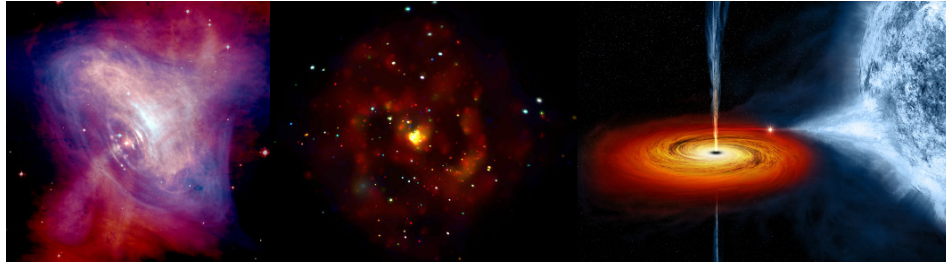


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”Signatures of Modified Kerr-Newman black holes from the observed quasi-periodic oscillations”

Black holes (BH) represent the end stages of the evolution of stars with $ZAMS > 15.0 M_{\odot}$. These BHs are formed by the gravitational collapse of a massive star. BHs cannot be seen, but the effects of their strong gravity on the stars and the gases nearby can give us a lot of information. Astronomers’ best hope has been to discover a BH in a nearby binary system. If the BH is in such a system, it will pull gas from the envelope of the normal companion star. The angular momentum of their orbital motion would cause a disk (accretion) of gas to form around the BH. As the gas spirals down toward the event horizon, it is compressed and heated up to millions of kelvins and emits X-rays from the innermost regions of the disk above the BH. In this study, various models that have been proposed in the literature are used to explain the observed QPO frequencies, which depend on the epicyclic motion of test particles and hence on the background metric (Modified Kerr-Newman). By performing a Chi-Square analysis between the theoretical and observed QPO frequencies, a conclusion has been reached that the Kerr BH in general relativity is more favored than BHs with charge parameters.

Presentation Type

Poster

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