



Contribution ID: 129

Type: **Parallel talks**

Woes of the “minimal” non-supersymmetric SO(10) GUT

Monday 17 July 2023 17:40 (20 minutes)

The “minimal” potentially realistic non-supersymmetric SO(10) GUT model has a scalar sector consisting of representations $45 + 126 + 10$. The $45 + 126$ part breaks SO(10) to the Standard Model symmetry, while $126 + 10$ should enable a realistic Yukawa sector. This model is expected to facilitate an unusually robust proton decay prediction, but its analysis is impeded by tachyonic instabilities in the tree-level scalar potential. We shall present the latest developments in the model’s analysis: the one-loop effective potential requires in the perturbative regime a breaking pattern through an intermediate $SU(4) \times SU(2) \times U(1)$ stage, but this region of parameter space does not allow for suitable fine-tuning to accommodate a realistic EW-scale Higgs doublet. The model is thus by all indications perturbatively unviable.

Primary authors: JARKOVSKA, Katerina; Dr MALINSKÝ, Michal (IPNP, Charles University, Prague); Dr SUSIČ, Vasja (Charles University)

Presenter: Dr SUSIČ, Vasja (Charles University)

Session Classification: SUSY and String models

Track Classification: SUSY and String models