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Probing fundamental physics with gravitational waves

Thursday 5 January 2023 15:15 (40 minutes)

One of the most remarkable possibilities of General Relativity concerns gravitational collapse to black holes, leaving behind a geometry with light rings, ergoregions and horizons. These peculiarities are responsible for uniqueness properties and energy extraction mechanisms that turn black holes into ideal laboratories of strong gravity, of particle physics (yes!) and of possible quantum-gravity effects. The latest progress in testing strong-field gravity, and of using black holes as particle detectors will be discussed.

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