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A scintillating-fiber-based beam loss monitor

A new beam loss monitor, based on scintillating fibers and Silicon PhotoMultipliers, was recently developed by Microsensor Srl in collaboration with INFN Laboratori Nazionali del Sud. Such a device, named micro-BLM, is capable of detecting ionizing radiation by means of scintillation light produced into a thin plastic scintillating fiber, which is then detected by a couple of SiPM placed at the two fiber ends. The device features an intrinsic efficiency close to 1 for charged particles, whereas it has a roughly 0.001 intrinsic efficiency for gamma rays. The geometrical efficiency can be tuned by suitably choosing the fiber length. The micro-BLM can be used in air and in vacuum, and its shape can be decided rather freely, due to its linear fiber constituent. Preliminary results obtained in a test performed at CERN CTF3 will be shown.

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