The relativity and equivalence principles for self-gravitating systems

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Abstract

I criticise the view that the relativity and equivalence principles are consequences of the small-scale structure of the metric in general relativity, by arguing that these principles also apply to systems with non-trivial self-gravitation and hence non-trivial spacetime curvature (such as black holes). I provide an alternative account, incorporating aspects of the criticised view, which allows both principles to apply to systems with self-gravity.

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