

# NON-LINEAR STABILITY OF KERR-DE SITTER BLACK HOLES

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I will explain some ideas behind the proof of the stability of the Kerr-de Sitter family of black holes as solutions of the initial value problem for the Einstein vacuum equations with positive cosmological constant, for small angular momenta but without any symmetry assumptions on the initial data. I will explain the general framework which enables us to deal systematically with the diffeomorphism invariance of Einstein's equations, and thus how our solution scheme finds a suitable (wave map type) gauge within a carefully chosen finite-dimensional family of gauges; I will also address the issue of finding the mass and the angular momentum of the final black hole. This talk is based on joint work with Andrs Vasy.