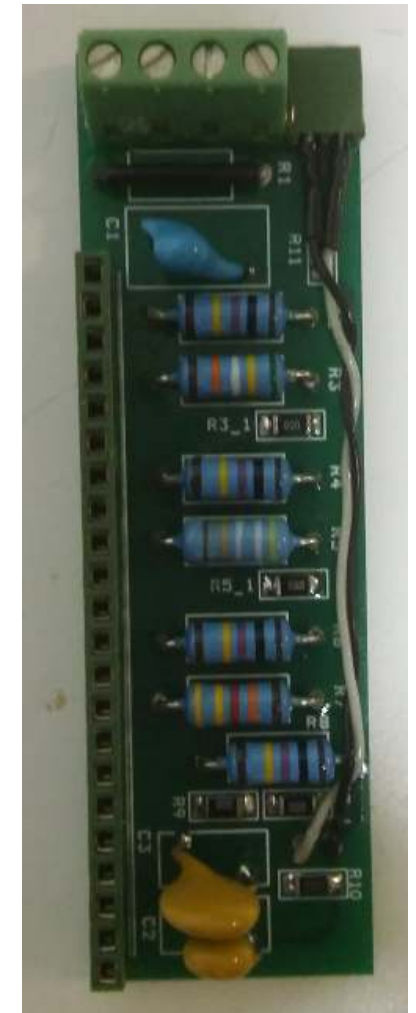
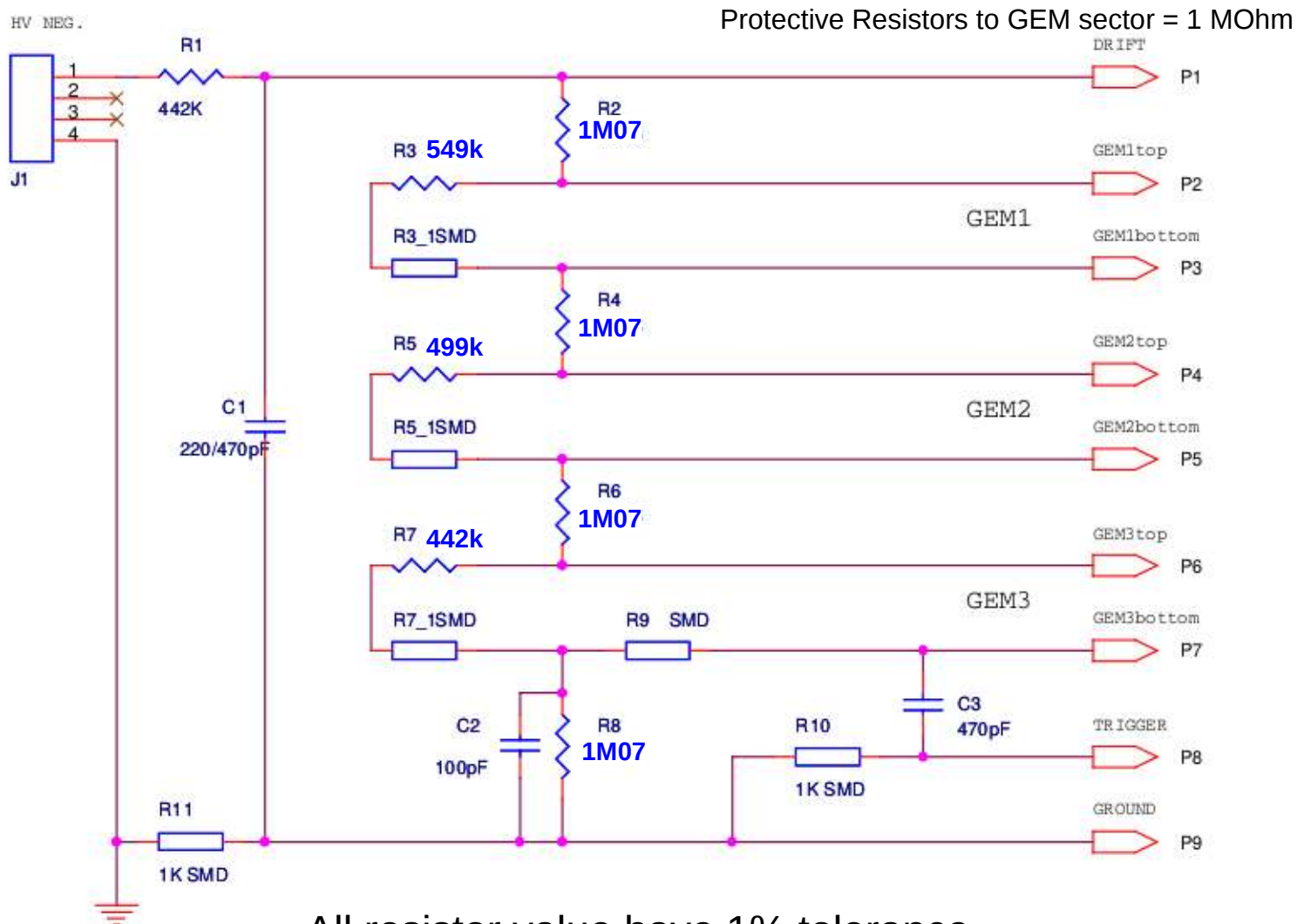


