

New veto detector for the pion beam at FOPI.

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The aim of the current experiment is to study the $K^+ K^-$ system in medium properties by using the $\pi^- (1.7 \text{ GeV}/c) + A \rightarrow K^+ K^- + X$ reaction. The experiment with a pion beam poses specific requirements to the detectors and therefore the original FOPI setup needed modifications. The new hardware developments for this experiment include a new design of the veto detector. The main function of the veto detector is to exclude the off-axis particles. When charged particles penetrated off beam-axis it gives a veto to the data acquisition. The veto detector is located close to the target, where a strong magnetic field is produced by the solenoid (0.6 Tesla) [1]. The detector consists of 4 scintillators and forms together a disk-like structure with an external diameter of ~ 8 cm. Internally it confines the cross-section of the fiducial target volume to a circle with a diameter of 3 cm. For the readout the MPPC (S10931-100P) [2] were used. Advantages like the magnetic field insensitivity and the high gain in addition to the lower bias voltage make the MPPC an excellent choice to replace PMT. Within this report we describe the design and the pion beam test of the prototype veto detector system.

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