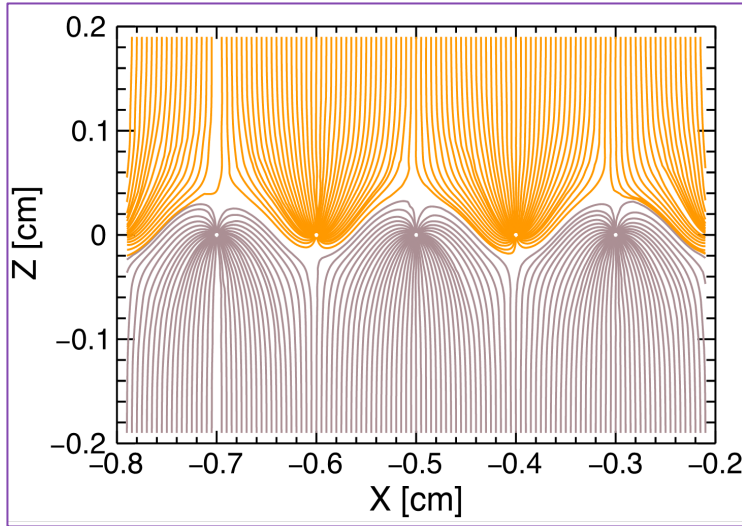


Measurements: Bi-polar Gating Grid

Brief Recap



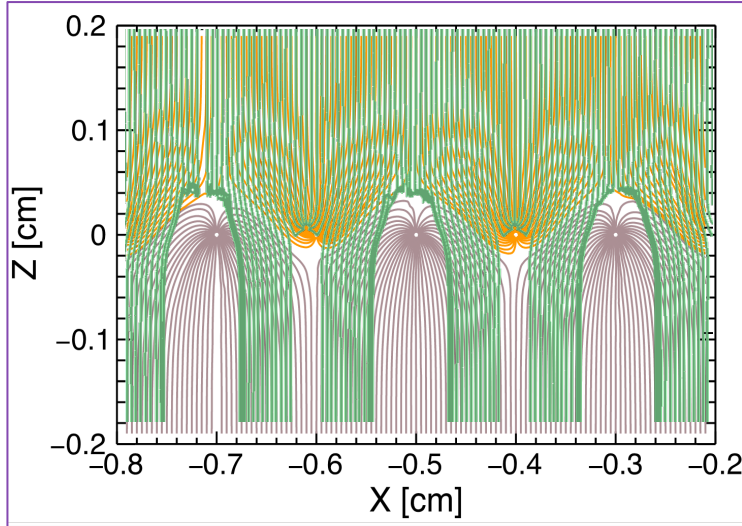
Langevin's equation:

$$m \frac{dv}{dt} = qE + q(v \times B) - \kappa v$$

- ❖ Negligible for SLOW ions...not negligible for electrons in sPHENIX [$V_{\text{drift}} = 80$ microns/nsec; $B = 1.4$ Tesla]
- ❖ Traditionally one attempts to zero this term to avoid distortions
- ❖ One can make a LOCALIZED kick that only electrons feel
- ❖ This concept is discussed in detail in Blum's Book

