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Singularity formation in Black hole interiors

Starting from classical examples of singularity formation inside black holes, I will recall the strong cosmic censorship conjecture of Penrose regarding question. I will also review some further predictions and known results on the generic behavior of the space-time metric as it terminates at a singularity; these results will be compared with the complementary picture on initial, big-bang type singularities. The main new result we will present is a recent proof of the perturbative stability of the Schwarzschild singularity in vacuum, under polarized perturbations of the initial data. The singularity that then forms is again of space-like character, and the solution displays asymptotically-velocity-term-dominated behavior upon approach to the singularity. Joint with G. Fournodavlos.