High Energy Physics - Phenomenology

The curvaton scenario in the MSSM and predictions for non-Gaussianity

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We provide a model in which both the inflaton and the curvaton are obtained from within the minimal supersymmetric Standard Model, with known gauge and Yukawa interactions. Since now both the inflaton and curvaton fields are successfully embedded within the same sector, their decay products thermalize very quickly before the electroweak scale. This results in two important features of the model: firstly, there will be no residual isocurvature perturbations, and secondly, observable non-Gaussianities can be generated with the non-Gaussianity parameter $f_\mathrm{NL}\sim {\cal O}(5-1000)$ being determined solely by the combination of weak-scale physics and the Standard Model Yukawas.

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