Update on INFN-GEM
high current “new” divider
26/Jan/2022 – GEM Weekly Meeting

Evaristo, Fausto, Roberto

New divider-smaller ($\sim 1/7$) resistors



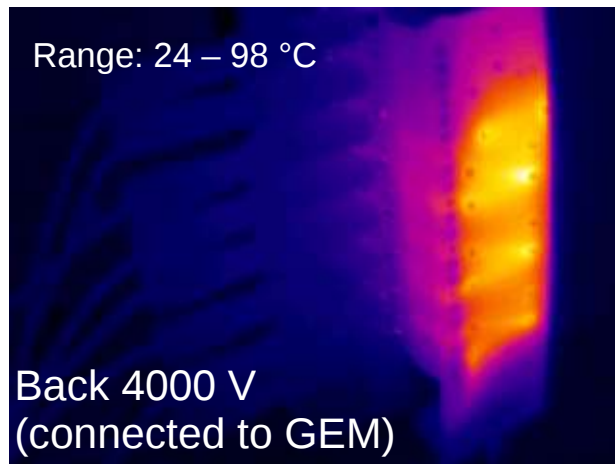
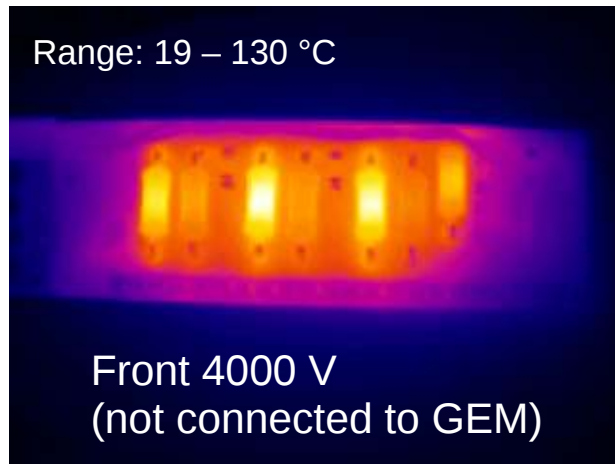
(front view)

All resistor value have 1% tolerance
and have **0.5 W** rating !!

