



Contribution ID: 510

Type: **Talk in the parallel session**

## Freely-falling bodies in standing-wave spacetime

*Wednesday, 7 July 2021 06:50 (20 minutes)*

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 the context of the exact solution to Einstein Field equations, we analyze a spacetime which represents standing gravitational waves in an expanding Universe. We 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.

**Primary authors:** Mr NAQVI, Syed (Jagiellonian University); Mr SZYBKA, Sebastian (Jagiellonian University)

**Presenter:** Mr NAQVI, Syed (Jagiellonian University)

**Session Classification:** Exact Solutions (Including Higher Dimensions)

**Track Classification:** Exact Solutions: Exact Solutions (including higher dimensions)