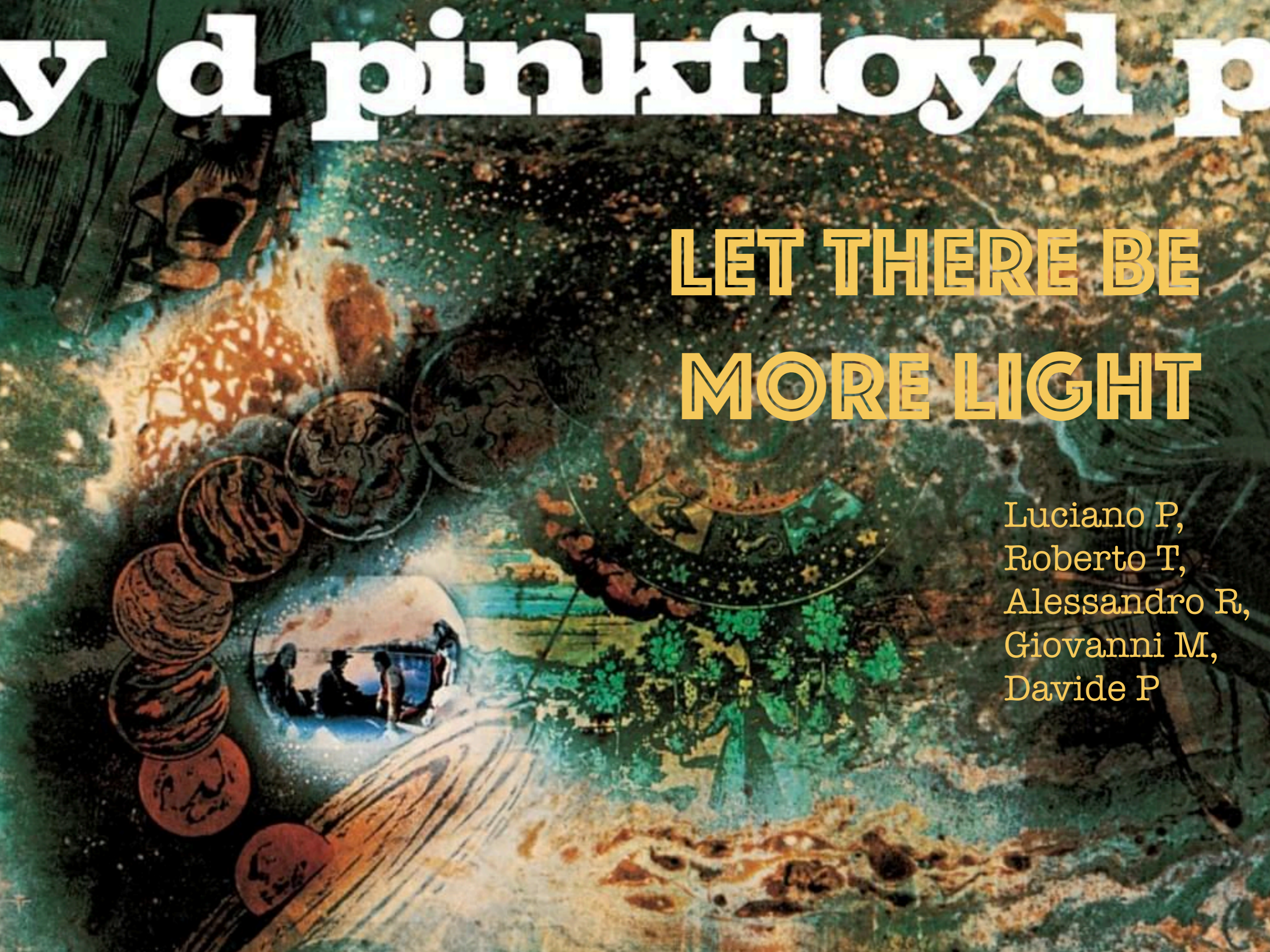


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LET THERE BE MORE LIGHT

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New Measurements

We started to use LEMON with a mesh 3 mm away from the GEM#3;

