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The minimal curvaton-higgs model

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The curvaton is only a spectator field during inflation, but produces the observed curvature perturbation when it decays after inflation. We present a simple "realistic" model for the curvaton mechanism, where the curvaton is a real scalar coupled to the standard model Higgs Boson. This coupling to the higgs results both in interesting stochastic behaviour of the field during inflation, and in thermal blocking of curvaton (p)reheating. Curvaton decay in most cases is through gravitational-strength interactions. The model is particularly interesting because the coupling to the standard model allows the curvaton field dynamics to be determined, and the model can be constrained by current and future data.

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