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## Visual investigation of possible degradation in GEM foils under test

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Visual investigation of a Single Mask (SM) Gas Electron Multiplier (GEM) foil is performed manually using an optical microscope having magnification factors of 20x and 40x. The scanned SM GEM foil is being used as the 3rd GEM foil of a triple GEM chamber prototype used for long-term studies. During the long-term test, it is observed that the detector suddenly stopped giving the signal. To understand the problem, the triple GEM chamber prototype is disassembled and the measured foil resistance of the 3rd GEM foil was found to be  $\sim 40$  k $\Omega$  which indicated that there were some short paths created between the top and bottom electrodes of the GEM foil. The short-circuited path might be due to the accumulation of impurities inside the GEM holes or due to the degradation of the foil itself. The GEM foil is scanned and the different damaged parts of the foil are identified. The details of the techniques and results will be presented.

### Collaboration

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