Contribution ID: **39** Type: **Long talk (20 mins)**

Flavonstrahlung in the B3 – L2 Z′ Model at Current and Future Colliders

Friday, 16 December 2022 14:30 (30 minutes)

The $B_3 - L_2$ Z' model may explain some gross features of the fermion mass spectrum as well as $b \to s\ell\ell$ anomalies. A TeV-scale physical scalar field associated with gauged $U(1)_{B_3-L_2}$ spontaneous symmetry breaking, the flavon field ϑ, affects Higgs phenomenology via mixing. In this talk, I will discuss the collider phenomenology of the flavon field. Higgs data are used to place bounds upon parameter space. I then examine "flavonstrahlung" ($Z'^* \to Z'\vartheta$ production) at colliders as a means to directly produce and discover flavon particles, providing direct empirical evidence tying it to $U(1)_{B_3-L_2}$ symmetry breaking. A 100 TeV FCC-hh or a 10 TeV muon collider would have high sensitivity to flavonstrahlung, whereas the HL-LHC can observe it only if the flavon charge is larger than unity.

Type of presentation

20 minute talk

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Beyond the Standard Model

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