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## Probing the chirality of heavy gauge bosons using tau polarization

New heavy gauge bosons appear in many BSM extensions. For a new SU(2) symmetry, the corresponding charged vector boson W' can be either left handed or right handed. Therefore, it is crucial to devise some observables that can distinguish the pure left handed versus pure right handed case provided the heavy W' discovered at the LHC in order to pinpoint the underlying gauge structure of the BSM. Here, we investigate the role of  $\tau$  polarization in determining the chirality of W' boson in the context of left right symmetric model. We analyze the purely leptonic mode of W' where W' decays to a final state  $\tau$  and neutrino. Assuming the existence of right handed heavy neutrino, we further analyze this process on the basis of Majorana neutrino decays. Here, we construct various observables and kinematical distributions to discriminate the chirality of W' boson as well as to understand the underlying gauge structure of BSM physics.

## Field of contribution

Phenomenology

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