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Vortices in Black Holes

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I will argue that black holes admit vortex structure. This is based both on a graviton-condensate description of a black hole as well as on a correspondence between black holes and generic objects with maximal entropy compatible with unitarity, so-called saturons. Due to vorticity, a Q-ball-type saturon of a calculable renormalisable theory obeys the same extremality bound on the spin as the black hole. Correspondingly, a black hole with extremal spin emerges as a graviton condensate with vorticity. This offers a topological explanation for the stability of extremal black holes against Hawking evaporation. Next, I will comment on possible phenomenological consequences.

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