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Search for dark matter (DM) production in association with a leptonically decaying Z boson with the ATLAS detector

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We present a recent search for dark matter (DM) production in association with a leptonically decaying Z boson. The search is performed with 36.1 fb−1 of 13 TeV proton-proton collision data collected by the ATLAS experiment at the LHC. No significant excess above the SM back- ground is observed. For simplified models with vector or axial-vector mediators, including extensions to lepton couplings, 95% confidence level exclusion limits are placed on the DM and mediator masses (mχ, mmed). For the richer parameter space of 2DHDM with an additional pseudoscalar mediator, exclusion limits are produced for the light pseudoscalar mass (ma), the heavy scalar and pseudoscalar masses (mH, mA), and on the ratio of the vacuum expectation values (tan β).

Author: ANELLI, Christopher Ryan (University of Victoria (CA))

Co-author: GUYOT, Claude (Saclay CEA/IRFU)

Presenter: ANELLI, Christopher Ryan (University of Victoria (CA))

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