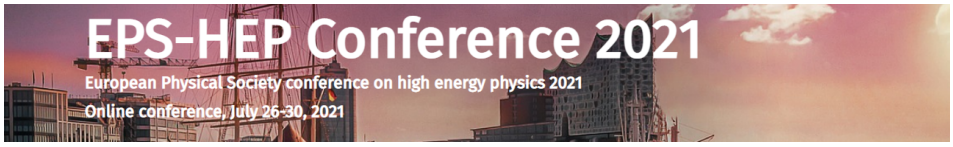


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# The operation and performance of the TOP detector at the Belle II experiment

*Monday, 26 July 2021 16:00 (15 minutes)*

The SuperKEKB/Belle II experiment, the successor of the former KEKB/Belle experiment at KEK, has started its physics data taking with the full detector system since March 2019. The Time-of-Propagation (TOP) detector was designed and integrated into the Belle II detector for particle identification in the barrel region. The TOP detector consists of quartz radiators and photodetectors, Micro-Channel-Plate (MCP) PMT, and reconstructs a ring image of Cherenkov photons generated by an incident particle. It measures the timing of each detected photon with an accuracy of less than 100 ps for good $K/\pi$ separation.

In the operation of the TOP detector, harsh beam-induced background in the high luminosity environment is one of the critical issues to achieve high performance. We have developed various tools to visualize MCP-PMT performance and to identify and fix errors arising from front-end electronics during data taking. The TOP detector provides 85% $K$ efficiency at a 10% $\pi$ misidentification rate in the data at the early stage of the experiment. In this talk, we will report the operation status and the performance by the summer of 2021.

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## Collaboration / Activity

Belle II Collaboration

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