

Probing black holes without Z_2 symmetry: A theory-agnostic approach

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Testing strong gravity regimes such as the vicinity of black holes is likely to be attainable with the future developments of observing technology. In this talk, adopting a theory-agnostic approach, we first propose a class of Kerr-like rotating black holes, whose Z_2 symmetry is generically broken. We focus on the possibility that such a violation of Z_2 symmetry is induced by the spin of the black hole. This class of Kerr-like spacetimes could be a good approximation to general black hole solutions in effective low-energy theories of a fundamental quantum theory of gravity. In the model, the violation of the Z_2 symmetry can be parametrized by a single parameter. Then, we discuss how the Z_2 asymmetry in the spacetime could give interesting astrophysical consequences which may be observable.

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