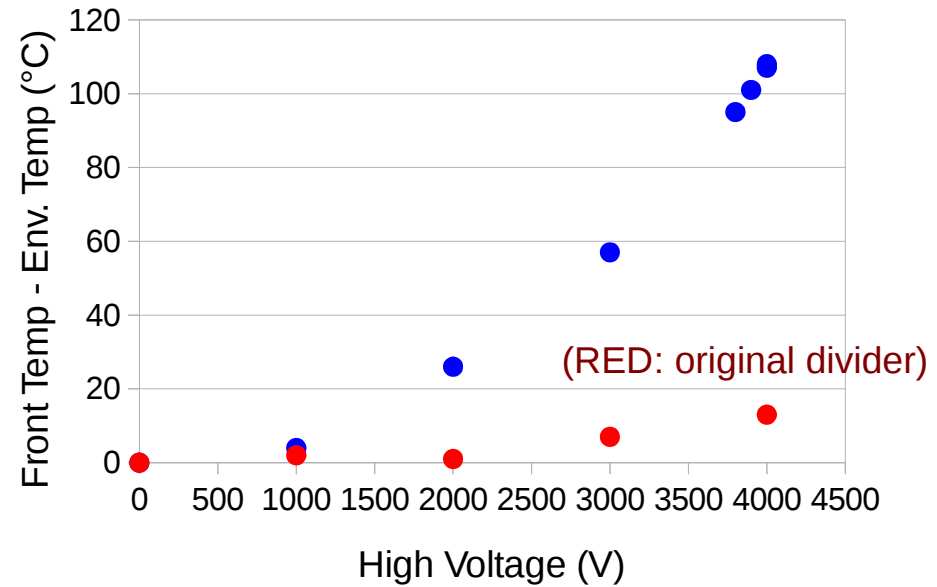
Divider Current at 4000 V is $\sim 700 \mu\text{A}$

New Divider - Temperature

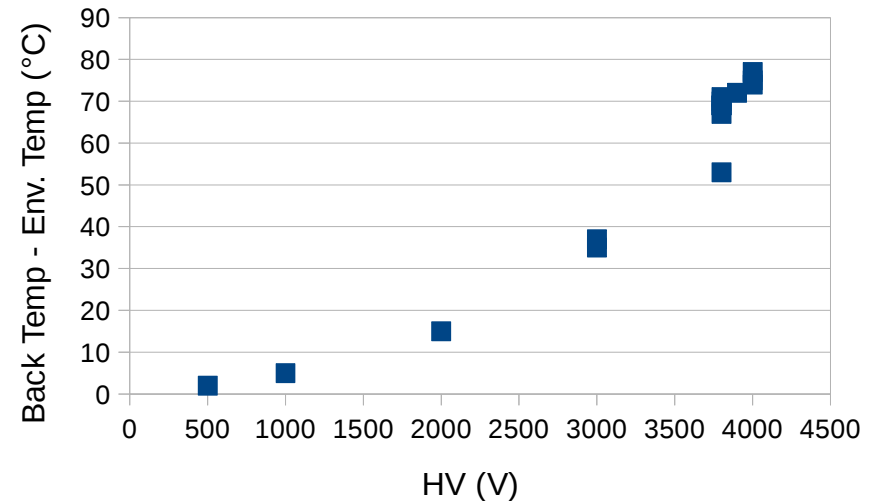
Thermo Camera
Testo 875 1i (plastic emissivity)



