

Kerr Black Holes with Synchronized Bosonic Hair

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ABSTRACT

Over the last two years it has been found that new classes of asymptotically flat black hole solutions, regular on and outside the event horizon, bifurcating from the vacuum Kerr solution, exist in General Relativity, with simple matter contents that obey all energy conditions, namely Kerr black holes with scalar hair and Proca hair. In this talk I will review the general mechanism that allows these solutions to exist, intimately connected to superradiance, how these solutions circumvent well known no-hair theorems and some of their phenomenology which can be considerably distinct from that of Kerr.