

# Journal Club

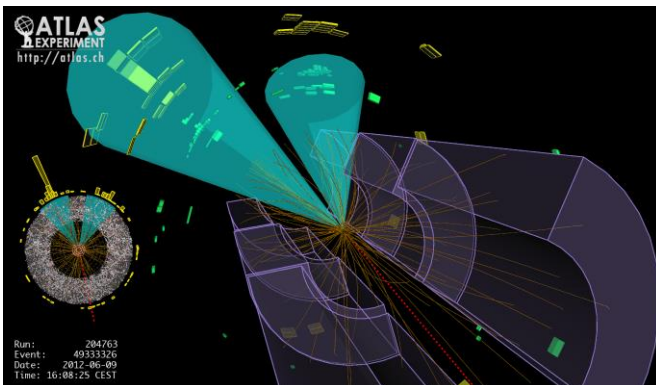
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### *Tracking to the Dark Side at ATLAS: the Present and the Potential*

If dark matter is in the form of Weakly Interacting Massive Particles (WIMPs), it may be pair-produced at collider experiments and escape the detector, leaving a distinct signature of large missing transverse momentum recoiling against one or more visible particles, “X”. In this talk, I will describe a few of the “mono-X” searches for dark matter at the ATLAS experiment during LHC Run I, with a focus on final states with heavy quarks, especially when dark matter is produced with a Higgs boson decaying to a pair of bottom quarks. Reconstruction of event objects like jets, in particular b-jets, missing transverse momentum, and leptons, are critical to these searches, which rely on good tracking performance. I will also talk about the FastTracker (FTK) track trigger upgrade at ATLAS. The integration of FTK into the ATLAS Trigger and Data Acquisition (TDAQ) system is set to bring significant improvements to tracking, vertex-finding, b-tagging etc. in a high energy, high density environment. This opens up exciting new prospects for searches for dark matter, among many important searches and measurements, at LHC Run II and beyond.



**Friday**

**Nov. 6, 2015**

**4:00pm**

**301 Physical Sciences Bldg.**