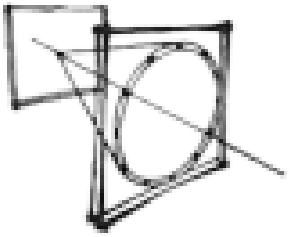

Contribution ID: **79** Type: **Poster**

The laser calibration system of the BelleII TOP detector

Monday 5 September 2016 15:15 (15 minutes)

The TOP detector of the Belle II Experiment at KEK is a particle identification detector, devoted mainly to the separation of charged pions and kaons.
Principle of operation of the TOP is the total internal reflection of Cherenkov photons emitted by charged particles while crossing a quartz radiator. The Cherenkov photons are then detected by an array of micro-cannel plate photomultipliers, The position and time of arrival of the photoelectrons, are used to reconstruct simultaneously both the Cherenkov angle and the time of flight from the interaction vertex to the detector.
In order to achieve a time resolution of less than 100 ps , necessary to separate kaons from pions, the performance of electronics and PMTs must be continuously monitored by a high resolution laser calibration system.
This talk reports about the design, characterization, construction and installation of this light distribution system consisting of a picosecond laser source, a printed light circuit (PLC), long single mode fibers coupled to bundles of multimode fibers terminated with graded index microlenses, to provide illumination of all the PMT pixels with very small time jitter (less than 50 ps).

Registered

Yes

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Session Classification: Poster Session A

Track Classification: Technological aspects and applications of Cherenkov detectors