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Quasinormal modes for the Kerr black hole

Thursday 6 June 2024 09:00 (1 hour)

The late-time behavior of solutions to the wave equation on Kerr spacetime is governed by inverse polynomial decay. However, at earlier time-scales, numerical simulations are found to be dominated by quasinormal modes. These are exponentially damped oscillatory solutions with complex frequencies characteristic of the system. In this talk, I will present a rigorous characterization of quasinormal modes for the scalar wave equation on Kerr. They are obtained as the poles of a certain meromorphic family of operators. This construction combines the method of complex scaling near asymptotically flat infinity with the microlocal methods of Vasy near the black hole horizon.

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