

Ringdown of rotating black holes in higher-derivative gravity

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We computed the spectrum of linearized gravitational excitations of black holes with substantial angular momentum in the presence of higher-derivative corrections to general relativity. We do so perturbatively to leading order in the higher-derivative couplings and to more than twelve orders in the black hole angular momentum. This allows us to accurately predict quasi-normal mode frequencies of black holes with spins up to about 0.7 of the extremal value. For some higher-derivative corrections, we find that sizeable rotation will enhance the frequency shifts relative to the static case. (Presentation based on 2304.02663 and 2307.07431.)

Primary author: MAENAUT, Simon (KU Leuven)

Presenter: MAENAUT, Simon (KU Leuven)

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