

Gravitational wave based Tests of binary black hole nature: current and future prospects

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Gravitational wave observations through the first three observational runs of ground-based detectors can reveal such sources' various astrophysical and fundamental physics aspects. Even though the current detections do not show evidence for alternate compact objects, the data can still not rule out their existence entirely. This talk aims to provide a status update on black hole mimicker tests and their observational signatures, starting from existing bounds from current detectors to future space-based detectors. Moreover, we discuss some recent developments focusing on spin-induced multipole-based tests.

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