- ❖ **Magnetic Field brings electrons through.**
- ❖ **Ions remain blocked**

Brief Recap



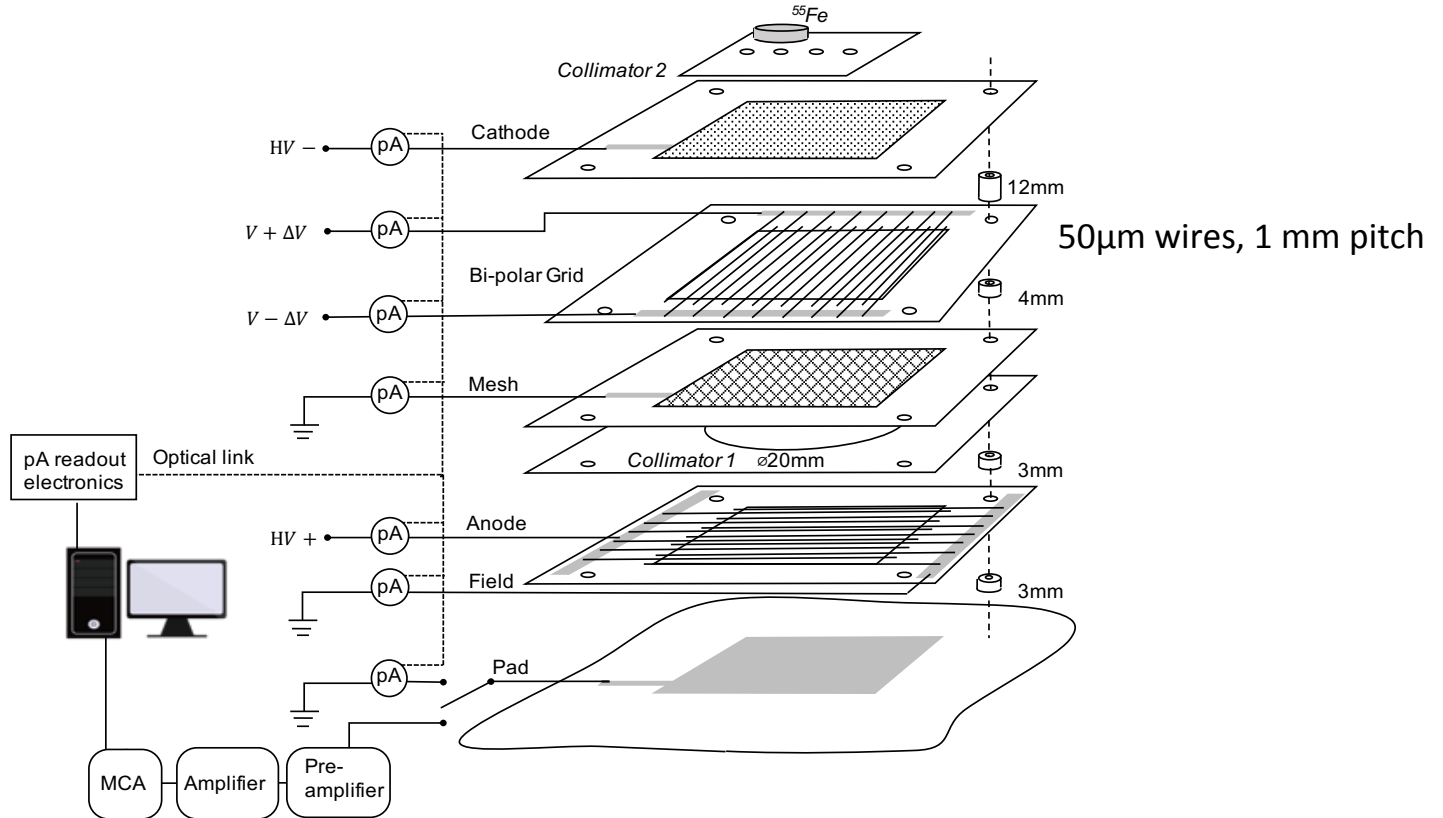
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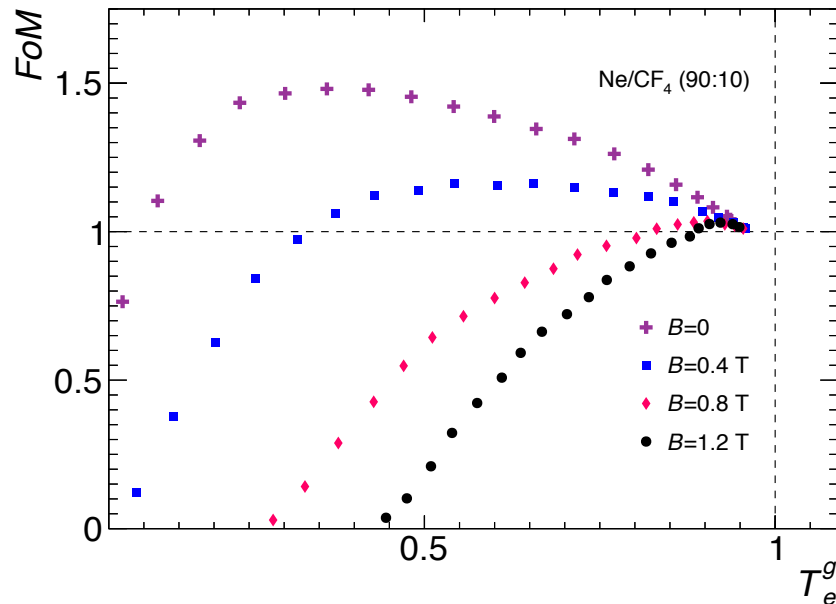
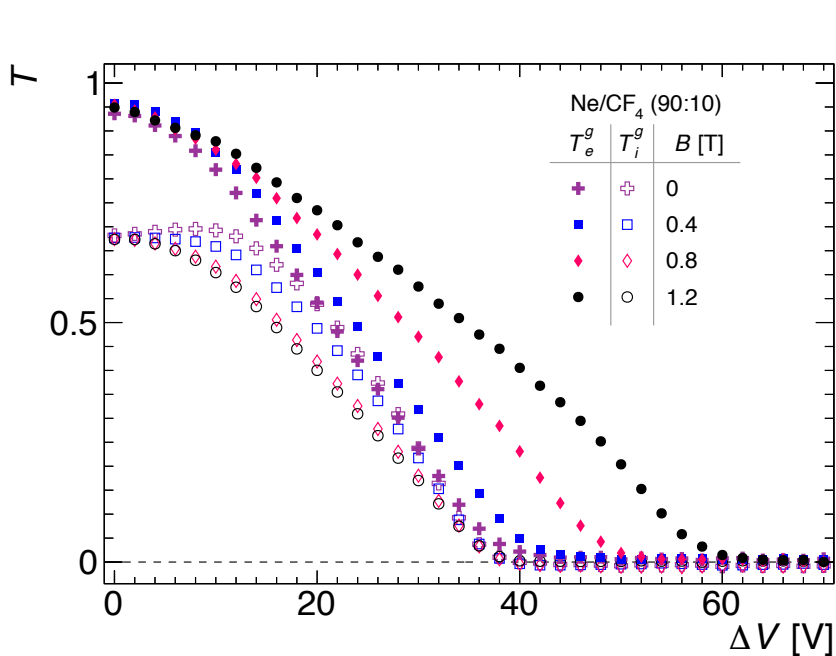
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Setup @WIS

