

Freely-falling bodies in standing-wave spacetime

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The phenomena of standing waves are mostly studied in the context of mechanical or electromagnetic waves. In the context of General Relativity, the issue of how to define standing gravitational waves was addressed by Bondi and later by Stefani. We investigate an expanding universe filled with standing gravitational waves. We study how freely falling particles in this spacetime behave, namely, we investigate the geodesic equation and the geodesic deviation equation. We show that antinodes attract freely falling particles and we trace the velocity memory effect.

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