



Contribution ID: 15

Type: ORAL

## Large pixel SiPMs for single photon detection in the new LHCb large area scintillating fibre tracker

*Friday, 14 December 2018 09:25 (25 minutes)*

During the long shutdown of LHC (2019/2020), the complete LHCb tracking system will be replaced to cope with the increased luminosity and trigger less read-out scheme. A large area ( $300\text{m}^2$ ) scintillating fibre tracker (SciFi) with more than 500K channels and  $250\mu\text{m}$  readout pitch is under construction. The silicon photomultiplier technology employed for the read-out provides high photon detection efficiency, low correlated noise (optical cross-talk and after-pulse), short recovery time and withstands the foreseen neutron fluence. The Hamamatsu photo-detectors selected have been characterised before and after irradiation with neutrons and protons. We will focus on the study of the performance of these devices in the context of the LHCb SciFi application regarding the single photon detection capability after irradiation. New developed characterisation methods will also be presented.

**Primary author:** GIRARD, Olivier Goran (EPFL - Ecole Polytechnique Federale Lausanne (CH))

**Co-authors:** STRAMAGLIA, Maria Elena (EPFL - Ecole Polytechnique Federale Lausanne (CH)); HAEFELI, Guido (EPFL - Ecole Polytechnique Federale Lausanne (CH))

**Presenter:** GIRARD, Olivier Goran (EPFL - Ecole Polytechnique Federale Lausanne (CH))

**Session Classification:** Pixel non-Si

**Track Classification:** Silicon strip and pad detectors