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Research and Development of Commercially-Manufactured Large GEM Foils MATTHEW POSIK, Temple University — With future experiments proposing detectors that utilize very large-area GEM foils, there is a need for commercially available GEM foils. Double-mask etching techniques pose a clear limitation in the maximum size of GEM foils. In contrast, single-mask techniques developed at CERN would allow one to overcome those limitations. We report on the electrical and optical analysis, along with the gain and diameter size uniformity of 10×10 cm^2 and 30×30 cm^2 GEM foils produced by Tech-Etch Inc. of Plymouth, MA, USA using single-mask techniques. This marks the beginning of large GEM foil production on a commercial basis. The Tech-Etch foils were found to have excellent electrical properties. The measured mean optical properties were found to reflect the desired parameters and are consistent with those measured in double-mask GEM foils, and show a consistent gain uniformity over the active area. These foils are well suited for future applications in Nuclear and Particle Physics where large-area tracking devices are needed.

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