

Contributed Talk

Name: Syed Umair Husain Naqvi

Position: PhD Student

Affiliation: Jagiellonian University

Title: Freely-falling bodies in standing wave spacetime

Abstract: The phenomena of standing waves is well known in mechanical and electromagnetic setting where the wave has the maximum and minimum amplitude at the antinodes and nodes, respectively. In context of exact solution to Einstein Field equations, we analyze a spacetime which represents standing gravitational waves in an expanding Universe. The study the motion of free masses subject to the influence of standing gravitational waves in the polarized Gowdy cosmology with a three-torus topology. We show that antinodes attract freely falling particles and we trace the velocity memory effect.