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Numerical evolution of two autogravitating scalar fields with spontaneous symmetry breaking

We solve numerically the Einstein equations in spherical symmetry for a system of two coupled real scalar fields that exhibits spontaneous symmetry breaking,
and where one of the fields, initially massless, acquires an effective mass due to the coupling. We study first the evolution of the homogeneous fields, and then we add
Gaussian pulses in one of them. We find the evolution of the density contrast and the regions of the initial condition space in which these pulses collapse into
black holes during the time of the simulation. This system may be of interest for studying the evolution of perturbations in a hybrid inflation-like scenario.

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