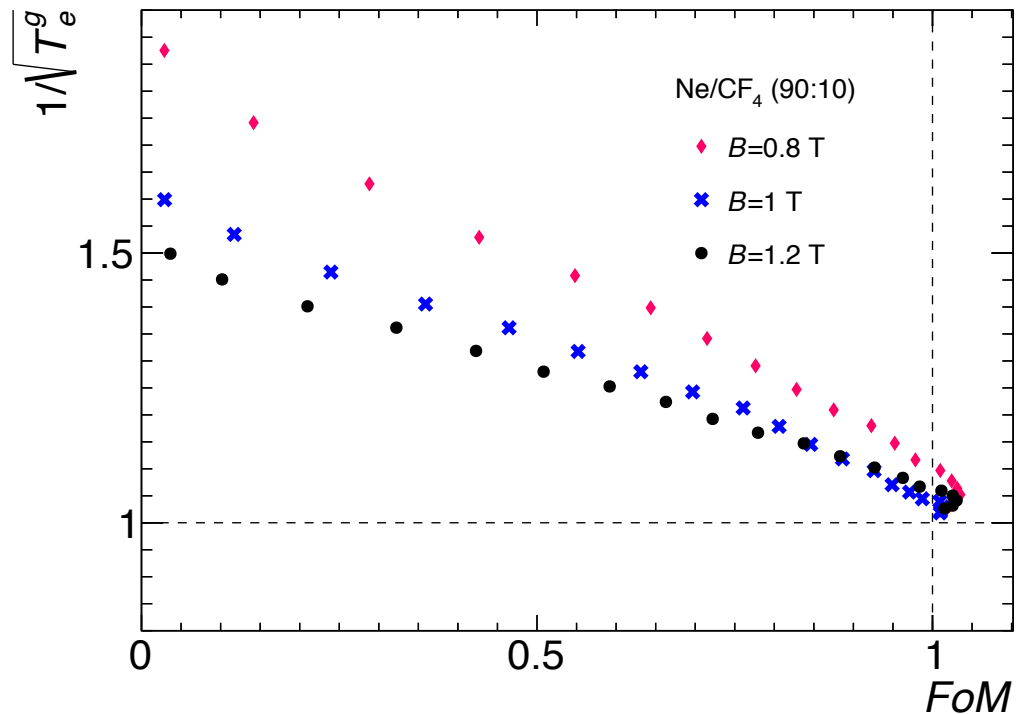


Results: Transparency



$$FoM(w, \Delta V) = \frac{T_i^m(w, 0)}{T_i^m(1, 0)} \times \frac{T_i^g(w, \Delta V)}{T_e^g(w, \Delta V)}, \quad w = E_t/E_d$$

Relative loss of the dE/dX resolution



Summary

- ❖ Other gas mixtures: Ne+CF₄(50:50) and Ar based mixtures have been measured.
- ❖ For magnetic field of 1.4 T the results will be even more favorable.
- ❖ MC qualitatively follows measurements, but but quantitative.
- ❖ This work is in the draft form now, will be submitting it soon for Publication.