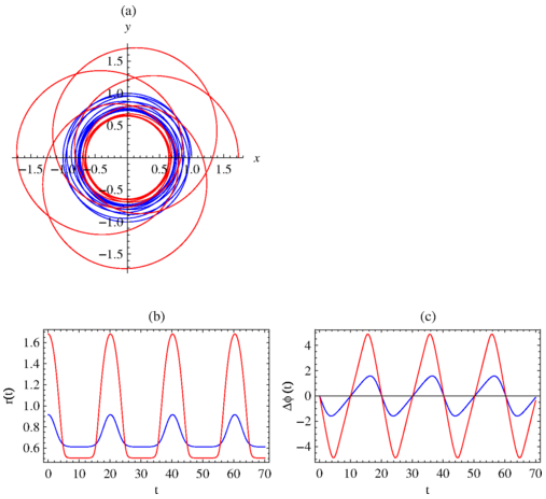
Cosmology and Gravity.



For nearly a century, the General Theory of Relativity was considered a mathematical theory without significant observable results. However, in the late 20th century, researchers began examining the behavior of matter under conditions where relativistic gravity differs substantially from Newtonian gravity. Alongside classical stars, their relativistic counterparts – neutron stars and black holes – also started to be studied, along with gravitational waves, which have no equivalent in Newtonian mechanics. Our group conducts research on the orbits of bodies around black holes, pairs of compact bodies that emit gravitational waves, the potential for detecting gravitational waves, the distinctive features encoded within these waves that carry information about their sources, and black hole oscillations. Relativity also enables us to study the evolution of the Universe on a cosmological scale, allowing us to create models that describe our cosmological observations with considerable accuracy.

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