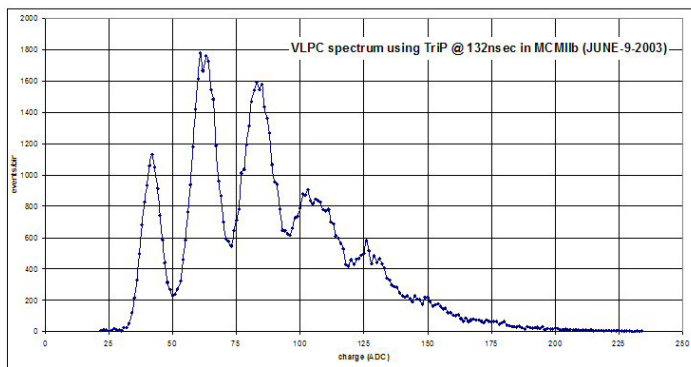


# Tracking Noise and Background Capability

- SciFi - Noise

- ◆ Electronics Noise

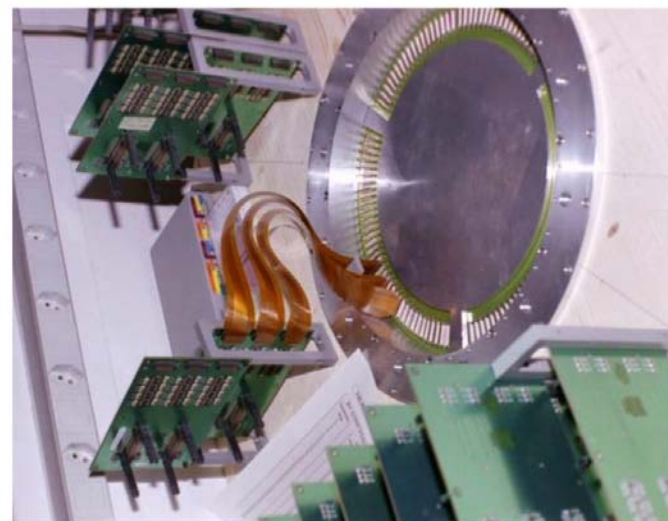
- ▲ RF noise pickup negligible - tested in final configuration
      - 1/30 pe
    - ▲ Electronic noise small
      - 1/5 pe



- TPG - Noise

- ◆ Electronics Noise

- ▲ RF pickup small and can likely be handled
      - However, still must be tested with final configuration and components. TPGino tests very encouraging, but these effects can be very subtle.



- ▲ Given gain of GEMs, preamp noise should not be an issue - good S/N ratio is expected



# Tracking Noise and Background Capability

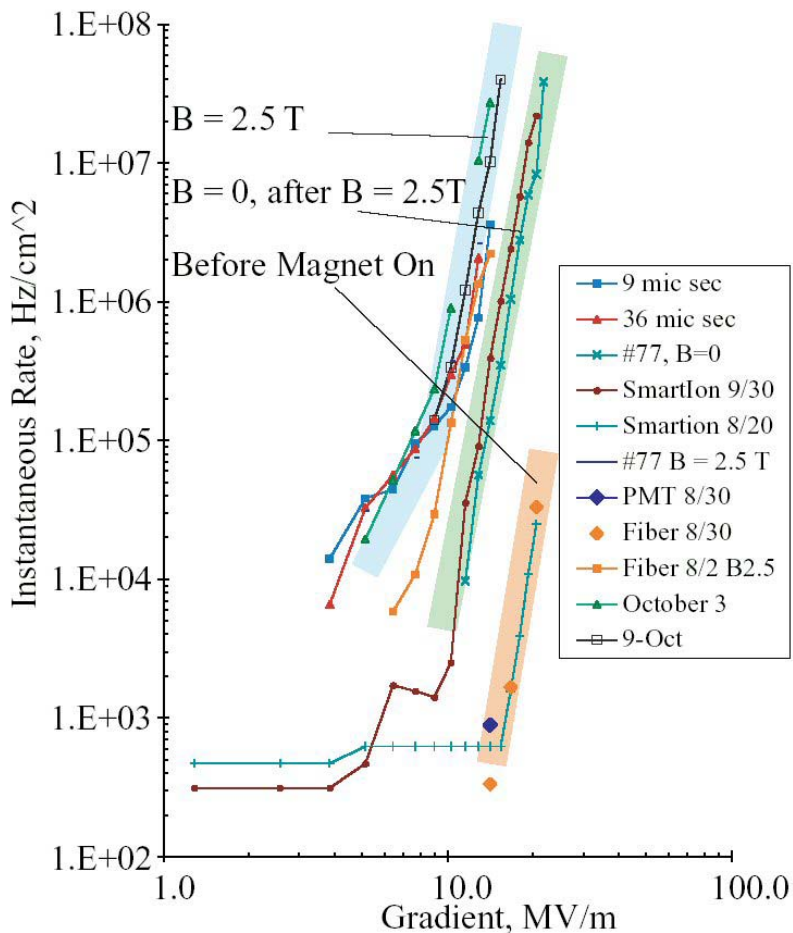


Fig. 2. Background rates with copper windows.

- X-ray background from cavities estimates extrapolated from LabG data
- Both TPG and SciFi have to live with this
  - ◆ Trackers are on the same footing in that readout is projective in both cases
    - ▲ u-v-t
    - TPG is not 3-D detector in current implementation
- Comparison: (Eff/pattern recog.)
  - ◆  $\text{mass}(\text{SciFi})/\text{mass}(\text{TPG}) = 70$
  - ◆  $\text{Livet}(\text{SciFi})/\text{Livet}(\text{TPG}) = (2500)^{-1}$
  - ◆  $\text{\#stations}(\text{SciFi})/\text{\#}_m(\text{TPG}) = 0.05$
  - ◆ FOM:  $\frac{70}{2500} \times 20 \approx 0.6$
  - ◆ SciFi Simulation
    - ▲ Tracking OK @ 100X
  - ◆ TPG Simulation
    - ▲ Not complete yet - but looks promising
    - Vagabonds?