



Contribution ID: 1159  
compétition)

Type: Oral (Student, In Competition) / Orale (Étudiant(e), inscrit à la

## Search for supersymmetry in final state with jets and two same-sign leptons or three leptons with the ATLAS detector.

*Monday 13 June 2016 14:00 (15 minutes)*

Supersymmetry (SUSY) is one of the most popular and the most studied theory proposed as an extension to the Standard Model (SM). If R-parity is conserved the lightest supersymmetric particle (LSP) is stable and in many models LSP can be a good candidate for dark matter. I will present the method and the results about the search of strongly produced supersymmetric particles using a specific signature involving final states with multiple hadronic jets and either two isolated leptons ( $e$  ou  $\mu$ ) with the same electric charge or at least three isolated leptons. This signature is present in many SUSY scenarios and Standard Model processes leading to such final states have a very small cross-section. The analysis uses a data sample of proton-proton collisions at  $\sqrt{s} = 13$  recorded with the ATLAS detector at the Large Hadron Collider (LHC) in 2015 corresponding to a total integrated luminosity of  $3.2 \text{ fb}^{-1}$ . During the talk, I will cover different aspects of the analysis such as the detector, the dataset and simulated event samples, the event selection, the background estimation (and validation) and finally the results, interpreted in several simplified SUSY models.

**Author:** TREPANIER, Hubert (Universite de Montreal (CA))

**Presenter:** TREPANIER, Hubert (Universite de Montreal (CA))

**Session Classification:** M2-5 Energy Frontier: SUSY and Exotics (PPD) / Frontière d'énergie: supersymétrie et particules exotiques (PPD)

**Track Classification:** Particle Physics / Physique des particules (PPD)