

The quantum nature of the "minimal" SO(10) GUT

Tuesday, November 8, 2022 4:15 PM (15 minutes)

In this talk I will present the latest developments on the minimal potentially realistic non-supersymmetric SO(10) GUT model with the scalar sector consisting of $45+126+10$. This model is known to suffer from tachyonic instabilities in the spectrum at tree-level, but quantum corrections to the scalar potential may cure this problem - a route worth investigating, since this particular SO(10) GUT is expected to be inordinately predictive for proton decay. Recently, we completed an analysis of the one-loop corrections to the entire scalar spectrum in the $45+126$ context relevant for GUT symmetry breaking, showing that there indeed exist viable non-tachyonic and perturbative regions in the parameter space. Lastly, I will discuss the ongoing analysis of the full model that includes the 10, and issues related to obtaining a suitable EW-scale Higgs doublet for the Yukawa sector.

Authors: Dr SUSIČ, Vasja (Charles University in Prague); JARKOVSKÁ, Kateřina (Charles University); MALINSKÝ, Michal (Charles University)

Presenter: Dr SUSIČ, Vasja (Charles University in Prague)

Session Classification: Atoms, nuclei, molecules, and spectroscopy

Track Classification: All