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The Construction and Commissioning of the Belle II iTOP Counter

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The barrel-region particle identification detector is crucial for extending the physics reach of the Belle II experiment operating at the SuperKEKB accelerator. For this purpose, an imaging-Time-of-Propagation (iTOP) counter was developed, which is a new type of ring-imaging Cherenkov detector. The iTOP consists of 16 separate modules arranged azimuthally around the beam line. Each module consists of optical components fabricated from quartz (one mirror, one prism, and two bars), an array of micro-channel-plate photo-multiplier tubes (MCP-PMTs), and front-end electronics. The waveforms read out are processed by firmware, and the resulting pulse-heights and hit times are sent to the Belle II data acquisition system. The detector construction was completed and the detector installed by the summer of 2016, and since then the detector has undergone commissioning. This talk describes the construction and commissioning of the Belle II iTOP counter.

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