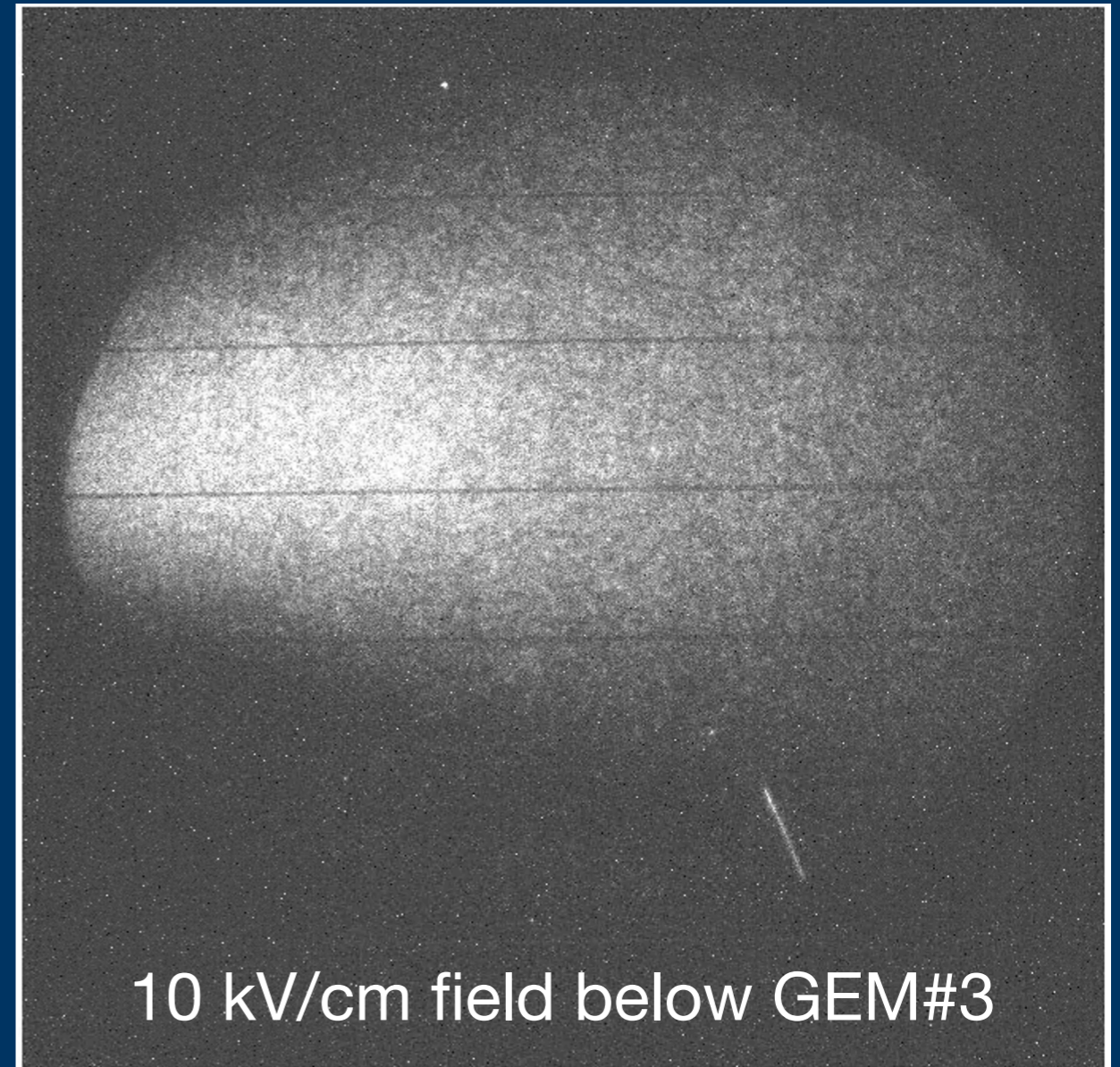
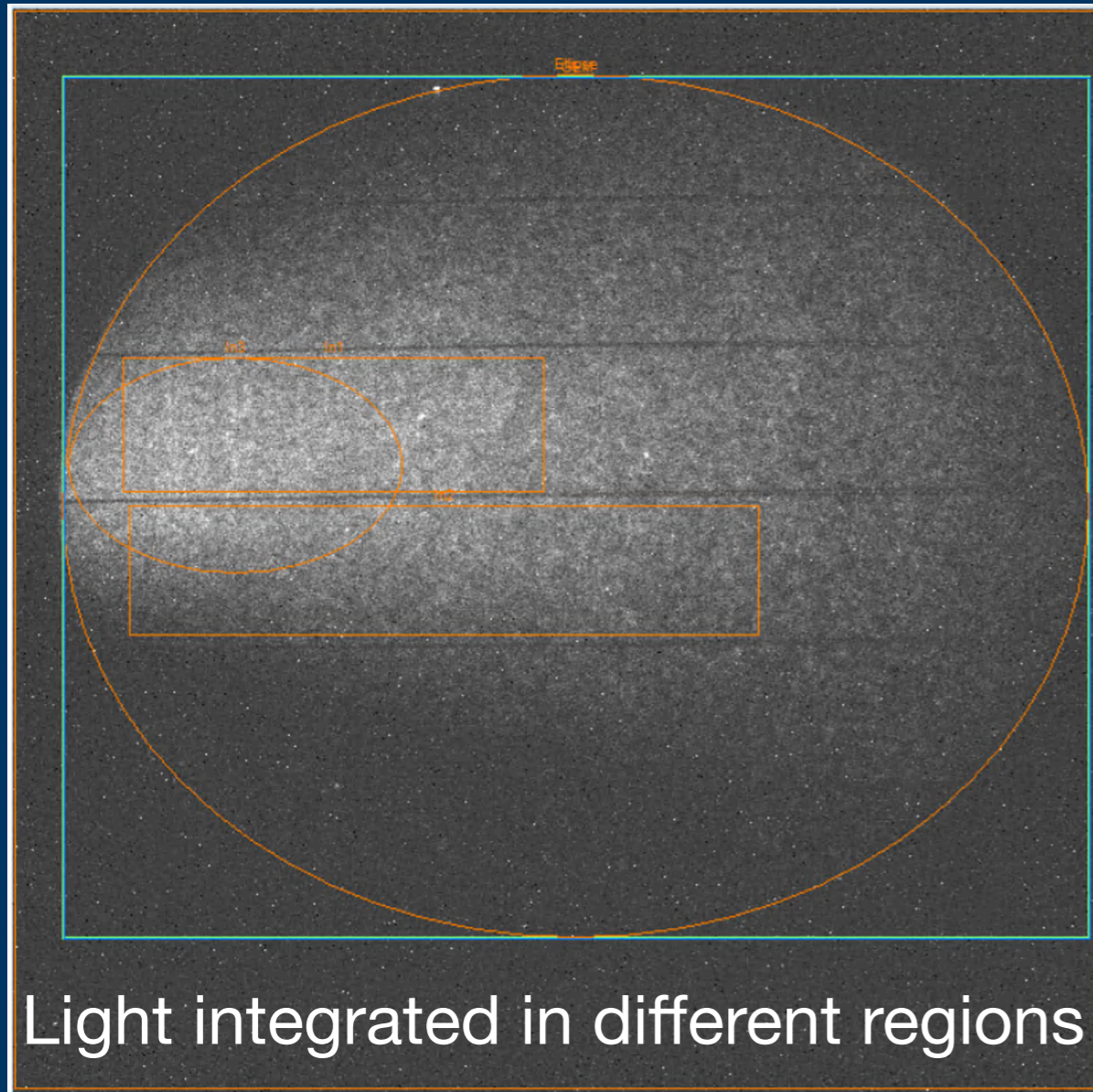
CAEN-HVGEM (A1515TG), allows to acquire the current provided to each channel;

