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Searches for new phenomena in final states involving leptons and jets using the ATLAS detector

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Many beyond the Standard Model signatures predict new particles that decay into final state containing both leptons and jets. In particular, 3rd generation leptons and quarks can significantly increase the sensitivity to new physics. This talk will present new search results for massive particles by the ATLAS experiment using the full Run 2 dataset. A particular focus is given to searches for leptoquarks (LQ) that offer an attractive potential explanation for the lepton flavour anomalies seen at flavour factories and vector like quarks (VLQ) that in turn offer an attractive solution for the hierarchy problem. Improved multivariate methods for identifying heavy quarks will also be highlighted.

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