

Joint seminar of the NPI of the CAS

Dr. Benedikt Bergmann, IEAP CTU in Prague:

The MoEDAL-MAPP experiment – Recent results and upgrade plans

Universal MoEDAL (Monopoles and Exotics Detector at LHCb) is a particle physics experiment placed in the LHCb-VELO cavern at point 8 with the aim of searching for physics beyond standard model through direct detection of Monopoles and exotic highly ionizing, stable and pseudo-stable, particle signatures. Therefore, MoEDAL uses a cost efficient, unique detection concept relying mostly on passive detectors, Nuclear Track Detectors (NTDs) and trapping detectors. While MoEDAL has been setting competitive exclusion limits for Monopoles and stable massive particle, the experiment is currently being upgraded with an Apparatus for Penetrating Particle (MAPP) adding sensitivity to Feebly Interacting Particles (FIPs) as well as long-lived particles. The IEAP contribution to MoEDAL/MoEDAL-MAPP is the development, installation, and data analysis of Timepix & Timepix3 detector networks. Up to date, these have been the only active detection elements and provide precise particle tracking, radiation field decomposition, and luminosity determination capability.

Within the seminar, B. Bergmann will cover the MoEDAL instrument design, results of physics searches, the status of the upgrade to MoEDAL-MAPP and discuss the latest achievements of the Timepix3 sub-detector network.

The seminar will take place on Thursday, September 7, 2023 at 10:00 a.m. in the NPI conference room.