XVI Workshop on Resistive Plate Chambers and Related Detectors



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Development of the TOF-RPC for the pi20 beamline at J-PARC

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In the hadron hall of J-PARC, the construction of a high-momentum secondary beamline, the $\pi 20$ beamline, is planned. By using the secondary beam up to 20 GeV/c, a variety of hadron experiments, such as charmed and Ξ baryon spectroscopy, high isospin dibaryon search, cross section measurement of hyperon scattering and study of the generalized parton distribution function will be carried out. A multi-purpose spectrometer for those experiments is now under construction. In the spectrometer, TOF-RPCs will be used for low momentum particle identification. The required time resolution is 60 ps with 1.6 m-long readout strip. We have developed a prototype TOF-RPC with an area of 1.8 m \times 0.23 m. We have also developed a pre-amplifier customized for our RPC. We will report the performance of the prototype RPC.

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