



SYNCHRONIZED BOSONIC HAIR: EQUILIBRIUM SOLUTIONS

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Bosonic fields can spin down rotating black holes (BHs) via superradiance. If massive, they may remain trapped in the vicinity of a BH and endow it with hair co-rotating in synchrony with the event horizon. An illustrative example of this mechanism is the family of BHs with synchronized hair, that can co-exist with Kerr BHs and emerge dynamically from them at some scales. In this talk, I will first explore the features of BHs with vanishingly little (scalar and vector) hair, drawing their similarity to the atomic orbitals of the electron in a hydrogen atom. Then, I will discuss how hairy such BHs can become from the growth and saturation of superradiant instabilities. Finally, I will address the thermodynamic stability of BHs with synchronized hair in the canonical ensemble.