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Constraining Electroweak Baryogenesis at Colliders

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We examine the collider phenomenology of two standard model extensions relevant to electroweak baryogenesis. Firstly we study the hypercharge-zero SU(2) triplet scalar extended standard model, a common component of multi-step electroweak phase transition models. Secondly, we examine a model with vector-like lepton doublets and scalar singlets. We show that both of these models are constrained by existing multilepton searches at the LHC. We argue that with the advent of run 3 analyses and the high luminosity LHC these models, and similar electroweak multiplet scalar extensions relevant to electroweak baryogenesis, will be very strongly constrained.

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