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Muon Beam Monitoring Using Luminophore Foils at PSI

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The Paul Scherrer Institut will host two next generation charged lepton flavor violation experiments, MEG-II and Mu3e, utilizing the world's highest intensity continuous muon beams at more than $10^{8-9} \mu^+/\text{s}$. Critical to these experiments is online monitoring of the muon beam rate and profile throughout data-taking. A novel technique using a $5 \mu\text{m}$ luminophore layer of CsI(Tl) deposited on PET/MYLAR foils and directly imaged using a CCD is presented. Results from recent test beams at the PiE5 beamline using $28 \text{ MeV}/c$ muons are also presented, showing luminophore foils provide a fast measurement of beam quality with negligible impact.

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