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Transverse Beam Shape Measurements of Intense Proton Beams using Optical Transition Radiation

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A number of particle physics experiments are being proposed as part of the Department of Energy HEP Intensity Frontier. Many of these experiments will utilize megawatt level proton beams onto targets to form secondary beams such as muons, kaons and neutrinos. These experiments require transverse size measurements of the incident proton beam onto target for each beam spill. Because of the high power levels most beam intercepting profiling techniques will not work at full beam intensity. The possibility of utilizing optical transition radiation (OTR) from the final beamline vacuum window for beam profiling is shown. Also presented are measurements of OTR beam profiling measurements for the FNAL NuMI beamline.

Primary author: Dr SCARPINE, Victor (FNAL)

Presenter: Dr SCARPINE, Victor (FNAL)

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