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How to modify dust collapse to produce a regular black hole (the cases of Asymptotic Safety and Non Linear Electrodynamics)

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Implementing strong curvature modifications to General Relativity (GR) may lead to the resolution of the spacetime singularity that arises at the end of gravitational collapse.

In the following, we consider the toy model of homogeneous dust collapse and explore the conditions under which such modified scenarios may produce a regular black hole.

Finally we showcase two illustrative examples: one from Asymptotically Safe gravity and one from GR coupled to a theory of non-linear electrodynamics.

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