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Study of damages induced on ATLAS silicon by fast extracted and intense proton beam irradiation

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The ATLAS silicon tracker detectors are designed to sustain high dose integrated over several years of operation. This very substantial radiation hardness should also favour the survival of the detector in case of accidental beam losses. In the past, measurements have been done for the pixel detector, confirming that it could survive to beam losses with minimal or no deterioration of performance. The upgrade of LHC to even higher luminosity (HL-LHC) calls for a new tests of these properties. In this presentation preliminary results will be shown, reporting the effect of a very intensive proton beam releasing a high instantaneous dose in two IBL pixel and one strip module detectors at High-Radiation to Materials (HiRadMat) Facility of CERN Super Proton Synchrotron.

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