

# New R&Ds and applications of THGEM

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Thick GEM (THGEM) is one of the promising micro-pattern gaseous detectors (MPGDs), its attractive advantages are high gain, robust and low cost. THGEM is suitable for Digital Hadron Calorimeter(DHICAL), TPC tracker readout, muon, neutron and single photon detection, and so on. In recent years, we developed some new types of THGEMs, such as new FR4 THGEM, ceramic THGEM, Multi-layer THGEM (M-THGEM), Well THGEM (W-THGEM). The performances of these THGEMs were tested and optimized to meet the requirements of applications, including gain, gain stability and uniformity, sparking rate, low out-gassing, low radioactivity. The big-area THGEM and mass production are pushing forward. The THGEMs have been applying to X-ray imaging, thermal neutron detection, electron beam detection and optical readout. The latest results will be presented.

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