Anode (not used) is grounded as a reference for the HVGEM;

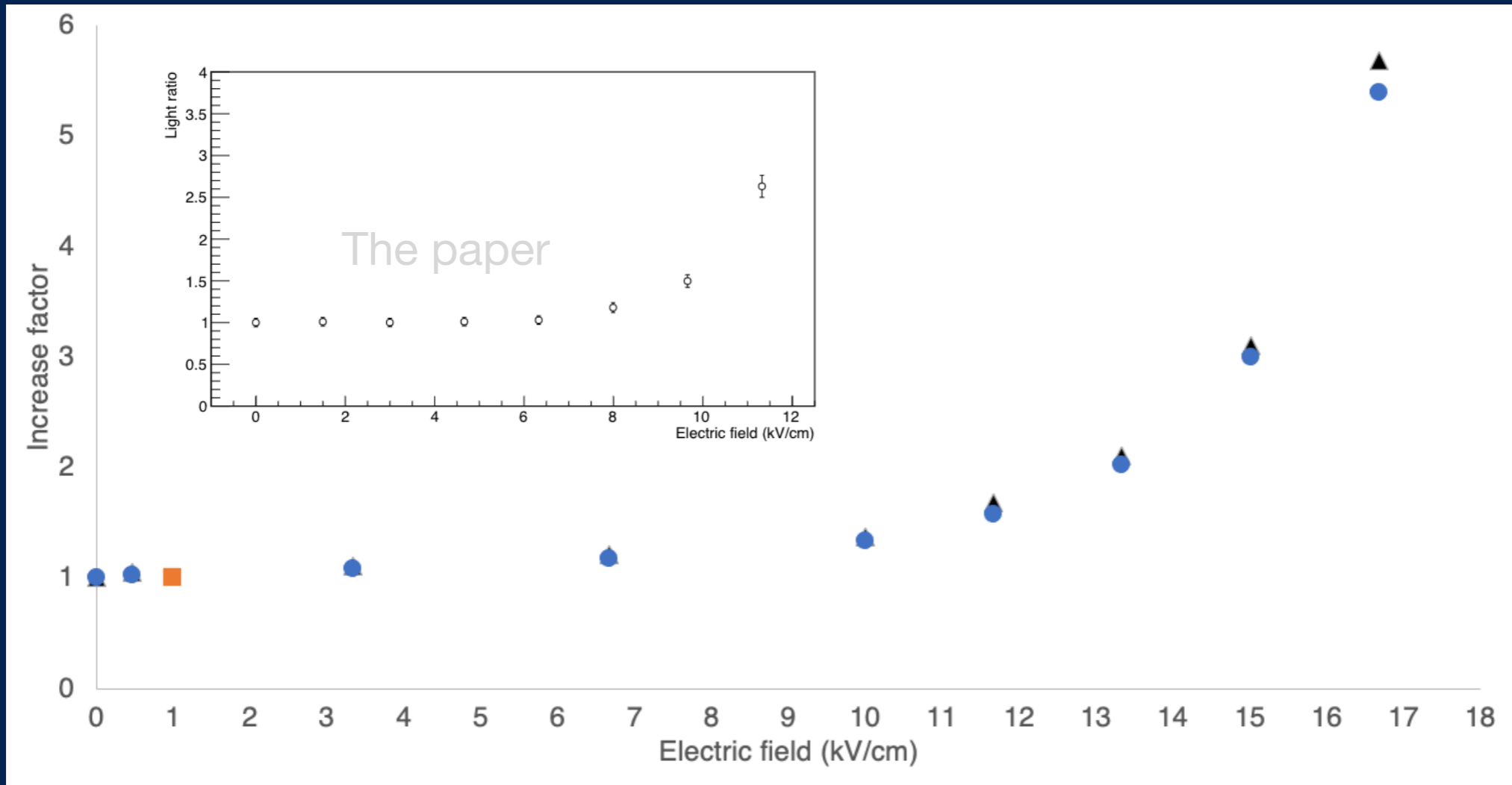
We are using the IMonDet values: leakage currents are automatically subtracted and only signal ones are provided;

The current drawn by the Mesh is acquired by reading the ΔV across a 10 M Ω resistor;

