Contribution ID: **73** Type: **not specified**

SO(10) at the LHC

Wednesday, 2 October 2019 17:30 (12 minutes)

We study and compare various Z′ models arising from SO(10), focusing in particular on the Abelian subgroup U(1)R×U(1)B-L, broken at the TeV scale to Standard Model hypercharge U(1)Y. The gauge group U(1)R×U(1)B-L, which is equivalent to the U(1)Y×U(1)χ in a different basis, is well motivated from SO(10) breaking and allows neutrino mass via the linear seesaw mechanism. Assuming supersymmetry, we first consider single step gauge unification to predict the gauge couplings, then we consider the detection and characterization prospects of the resulting Z′ at the LHC by studying its possible decay modes into di-leptons as well as into Higgs bosons. The main new result here is to analyse in detail the expected leptonic forward-backward asymmetry at the high luminosity LHC and show that it may be used to discriminate the U(1)R×U(1)B-L model from the usual B-L model based on U(1)Y×U(1)B-L.

Primary authors: MORETTI, Stefano (Science and Technology Facilities Council STFC (GB)); KING, Simon (University of Southampton); Prof. KING, Stephen F (University of Southampton)

Presenter: KING, Simon (University of Southampton)

Session Classification: Parallel