

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

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In 2010 the CERN (European Centre for Particle Physics Research) Research Board unanimously approved MoEDAL, the 7th international experiment at the Large Hadron Collider (LHC), which is designed to search for avatars of new physics signified by highly ionizing particles such as the magnetic monopole. The MoEDAL detector is like a giant camera ready to reveal "photographic" evidence for new physics and also to actually trap long-lived new particles for further study. The MoEDAL experiment will significantly expand the horizon for discovery at the LHC, in a complementary way. A MoEDAL discovery would have revolutionary implications for our understanding of the microcosm, providing insights into such fundamental questions as: do magnetic monopoles exist, are there extra dimensions or new symmetries of nature; what is the mechanism for the generation of mass; what is the nature of dark matter and how did the big-bang unfurl at the earliest times.