中央大學物理學系

Department of Physics, National Central University





陳哲佑 博士 Dr. Che-Yu Chen iTHEMS RIKEN, Japan

Testing the Kerr black hole hypothesis

Date: 2024/12/27 (Fri) Venue: S4-625 Time: 10:00-11:00

Abstract:

The Kerr hypothesis in General Relativity (GR) states that an isolated black hole in our universe is described by the Kerr geometry. The recent advances in black hole observations, both with gravitational waves and black hole images, as well as nextgeneration detectors, will boost the program of testing the Kerr hypothesis, which is equivalent to testing GR. In particular, the Kerr geometry has a few inherent symmetries and features, such equatorial reflection symmetry, Liouville integrability, as circularity, eikonal correspondence, and no-hair theorem. In this talk, I will demonstrate how the Kerr hypothesis can be tested by looking for observational features of violating these properties. Potential implications on quantum gravity and possible challenges associated with astrophysical environments will also be discussed.