New test at LNF

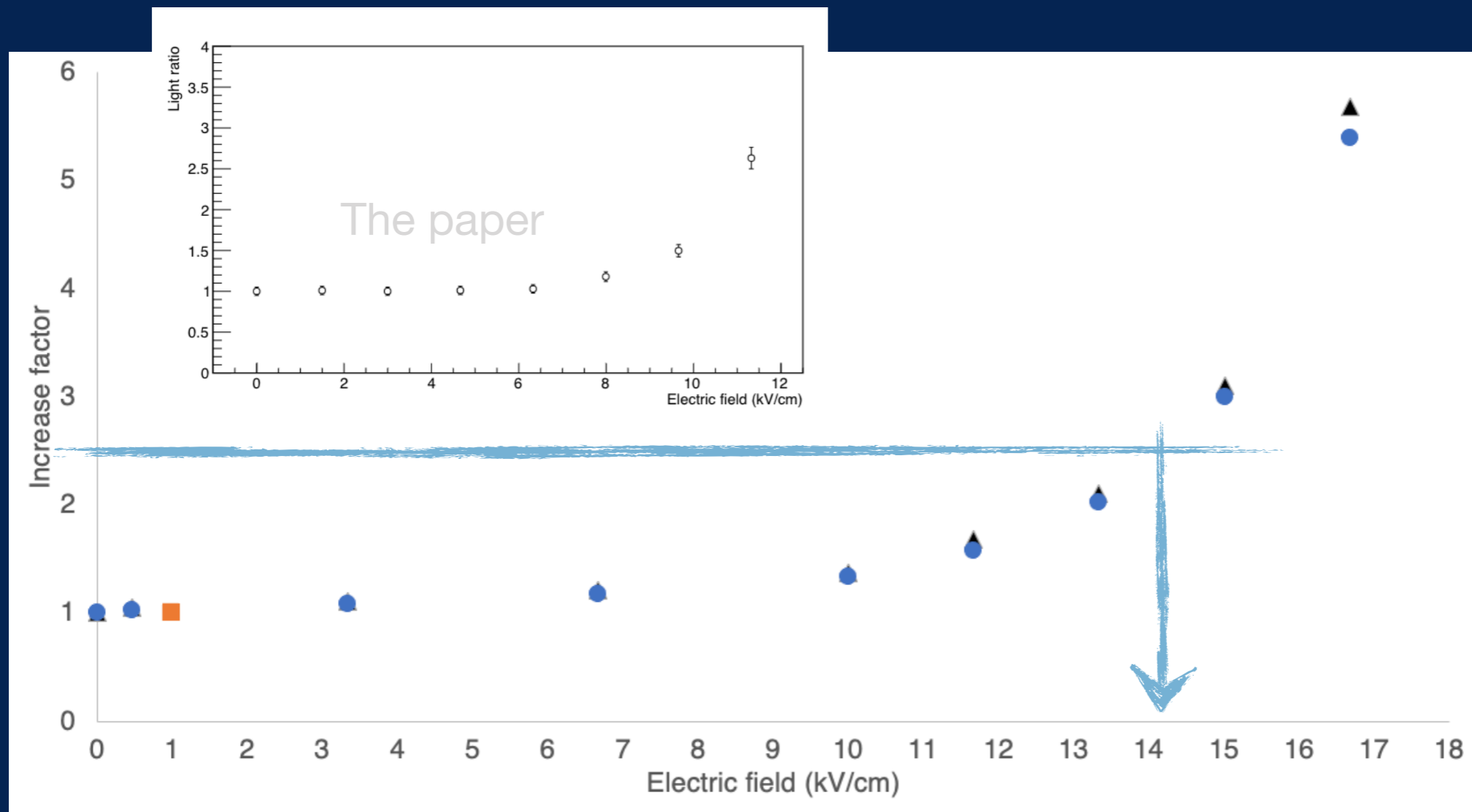


- The mesh screens more than 55% of light, spoils image reconstruction;
- Mesh issues solved:
 - Fine up to 5kV;
 - Very good flatness;



