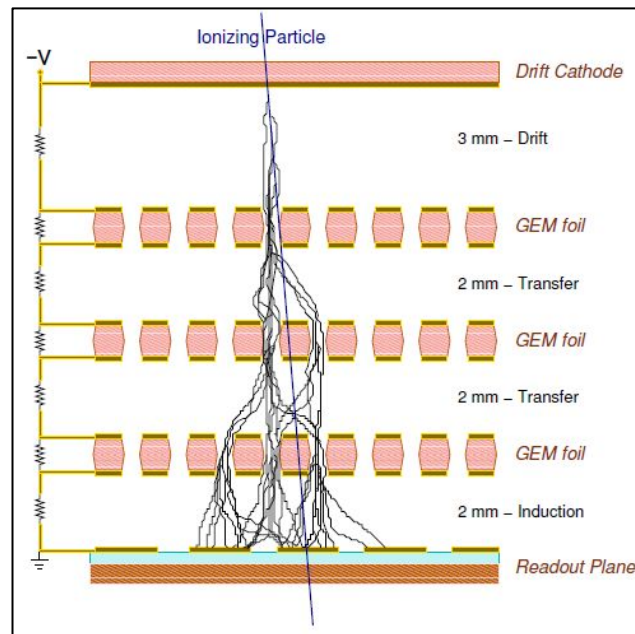


GEM Linearity Studies in the GMn Experiment

SBS GEM commissioning meeting Jan 26, 2022
Anuruddha Rathnayake

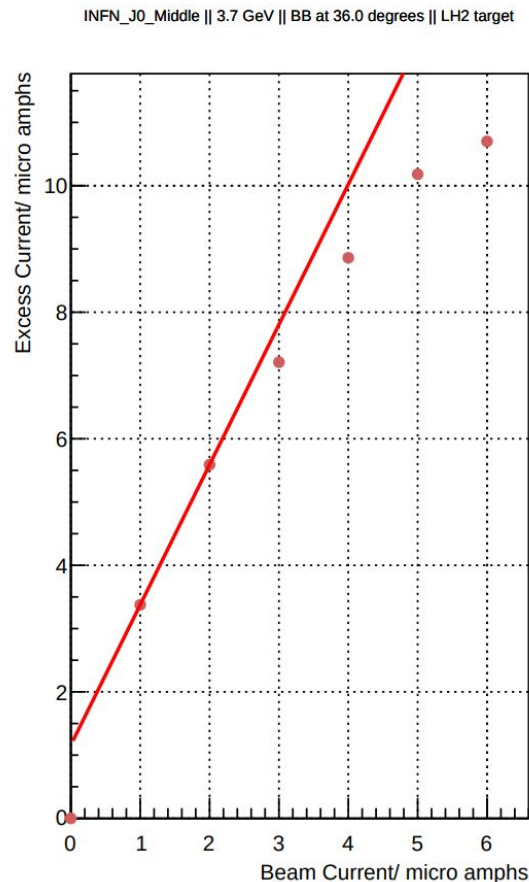
A quick overview...

- GEM linearity study : a study of the variation of *GEM detector gain* as a function of ionizing radiation flux that goes through the GEM
- In the Hall, w/ increasing beam current on a LD2 / LH2 target, this radiation flux increases \sim linearly
- Increased radiation flux on the GEM \rightarrow Increased ionization in the GEM
- Increased ionization in the GEM \rightarrow Increased divider current



Overview continues

- If GEM detector gain stays constant -> the current increment / excess current in the divider should increase linearly w/ radiation flux; which is ultimately the **beam current** in our case
- However this not the case : GEM gain will drop with luminosity / radiation flux



Linearity studies of UV Layer 0 - Layer subjected to highest luminosity and has been there from the beginning of the experiment

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