U10a   Constraining a curvaton with VEV

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The non-Gaussianity could be an important observable to discriminate between various mechanisms of density perturbation generation, e.g., inflaton or curvaton. Curvaton is a light field and coule be responsible to generate the density perturbation. If the curvaton energy density is subdominant at its decay time, as is well known, the large non-Gaussianity is generated in general. So far, it has been assumed that the mass squared at the origin of field is positive as above. However, there is no reason that the true minimum is located at the origin. Scalar fields have been often introduced for spontaneous symmetry breaking in particle physics models. We study the density perturbation by a curvaton with a double well potential and estimate the nonlinear parameters for non-Gaussianity and the amplitude of gravitational wave background generated during inflation. The predicted nonlinear parameters strongly depend on the size of a curvaton self-coupling constant as well as the reheating temperature after inflation for a given initial amplitude of the curvaton.