

Phenomenology of the minimal B-L extension of the Standard model

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We present the Large Hadron Collider (LHC) discovery potential in the Z' and heavy neutrino sectors of a $U(1)_{B-L}$ enlarged Standard Model also encompassing three heavy Majorana neutrinos. This model exhibits novel signatures at the LHC, the most interesting arising from a Z' decay chain involving heavy neutrinos, eventually decaying into leptons and jets. In particular, this signature allows one to measure the Z' and heavy neutrino masses involved. In addition, over a large region of parameter space, the heavy neutrinos are rather long-lived particles producing distinctive displaced vertices that can be seen in the detectors. Lastly, the simultaneous measurement of both the heavy neutrino mass and decay length enables an estimate of the absolute mass of the parent light neutrino. For completeness, we will also compare the LHC and future LCs discovery potentials.

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