

Abstract Submitted
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Application of THGEM to XENON Dark Matter Search DANIEL RUBIN, Yale University, XENON COLLABORATION — Thick GEM-like (THGEM) multipliers made from copper-clad Cirlex (rather than the typical g10) were studied, with the goal of finding a low-background GEM that could be used in the XENON detectors. The Cirlex THGEMs were made with particularly large (1.0 mm) holes, in the hope that gain reduction due to xenon condensation in the holes could be avoided. Such THGEMs were found to have very high resistances (in the 10 TeraOhm range) in air, and gain curves similar to those of g10 THGEMs of the same thickness in a mixture of carbon dioxide and nitrogen at 75 torr. However, the THGEMs were found to spark easily, and had an inconsistent energy resolution. Both problems can be attributed to flaws in the drilling and etching of the THGEMs, which were found by visual inspection using a microscope. With some improvement in the manufacturing, Cirlex THGEMs should make an excellent addition to liquid xenon detectors.

Daniel Rubin
Yale University

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