

Wave equations in subextremal Kerr-de Sitter spacetimes

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In 2013, Vasy proved that solutions to linear wave equations in Kerr-de Sitter spacetimes have asymptotic expansions in quasinormal modes up to an exponentially decaying term, assuming the angular momentum of the black hole satisfies certain bounds. This was the first step towards the proof of non-linear stability for slowly rotating Kerr-de Sitter black holes by Hintz and Vasy in 2018. In this talk, we extend Vasy's result to the full subextremal range of Kerr-de Sitter spacetimes, by removing the extra conditions on the angular momentum of the black hole. The proof is based on a new Fredholm setup and a new analysis of the trapping of photons around a Kerr-de Sitter black hole. This is joint work with Andras Vasy.