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[366] Development of a high-brightness ultra-cold muon beam for future precision experiments with muons and muonium

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The Paul Scherrer Institute (PSI) provides the world's highest intensity DC muon beam of $\mathcal{O}(10^8) \mu^+ / s$ at 28 MeV/c. The muCool collaboration is developing a device which converts such a beam of cm-size and MeV-energy into a low-energy beam of sub-mm size and 1 eV energy spread by achieving a compression of the 6-dimensional phase space by 10 orders of magnitude with a prospected efficiency of 10^{-3} . In this talk, the working principle of the muCool device and the results from the 2019 beam time are presented. Supported by SNF project 200020_172639.

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