

Rescuing bileptons from Landau pole

Thursday, 22 May 2025 11:55 (15 minutes)

It is well known that the Standard Model (SM) is not a complete theory, but rather an effective one, describing particle phenomenology in some energy range. Different ways of extending the SM have been formulated, among these there is the class of the so-called 331 extensions. These depend on a free parameter β . It is well known that 331 models with $\beta = \sqrt{3}$ predict the existence of exotic doubly-charged gauge bosons, the bileptons, currently searched for at LHC. These models exhibit a Landau pole at the TeV scale which makes the model non-perturbative at this energy scale and non-predictive above.

In this study, we analyze and discuss ways to overcome these limitations by shifting the Landau pole at higher energies modifying the matter content of the theory introducing extra families and extra Higgs fields.

Primary authors: PERDONÀ, Giovanna Paola (Sapienza Università di Roma); RICCIARDI, Giulia (Istituto Nazionale di Fisica Nucleare); MORISI, Stefano (Università federico II Napoli)

Presenter: PERDONÀ, Giovanna Paola (Sapienza Università di Roma)

Session Classification: QCD/EW/BSM pheno