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Black holes and nilmanifolds

Tuesday, 4 July 2023 11:00 (20 minutes)

We investigate whether quasinormal modes can be used in the search for signatures of extra dimensions. To address a gap in the literature, we focus on negative Ricci curvature extra dimensional spacetimes. Starting with a product space comprised of a four-dimensional Schwarzschild space-time and a 3-dimensional nilmanifold, we study the scalar perturbations. The geometry can be characterised as the effective potential of a squared mass-like term. We then compute the corresponding quasinormal frequency spectrum and determine constraints on this possible extra-dimensional observable from gravitational-wave considerations.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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