



**UNIVERSITÉ  
DE GENÈVE**

**FACULTÉ DES SCIENCES**  
Département de physique  
nucléaire et corpusculaire

## **COLLOQUE DE PHYSIQUE CORPUSCULAIRE**

**en vue de la nomination par appel d'un/e Professeur/e Assistant/e**

**SUJET:** Seeking supersymmetry with jets at ATLAS

**PAR:** Dr Anna SFYRLA

**DATE:** Jeudi 4 décembre, 2014, 16h00

**LIEU:** Grand Auditoire A, Ecole de physique  
24, Quai Ernest-Ansermet

### **RÉSUMÉ:**

With the discovery of the Higgs boson, all particles that the Standard Model predicts have been experimentally confirmed. Despite its great success, the Standard Model leaves unanswered several questions: why is the Higgs boson a light particle, are the forces unified at very high energies and what is the dark matter that astrophysical and cosmological observations hypothesise. Several extensions to the Standard Model are proposing solutions to these open questions, with supersymmetry being one of the best motivated and studied. Supersymmetric particles have been extensively searched for at collider experiments, evading discovery so far. They decay dominantly to quarks, creating collimated sprays of particles that are reconstructed in the detector as hadronic jets. Final states with many jets have been thoroughly exploited in the ATLAS experiment at the LHC. A roadmap of how this final state provides a unique discovery potential in the searches for supersymmetry is outlined and prospects for the higher energy and luminosity LHC runs are given.