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## **New substrate, high spacial resolution and big area THGEMs development and applications**

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The THGEMs development and application activities at IHEP, Beijing, China in recent years will be summarized and reported. We have made great progresses in new substrate, high spacial resolution and big area THGEMs. A serials of new types of substrates, Ceramic, PTFE, Kapton and FR-4 were developed for low neutron scattering and low radioactivity applications. By using laser technology, the intrinsic spacial resolution of THGEM was improved to 87 $\mu$ m (300 $\mu$ m pitch). And this technology has the capability to make 1.00.5m<sup>2</sup> THGEM with very high production efficiency. *The THGEMs with high spacial resolution can be a candidate for tracking detectors. By mechanical drilling technology, the THGEMs with big area of 1.00.5m<sup>2</sup> had been produced. The big area THGEMs were proposed to apply for the digital hadron calorimeter (DHCAL). The simulation and performance test results will be presented.*

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