Contribution ID: **39** Type: **Parallel**

Phenomenological consequences of Higgs inflation in the NMSSM at the electroweak scale

Friday 6 July 2018 16:45 (15 minutes)

It has been shown that the Next-to-Minimal Supersymmetric Standard Model (NMSSM) is a valid theory to describe inflation by Higgs bosons. In this model, the inflaton is a linear combination of the Higgs doublets while the Higgs singlet stabilizes the Higgs potential during inflation. The inflaton has a non-minimal coupling to gravity which appears in the low-energy effective Superpotential. Different from the $\mathbb{Z}_3$-invariant NMSSM an additional bilinear μ parameter is introduced which changes the phenomenology at the electroweak scale.

We investigate the impact of this inflation-inspired model on low-energy physics with the focus set on vacuum stability and Higgs phenomenology. We explore the extended parameter space and point out differences compared to the standard $\mathbb{Z}_3$-invariant NMSSM due to the additional μ term. Thereby, we take into account various experimental constraints.

Author: Dr PASSEHR, Sebastian (LPTHE)

Co-authors: Dr HOLLIK, Wolfgang G. (DESY); Dr LIEBLER, Stefan (ITP, KIT); Prof. MOORTGAT-PICK, Gudrid (Universität Hamburg); Prof. WEIGLEIN, Georg Ralf (DESY)

Presenter: Dr PASSEHR, Sebastian (LPTHE)

Session Classification: Higgs Physics

Track Classification: Beyond the Standard Model