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Reinterpretation and Reheating of (SUSY) Starobinsky model

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Summary

Recently, Starobinsky model of inflation attracted more and more attention because of its simplicity and predictions favored by the latest data.

It is important to study the origin of the model's specific action and possible underlying frameworks.

In the first half of this presentation, we reinterpret the expansion of the action and provide a Starobinsky-like model augmented with higher order terms.

The model is based on (spontaneously broken) conformal symmetry, and the "leading term" is the R^2 term rather than the Einstein term.

The magnitude of tuning is reduced.

The phenomenological consequences are briefly discussed.

In the latter half of the presentation, we study reheating processes after Starobinsky inflation in the old-minimal supergravity.

We assume minimal coupling between (super)gravity and matter in the Jordan (R^2) frame, and move to the Einstein frame, where various inflaton decay channels are studied in detail.

We obtain a constraint on the masses of gravitino and SUSY breaking field from overproduction of gravitino and LSP.

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