigate geodesic dynamics, focusing on effective potentials, circular orbits, and ISCOs. Additionally, we examine the BH shadow. These analyses provide insight into the imprints of dark sector fields on BH observables and offer predictions that may be testable with current and upcoming astrophysical instruments

Author: Prof. ALBADAWI, Ahmad (Al-Hussien Bin Talal university) Presenter: Prof. ALBADAWI, Ahmad (Al-Hussien Bin Talal university)

Track Classification: Contributed talks