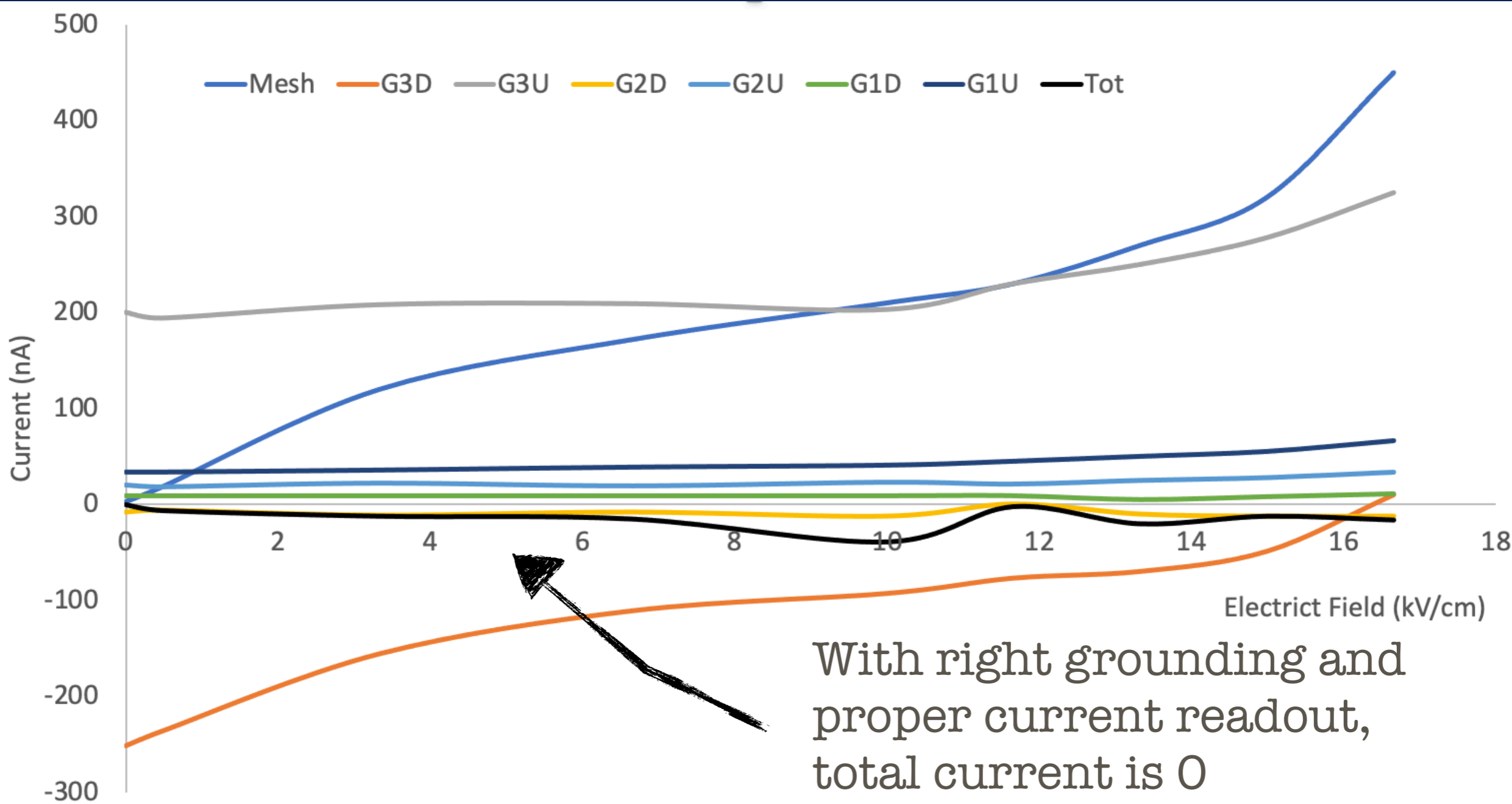
Light is measured in different regions: all measurements in good agreement;

