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Application of WaveCatcher/SAMPIC digitizers for the readout of a plastic scintillator based ToF detector

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Plastic scintillator detectors have been extensively used in particle physics experiments for decades.
In large-scale experiments, they are typically arranged as an array of staggered long bars covering a large surface and provide a fast trigger signal or particle identification.
This technology is proposed for the timing detector of the SHiP experiment at CERN SPS. Results of test-beams are presented.
In this study the scintillating light was read out at both ends of
a long scintillator bar by photosensors (either photomultiplier tubes or array of large-area SiPMs) whose pulse shapes were recorded by waveform digitizers.
Results obtained with the WaveCatcher and SAMPIC digitizers are analyzed and compared. A discussion of the various factors affecting the timing resolution the bar is presented.

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