

## **A key variable; Missing Transverse Energy - reconstruction, pile-up and its significance**

*Wednesday 22 May 2019 17:00 (20 minutes)*

Missing transverse momentum (MET) plays an essential role in many searches for Supersymmetry. However, increasing pile-up and other detector miss-measurements mean that separating signal events from those with no real missing transverse momentum can not always be trivial. The recent improvements in the reconstruction of the MET at the ATLAS experiment will be detailed including the use of particle flow reconstruction, and the selection against pile-up of jets used to form the MET. Additionally, a significance based approach using the resolutions of all the objects used to form the MET will be described along with its application in several searches for Supersymmetric particles, including the gain in significance over more traditional approaches.

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**Session Classification:** Machine Learning, Big Data and Quantum Information

**Track Classification:** Supersymmetry: Models, Phenomenology and Experimental Results