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【409】 Heavy Neutral Lepton search in ATLAS LHC's run 2

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We exploit the large W production at LHC run-2 to perform the first ATLAS search for right-handed neutrinos in the mass range 3-30 GeV. We probe unexplored regions of mixing strengths in which right-handed neutrinos can explain neutrino masses and matter-antimatter asymmetry and feature decay lengths of 1-100mm, providing the striking signature of a displaced decay. The prompt lepton from the W decay is used for triggering. To reduce backgrounds to negligible levels, we select displaced vertices outside of regions of dense material which contain two leptons. While the data are not yet uncovered, we present the discovery potential obtained from full simulations, as well as data-driven-estimate of the backgrounds.

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