

探测器与实验方法

Experimental study on the performance of a single-THGEM gas detector

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**摘要** A kind of thick GEM-like gaseous electron multiplier (THGEM), which is mechanically an expansion of the GEM with its various dimensions being enlarged, is studied. The leak current of THGEM plates is measured. The effective gain and energy resolution of a single THGEM are studied with a source of <sup>55</sup>Fe, and the effective gain of the single THGEM versus the electric field strength in the induction region is investigated. The results show that the leak current of THGEM plates is less than 200 pA. In an atmospheric-pressure standard gas mixture,  $8 \times 10^3$  effective gain and about 32% energy resolution can be reached for the single-THGEM detector.

**关键词** [gas electron multipliers](#), [hole multiplier](#), [effective gain](#), [energy resolution](#)

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