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The MoEDAL detector - a totally different LHC detector

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MoEDAL- the newest LHC experiment –that began operating in June 2015 –is designed to search for highly ionizing avatars of new physics and extend the discovery horizon of the LHC in a complementary way. In this talk I will describe MoEDAL's innovative and unconventional detector 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 very large array of nuclear track detectors - analyzed offline by novel ultra fast scanning microscopes - sensitive only to new physics. Second, a one tonne trapping detectors is uniquely able to directly detect magnetic charge and to capture 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. Finally I will describe a proposed new MoEDAL sub-detector designed to extend MoEDAL's reach from highly charge to millicharged particles (MMIPs).

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