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Radiation Hard Scintillator RD for LHC and Future Experiments
EMRAH TIRAS, JAMES WETZEL , BURAK BILKI , YASAR ONEL , University of Iowa, DAVID WINN , Fairfield University — Radiation resistant, high light-yield, fast and cost effective scintillators and detectors are in more need than ever at modern high-energy physics experiments. We have studied several plastic and quartz based scintillators in this regard. Radiation-hard quartz based coated scintillators are tested with MIP and shower particles at Fermilab Test Beam Facility. Plastic scintillators such as PEN, PET, SiX and Eljen samples are exposed to 137Cs gamma source up to 14 MRad and their recovery from radiation damage is studied over time. Here, we discuss test beam and laboratory measurements of scintillating materials and recent developments.

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