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Some advances of thinner-THGEM

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Thinner-THGEM, which has 0.2mm thickness, 0.1mm-0.15mm hole diameter, 0.3mm pitch and 5-20um rim has been manufactured successfully. Two methods have been investigated for the manufacture: drilling and laser. The performance has been studied and it shows that 1.0×10^4 gain for one layer and 16% energy resolution for ^{55}Fe source can be achieved. The spatial resolution of thinner-THGEM with 0.3 mm pitch strip-anode has been measured with centroid and center of gravity method, respectively. The influence of anode strip pitch on the extremity of hole-pitch has been researched in detail. A resistive-WELL type thinner-THGEM has been tested at Beijing Electron Positron Collider (BEPC) test beam with 0.1-1GeV proton and pion beam. About 99% and 94% efficiency for proton and pion, has been obtained respectively. The ion feedback effect is studied for a TPC prototype requirement. In respect of application, for one dimensional readout, a curved parallax free with large open angle of 48° , diffraction meter has being tested for TiO_2 and SnO_2 with good angular resolution of 0.14° , and a linear diffraction meter with 512 channel digital readout for outside mineral sample test is in using. For two dimensional readout a $20 \times 20 \text{ cm}^2$ and smaller one with 128 channels strip and a pixel readout have been used for α/β pollution and dosage measurement.

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