Dividers Front Temperature vs HV



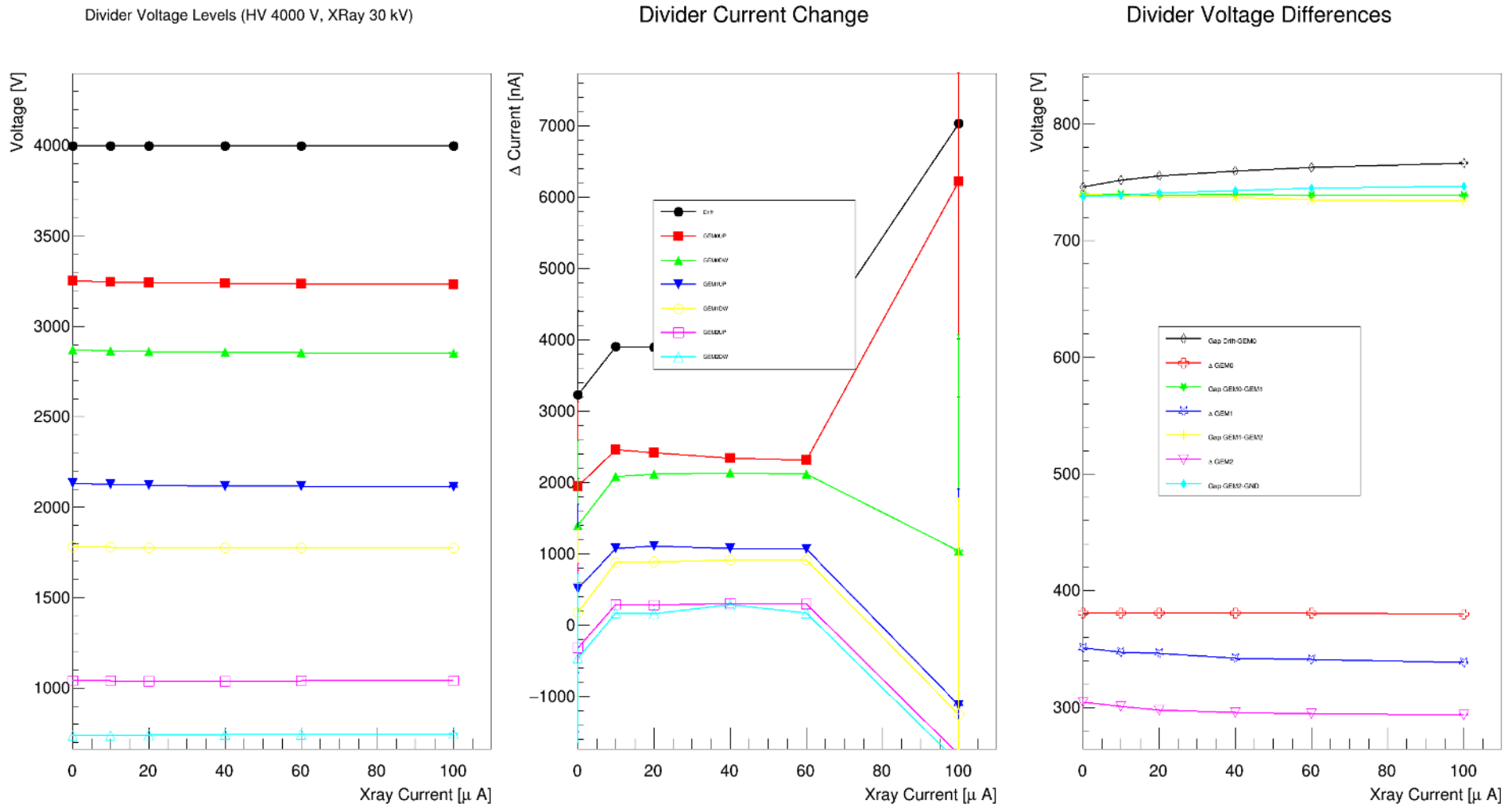
New Divider Back Temperature



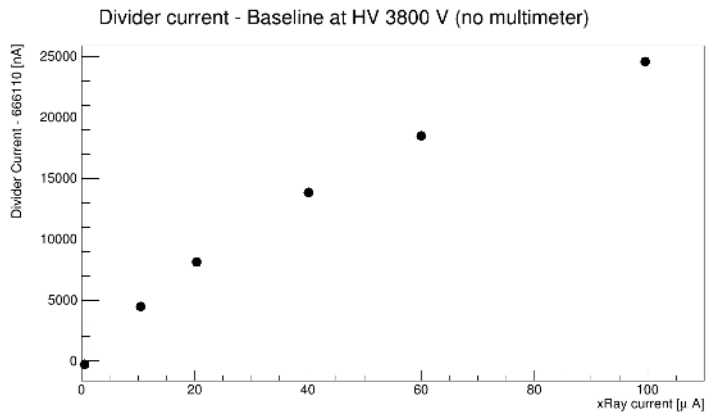
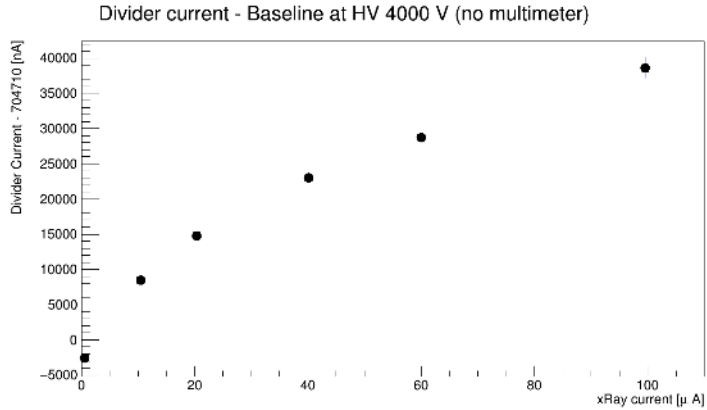
New Divider / Xray Irradiation @ 4000V

At the largest Xray current we observed larger divider current fluctuations (few μA) (possibly due to divider temperature ?)

