38th INTERNATIONAL CONFERENCE
ON HIGH ENERGY PHYSICS
AUGUST 3 - 10, 2016
CHICAGO

Contribution ID: **720** Type: **Oral Presentation**

The Belle II iTOP Detector (12' + 3')

Saturday, 6 August 2016 14:30 (15 minutes)

The Belle II experiment is now being constructed at the KEK laboratory in Japan and represents a substantial upgrade to both the Belle detector and the KEKB accelerator. Belle II will record 50 ab−1 of data, a factor of 40 more than that recorded by the previous generation of B-factory experiments. To provide particle identification in the barrel region, an "imaging-Time-of- Propagation"(iTOP) detector has been constructed. This detector uses Cerenkov light radiated in quartz bars that is totally internally reflected to the end of the bars and subsequently imaged onto an array of finely segmented phototubes that have precise timing. Both position and timing information is used to determine the Cerenkov angle and identify particle species. This talk describes the optical and mechanical design of the detector, its construction and readout, and its expected performance and first test results. We anticipate achieving greater than 4σ separation between pions and kaons over most of the momentum range of interest for B and D meson decays in Belle II.

Primary author: SCHWARTZ, Alan (University of Cincinnati)

Presenter: SCHWARTZ, Alan (University of Cincinnati)

Session Classification: Detector: R&D and Performance

Track Classification: Detector: R&D and Performance