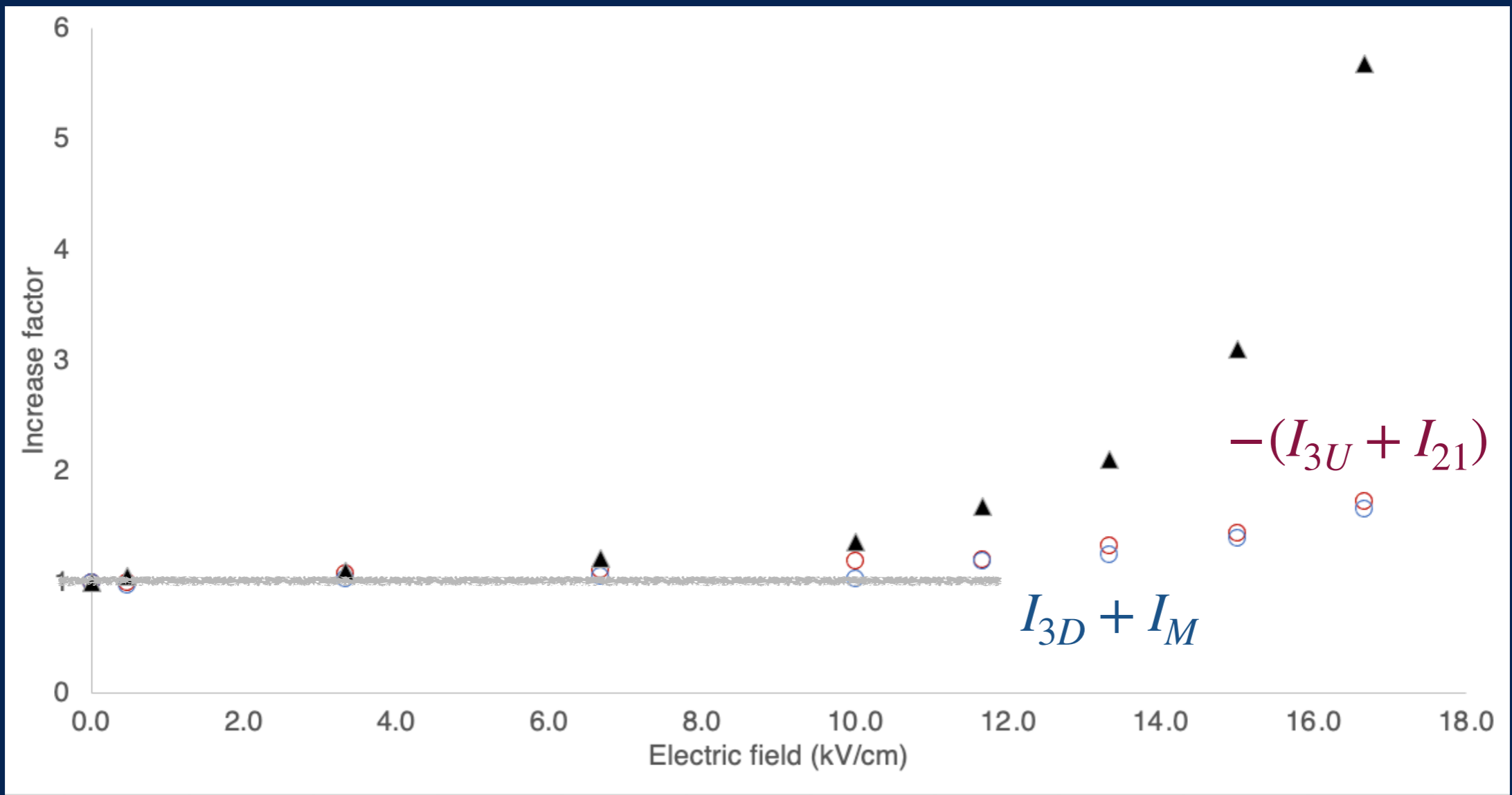
Thanks to the very good quality of the mesh, we E_h explored up to value of almost 17 kV/cm



In order to get a light increase of a factor 2.5, a field of about 14 kV/cm is needed;

In the paper setup, with a V_{MESH} of 3400 V, we reached it with a gap of about 2.5 mm (in medium stat virtus)





An evident increase of current was detected in all scans for both “polarities” indicating an increase in charge (gain) for fields larger than 10 kV/cm

Anyway the increase is lesser than the light one (a factor 1.7 w.r.t. a factor 5-6)

Conclusion

Results with flat mesh and better understanding of HV grounding scheme seem to be solid and reliable:

- A light increase of a factor 5-6 was observed;
- A concurrent 1.7 increase in charge was visible;
- Preliminary analysis indicates this to be due gain in the gap between GEM and MESH;
- The difference between light and charge confirms a light production induced by non-ionizing (or very low-ionizing) electrons.