Max power dissipation at 4000 V is $\sim 0.56 \text{ W}$

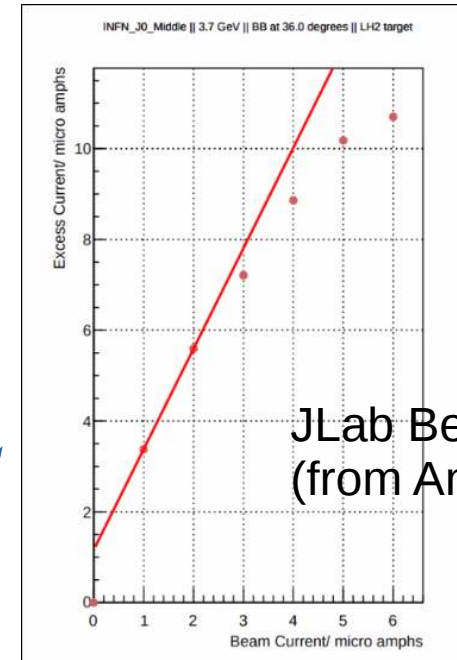


Dividers Current vs Xray current



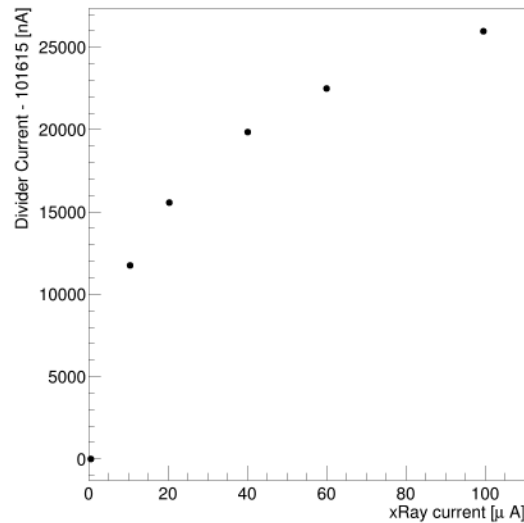
← “New” divider

Original divider

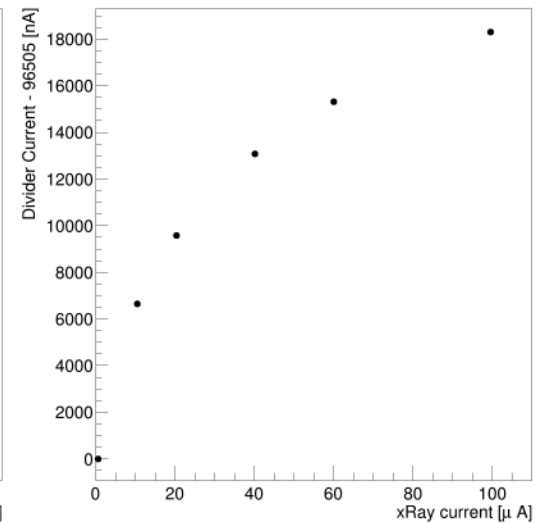


JLab Beam
(from Anu)

Divider current - Baseline at HV 4000 V (no multimeter)



Divider current - Baseline at HV 3800 V (no multimeter)

