



Contribution ID: 160

Type: parallel talk

## A supersymmetric two-field relaxion model

*Tuesday 10 May 2016 18:15 (15 minutes)*

We present a supersymmetric (SUSY) version of a two-field relaxion model that naturalizes supersymmetric models with high SUSY-breaking. This arises from a relaxion mechanism that does not depend on QCD dynamics and where the relaxion potential barrier height is controlled by a second axion-like field. During the cosmological evolution, the relaxion rolls with a nonzero value that breaks supersymmetry and scans the soft supersymmetric mass terms. Electroweak symmetry is broken after the soft masses become of order the supersymmetric Higgs mass term and causes the relaxion to stop rolling for superpartner masses up to  $\sim 10^9$  GeV. This can explain the tuning in supersymmetric models, including split-SUSY models, while preserving the QCD axion solution to the strong CP problem.

### Summary

**Presenter:** NAGATA, Natsumi

**Session Classification:** SUSY III