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Search for dark matter candidates produced in $Z(\ell\ell) + E_{T\text{miss}}$ events in 13 TeV proton-proton collisions with the ATLAS detector at the Large Hadron Collider (G)

Wednesday 13 June 2018 14:00 (15 minutes)

The ATLAS detector has been in an intense period of data-taking since the start of Run 2 in 2015. With 86 fb⁻¹ collected so far, the prospects for discovering dark matter at the LHC have never been higher. WIMP dark matter may be produced in proton-proton collisions, yielding an excess of collision events with a large amount of invisible missing transverse momentum ($E_{T\text{miss}}$); such a process could cause a significant recoil in the other Standard Model particles produced in the event. A leptonically decaying Z boson is used as the recoiling tag particle in these mono- $Z(\ell\ell)$ signatures. In this talk an overview of the analysis will be presented, including the signal models studied, major backgrounds and their estimation techniques, and the procedure used to set limits on the dark matter particles. Results will be presented, and prospects for this search using the full 2015-2018 Run 2 dataset will be discussed.

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