



Contribution ID: 495

Type: **Invited Speaker / Conférencier invité**

The MoEDAL Experiment at the LHC - a New Light on the High Energy Frontier

Tuesday, 16 June 2015 14:30 (30 minutes)

In 2010 the Canadian led MoEDAL experiment at the Large Hadron Collider (LHC) was unanimously approved by CERN's Research Board to start data taking in 2015. MoEDAL is a pioneering experiment designed to search for highly ionizing avatars of new physics such as magnetic monopoles or massive (pseudo-)stable charged particles. Its groundbreaking physics program defines over 30 scenarios that yield potentially revolutionary insights into such foundational questions as: are there extra dimensions or new symmetries; what is the mechanism for the generation of mass; does magnetic charge exist; what is the nature of dark matter; and, how did the big-bang develop. MoEDAL's purpose is to meet such far-reaching challenges at the frontier of the field.

The innovative MoEDAL detector employs unconventional methodologies tuned to the prospect of discovery physics. The largely passive MoEDAL detector, deployed at Point 8 on the LHC ring, has a dual nature. First, it acts like a giant camera, comprised of nuclear track detectors - analyzed offline by ultra fast scanning microscopes - sensitive only to new physics. Second, it is uniquely able to trap the particle messengers of physics beyond the Standard Model for further study. MoEDAL's radiation environment is monitored by a state-of-the-art real-time TimePix pixel detector array. I shall also briefly discuss a new proposal to include a new active MoEDAL sub-detector to search for millicharged particles.

Primary author: PINFOLD, James (University of Alberta (CA))

Presenter: PINFOLD, James (University of Alberta (CA))

Session Classification: T2-7 Energy Frontier: Susy & Exotics II (PPD) / Frontière d'énergie: supersymétrie et particules exotiques II (PPD)

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