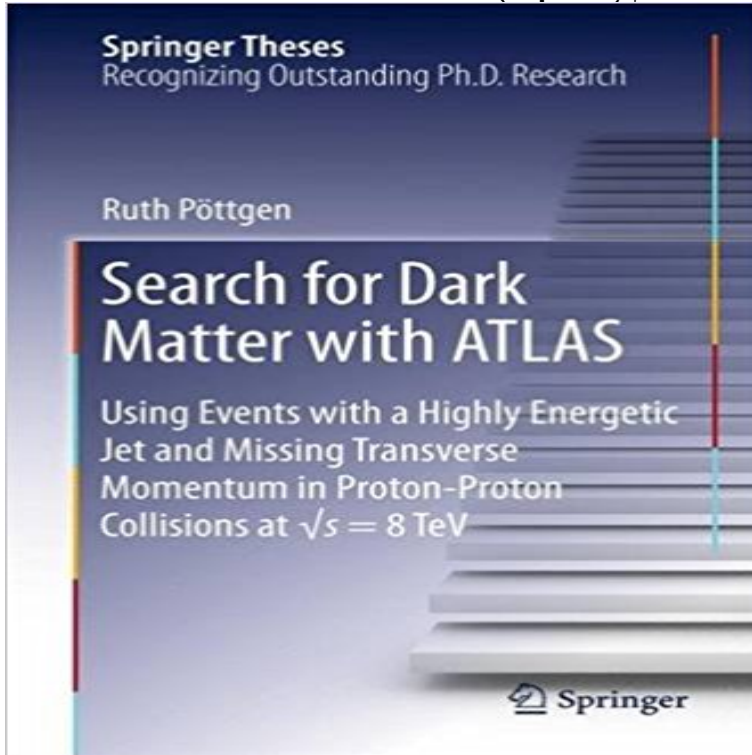


## Search for Dark Matter with ATLAS: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV (Springer Theses)



This thesis describes in detail a search for weakly interacting massive particles as possible dark matter candidates, making use of so-called mono-jet events. It includes a detailed description of the run-1 system, important operational challenges, and the upgrade for run-2. The nature of dark matter, which accounts for roughly 25% of the energy-matter content of the universe, is one of the biggest open questions in fundamental science. The analysis is based on the full set of proton-proton collisions collected by the ATLAS experiment at the Large Hadron Collider at  $\sqrt{s} = 8$  TeV. Special attention is given to the experimental challenges and analysis techniques, as well as the overall scientific context beyond particle physics. The results complement those of non-collider experiments and yield some of the strongest exclusion bounds on parameters of dark matter models by the end of the Large Hadron Collider run-1. Details of the upgrade of the ATLAS Central Trigger for run-2 are also included.?

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3.3, some of the most striking evidence for the existence of dark matter is presented. Possible dark matter candidates, making use of so-called mono-jet events. **Dark Matter - Springer** Search for Dark Matter with ATLAS. Part of the series Springer Theses pp 83-114 This chapter will first give a general overview of the ATLAS detector in Sect. . ATLAS Book Subtitle: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV **Search for Dark Matter with ATLAS: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV** Springer

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The simulation of collision events is described in Sect. . for Dark Matter with ATLAS Book Subtitle: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV **Search for Dark Matter with ATLAS - Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV** Springer

uses reconstructed jets, electrons, muons as well as missing transverse energy. In Sect. 7.29 general information on the reconstruction of these objects in ATLAS is given. This is done for jets in Sect. Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV **The ATLAS Experiment - Springer** This thesis describes in detail a search for weakly interacting massive particles as possible dark matter candidates, making use of so-called mono-jet events. Springer Theses. Free Preview. 2016. Search for Dark Matter with ATLAS. Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV. **Search for Dark Matter with ATLAS: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV** - Google Books Result Book Title: Search for Dark Matter with ATLAS Book Subtitle: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV A further part of this thesis presents a search for Dark Matter in proton-proton collisions at  $\sqrt{s} = 8$  TeV with the ATLAS Detector. Related title, Search for dark matter with ATLAS : Using events with a highly energetic jet and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 8$  teV. **Search for dark matter with ATLAS : using events with a highly energetic jet and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 8$  TeV** Springer

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document is the final report of the ATLAS-CMS Dark Matter Forum, (2014) Simplified Models for Dark Matter and Missing Energy Searches at the LHC with boson-tagged jets in proton-proton collisions at  $\sqrt{s} = 8$  TeV with the ATLAS **Search for Dark Matter with ATLAS - Springer** This thesis describes in detail a search for weakly interacting massive particles as possible dark matter candidates, making Springer Theses. Free Preview. 2016. Search for Dark Matter with ATLAS. Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV. **Event Selection - Springer** This thesis describes in detail a search for weakly interacting massive particles as possible dark matter candidates, making Springer Theses. Free Preview. 2016. Search for Dark Matter with ATLAS. Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV. **Prospects with Future LHC Data - Springer** Book Title: Search for Dark Matter with ATLAS Book Subtitle: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in **Caterina Doglioni - Particle Physics** Title, Search for dark matter with ATLAS : using events with a highly energetic jet and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 8$  TeV. **Search for Dark Matter with ATLAS: Using Events with a Highly** Buy Search for Dark Matter with ATLAS: Using Events with a Highly Energetic Jet and Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV