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Study of Long Term Stability of Gas Electron Multiplier Radiation Detector YING WUN YVONNE NG, JAEHOON YU, SEONGTAE PARK, SAMANTHA LACOMBE, TIMOTHY BLAKE WATSON, AMIT BASHYAL, University of Texas at Arlington — The Gaseous electron Multiplier (GEM) technology is one of the many radiation detector technologies that use ionization in gaseous medium to detect electrically charged and neutral particles from various radiations. University of Texas at Arlington's advanced detector group has been working on GEM technology to develop a new, precision detector for future particle accelerator, such as the International Linear Collider. During the course of the past several years, data has been taken continuously to characterize 30cmx30cm prototype detector. Statistical method has been developed to study device's long term behavior. The effect of atmospheric pressure to the detector amplification has been compensated by a correction algorithm. In this talk, I will present the final result of the long term stability study of the prototype detector and its ramification to future use.

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