The Regge pole approach to black hole physics

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We advocate for the use, in the context of black hole physics, of complex angular momentum techniques (analytic continuation of partial wave expansions, duality of the S-matrix and effective resummations involving its Regge poles and the associated residues, Regge trajectories, semiclassical interpretations, etc.). We show, in particular, that such techniques are very helpful to analyze absorption and scattering of gravitational waves by black holes and to describe gravitational radiation from perturbed black holes.

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