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A muon entrance detector for the muEDM experiment at PSI

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The muEDM experiment at PSI aims to search for the muon electric dipole moment with unprecedented sensitivity. The muon is first injected into a solenoid storage ring, and then a pulsed magnetic field is used to kick the muon onto a stable orbit. To this end, a fast signal is required to trigger the magnetic field, and this is provided by a muon entrance detector consisting of an ultra-thin entrance plastic scintillator and four wall scintillators. A robust trigger can be made by constructing an anti-coincidence between the wall scintillators and the entrance scintillator. This poster presents the design and simulation study of the muon entrance detector. The expected detector performance and the effect on the phase space of the injected muon beam will also be discussed.

Primary author: Prof. KHAW, Kim Siang (Tsung-Dao Lee Institute, Shanghai Jiao Tong University)

Co-authors: Dr CHEN, Cheng (Tsung-Dao Lee Institute, Shanghai Jiao Tong University); Mr NG, Jun Kai (Tsung-Dao Lee Institute, Shanghai Jiao Tong University); HU, Tianqi (Tsung-Dao Lee Institute, Shanghai JiaoTong University); Mr ZENG, Yonghao (Tsung-Dao Lee Institute, Shanghai Jiao Tong University)

Presenters: Mr NG, Jun Kai (Tsung-Dao Lee Institute, Shanghai Jiao Tong University); HU, Tianqi (Tsung-Dao Lee Institute, Shanghai JiaoTong University)

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