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331 models and bilepton searches at the LHC

Despite being remarkably predictive, the Standard Model leaves unanswered several important issues, which motivate an ongoing search for its extensions. One fashionable possibility are the so-called 331 models, where the electroweak gauge group is extended to $SU_L(3) \times U(1)$. We focus on a minimal extension which includes vector-like quarks (VLQs) and new gauge bosons, performing a consistent analysis of the production at LHC of a pair of doubly-charged bileptons. We include for the first time all the relevant processes where VLQs contribute, and in particular the associate production VLQ-bilepton. Finally, we extract the bound on the bilepton mass, $m_Y > 1300 GeV$, from a reinterpretation of a recent ATLAS search for doubly-charged Higgs bosons in multi-lepton final states

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