Contribution ID: **45** Type: **Parallel Talk**

Searches for new physics with leptons using the ATLAS detector

Monday 10 June 2024 18:10 (20 minutes)

Many different theories beyond the Standard Model (SM) predict that new physics will manifest itself by decaying into final states involving leptons. Leptoquarks are predicted by many new physics theories to describe the similarities between the lepton and quark sectors of the SM. Right-handed Ws and heavy-neutrinos are also predicted by many extensions of the SM in the gauge sector, and lepton flavour violation could manifest itself by decays of new gauge bosons into leptons of different flavours. This talk will present the most recent 13 TeV results on the searches for leptoquarks with the ATLAS detector, covering flavour-diagonal and cross-generational final states, as well as the latest searches for lepton-flavour violating Z' and heavy neutrinos arising from left-right symmetric models.

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Session Classification: Alternatives to SUSY / Non-SUSY BSM

Track Classification: Alternatives to SUSY