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Black hole formation from axion stars

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The classical equations of motion for an axion possess localized, oscillating solutions, which we refer to as "axion stars". We study, for the first time, collapse of axion stars numerically using the full Einstein equations of general relativity. We identify three states: i) long-lived oscillating axion star solutions ii) collapse to a BH and iii) complete dispersal due to gravitational cooling and interactions.

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