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Title: Hidden spectral symmetries and mode stability for Kerr(-de Sitter) black holes

Abstract: The Teukolsky master equations describe the linear behavior of perturbations of the Kerr(-de Sitter) black hole family, of which the conformal Klein-Gordon equation is a particular case. As a first essential step towards stability, Whiting showed in 1989 that the Teukolsky equation on subextremal Kerr admits no exponentially growing modes. His method of proof breaks down in the Kerr-de Sitter setting.

In this talk, we present a new approach to mode stability, based on uncovering hidden spectral symmetries in the Teukolsky equations. This yields a novel proof of Whiting's classical result as well as a partial mode stability statement for Kerr-de Sitter. This talk is based on joint work with Marc Casals (CBPF/UCD).