

Phenomenology 2017 Symposium



Contribution ID: 368

Type: parallel talk

Not quite a black hole

Tuesday 9 May 2017 17:15 (15 minutes)

Astrophysical black hole candidates, although long thought to have a horizon, could be horizonless ultra-compact objects. This intriguing possibility is motivated by the black hole information paradox and a plausible fundamental connection with quantum gravity. Asymptotically free quadratic gravity is considered here as the UV completion of general relativity. We find that sufficiently dense matter produces a novel horizonless configuration, the 2-2-hole, which closely matches the exterior Schwarzschild solution down to about a Planck proper length of the would-be horizon and has an interesting interior. In the era of gravitational-wave astronomy, the quantum gravity corrections around the black hole horizon lead to distinctive features that could hopefully be probed in the near future.

Summary

gravitational waves, quantum gravity corrections, black hole mimickers

Primary authors: Prof. HOLDOM, Bob (University of Toronto); Dr REN, Jing (University of Toronto)

Presenter: Dr REN, Jing (University of Toronto)

Session Classification: Theoretical Developments