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Searching for New Physics with MoEDAL's MAPP-1 and MAPP-2 Detectors

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The MoEDAL-MAPP experiment is currently installing the MAPP-1 (MoEDAL Apparatus for Penetrating Particles, Phase-1) in the UA83 tunnel on the LHC ring to search for evidence of Weakly Ionizing Particles (WIPs) , such as millicharged particles. MAPP-2 will be deployed in during the LHC's next long shutdown to take data along with MoEDAL and MAPP-1 at the High Luminosity LHC. MAPP-2 is designed to search for very Long-Lived neutral Particles (LLPs) that decay to charged and photonic states from, for example, dark sector, heavy neutrino, mirror-world and supersymmetric scenarios. We will briefly describe the MAPP-1 and MAPP-2 detectors and illustrate their sensitivity by considering several new physics benchmark scenarios.

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