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MoEDAL - Expanding the LHC's Discovery Frontier

MoEDAL (Monopole and Exotics Detector at the LHC) is the 7th experiment, specifically dedicated to investigating beyond the Standard Model scenarios by searching for highly ionizing particles, such as magnetic monopoles or massive pseudo-stable charged particles and multiply electrically charged particles as messengers of new physics. Sharing the same interaction point as the LHCb experiment, MoEDAL is complementary to the larger ATLAS and CMS experiments, thereby expanding the discovery reach of the LHC. This largely passive detector is comprised of the following subdetectors: A large array of NTD (Nuclear Track Detector) stacks, a magnetic trapping detector (designed to trap both electrically and magnetically charged highly ionizing particles), and a TimePix chip array that monitors particle backgrounds. MAPP (MoEDAL Apparatus for Penetrating Particles), a new MoEDAL subdetector, is currently being prototyped. The aim of MAPP is to enable MoEDAL to search for fractionally charged particles as well as long-lived neutrals. The goal of this poster is to summarize the growing physics programmes of MoEDAL and MAPP, introduce the detection methods used, and present MoEDAL's latest results.

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