Contribution ID: **103** Type: **Oral Presentation**

Dark Matter searches with the ATLAS Detector

Monday 2 July 2018 15:15 (15 minutes)

Cosmological and astrophysical observations strongly support the presence of a non-baryonic dark matter component in the universe. A broad search program was designed to look for dark matter particles in the cosmos, either by searching for direct interaction or dark matter annihilation. Alternatively, dark matter particles might be produced in the laboratory. The Large Hadron Collider (LHC) might produce dark matter particles via proton-proton interactions. The LHC offers a unique opportunity to search for low mass dark matter particles and provides complementary information at higher masses. Since dark matter particles will escape detection, these particles will have a signature characterised by missing transverse momentum. An overview of recent searches for dark matter production in association with visible particles with the ATLAS detector at LHC will be presented. The constraints placed by the ATLAS searches will be compared to direct dark matter detection experiments.

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Session Classification: Nuclear and Particle physics