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The "DIRC-like FTOF": a time-of-flight Cherenkov detector for particle identification at SuperB

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The DIRC-like FTOF detector is a ring imaging Cherenkov counter which uses time-of-flight to identify charged particles (PID). It has been developed to improve PID on the SuperB forward side, a region which is not covered by the main barrel PID detector, the FDIRC. The FTOF prototype was constructed and installed in the SLAC Cosmic Ray Telescope for timing measurements in Fall 2010. A time resolution of about 70˜ps/channel was obtained, in agreement with a dedicated simulation of the whole system (detector + MCP-PMT and electronics) which was developed to estimate the different contributions to the single channel time resolution. The new 10˜ps 16-channel USB wavecatcher electronics developed by LAL (CNRS/IN2P3) and CEA/IRFU are successfully used in this test experiment at SLAC.

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