

## Using the Timepix Detector at CERN Accelerator Facilities

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**Abstract :** The UA9 collaboration in the last two years has installed two different types of detectors to investigate the channeling effect in the bent silicon crystals with high-energy particles beam on the CERN accelerator facilities: Cherenkov detector CpFM and silicon pixel detector Timepix. In the current work, we describe the main performances of the Timepix detector operation at the SPS and H8 extracted beamline at CERN. We are presenting some detector calibration results and tuning. Our research topics also cover a cluster analysis algorithm for the particle hits reconstruction. We describe the optimal acquisition setup for the Timepix device and the edges of its functionality for the high energy and flux beam monitoring. The measurements of the crystal parameters are very important for the future bent crystal applications and needs a track reconstruction apparatus. Thus, it was decided to construct a short range (1.2 m long) particle telescope based on the Timepix sensors and test it at H8 SPS extraction beamline. The obtained results will be shown as well.

**Keywords :** beam monitoring, channeling, particle tracking, Timepix detector

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