

Spacetime-Symmetry Breaking and the Generation of Gravitational Waves

lundi 20 novembre 2023 15:40 (20 minutes)

Recently, the search for departures from the symmetries of General Relativity has received significant attention in the literature. In this talk, I outline the techniques for probing the nature of spacetime symmetries using the generation stage of gravitational waves. By using a generic effective-field theory, I show our solution scheme of the modified Einstein equations and I write down the the first Post-Newtonian corrections, which includes contributions from the spacetime-symmetry breaking terms. Focusing on the gravitational two-body problem, I write down a simple toy solution, and it becomes clear that in contrast to General Relativity, the monopolar and dipolar contributions are non-vanishing. We comment on the detectability of such signals by the LISA space mission, which has high signal-to-noise galactic binaries well inside its predicted sensitivity band.

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Classification de Session: Session 2