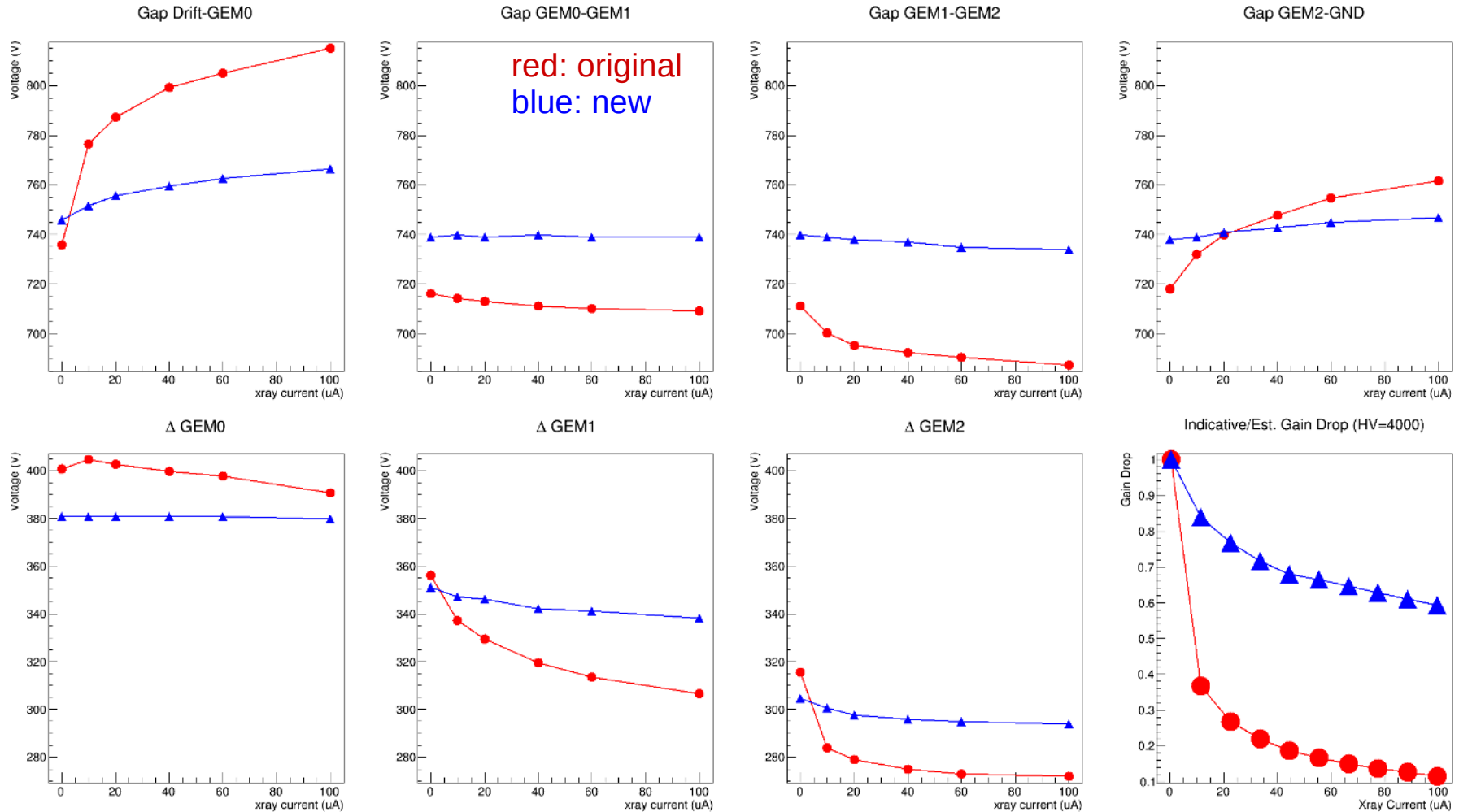


Approx.
5 uA JLab ~ 10 uA Xray

New Divider / Xray Irradiation summary

30 keV, 0-100 μA , X-source at ~ 40 cm from GEM module

Voltage Levels vs Xray Current



- Fausto is trying to mount (reliably) larger resistors in parallel on the same divider board (to ~half power dissipation on single resistors)
- Meanwhile he is also searching for resistors with larger power rating (apparently not easy)
- The CAEN A1515-BTG HV Power Supply with floating channels is at JLab; (each channel offers up to 1 kV / 1 mA)