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Towards realising PRISM based muon to electron conversion experiment

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To maximise discovery potentials of next generation lepton flavour violation experiments high intensity and high quality muon beams are required. Such beams can be produced by sending a short, high intensity proton pulse to the pion production target, capturing pions and collecting the resulting muons in the large acceptance transport system. By applying the RF phase rotation on the muon beam in the dedicated FFAG ring, proposed for the PRISM project, the beam quality can be substantially increased in terms of the momentum spread and purity. The parameters of the required proton beam, the principles of the PRISM experiment and the ring FFAG design are discussed. The spectrum of alternative designs for the experiment are shown. Progress on accelerator systems like beam transport, injection and RF are discussed. The current status of the study and its future directions are presented.

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