AIDA-2020 Sub-task 13.4.4 (WP13)

Quality control tool for detailed (hole by hole) gain maps in (T)GEM-s

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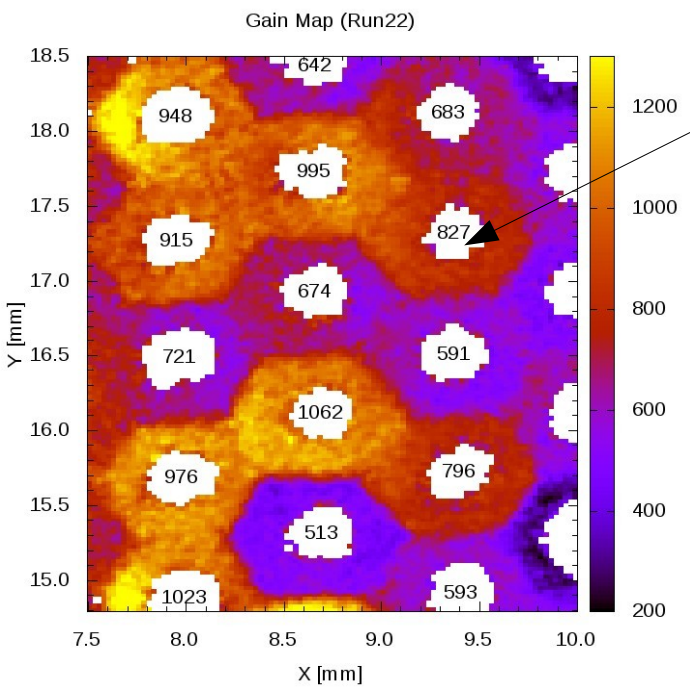
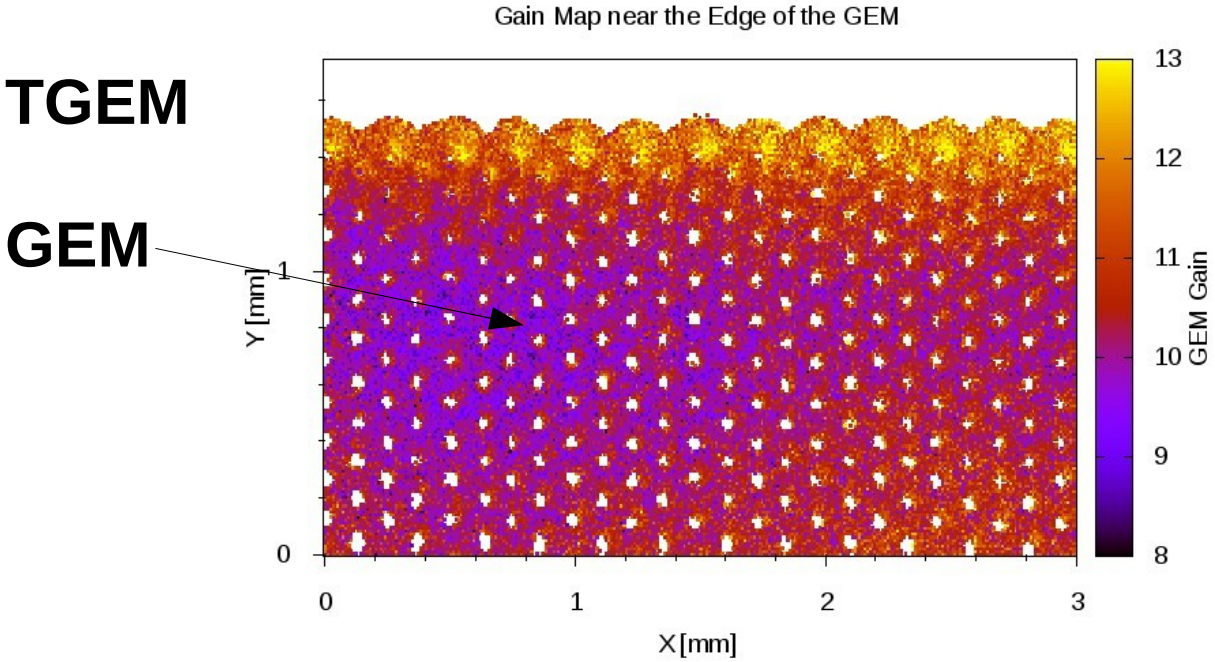
Partners: Wigner RCP (Budapest), INFN (Trieste)

- Scientific activities
- Partners, work sharing
- Work schedule, planning
- Financial issues

Scientific activity (started within RD51)

- High resolution gain map: unique possibility to understand micro-structure of local gas gain
- Potential for QUALITY CONTROL: decide to accept / reprocess / reject during construction





Technical activity: QA aspects

- Quality Assurance is a key issue for large MPGD detectors

  Objective I: Towards large size / industrial

  Objective II: Correlated with optical

- **ALICE TPC Upgrade**: Budapest selected as QA center! Various equipments, including a high performance optical scanner, built by Helsinki Phys. Inst. (T. Hilden, E. Brücken) will be installed, so experience will accumulate

Sub-task 13.4.4 partners and work sharing

- Partners: **Wigner Research Centre for Physics** (Budapest) and **INFN Trieste**
- Wigner RCP: initiating R&D for GEM-s and correlation with optical scanning; small size demonstrator
- INFN Trieste: key R&D around TGEM-s, constructing large size demonstrator towards industrial version
- Wigner RCP: large size demonstrator with complementary optical scanning

4-year planning

- Month 12 Milestone (MS12): small size prototype of optical / gain scanning, establishing correlation, understanding key features towards industrial version

- Month 44 Deliverable (D13.8): large size demonstrator for MPGD hole-by-hole gain map for QA purposes.

First year planning

- Aim to realize the 12th month Milestone
- Construction / refurbishing of a small size system in Budapest, based on existing experience (6 months)
- Understanding visible / UV optical issues, correlating visible GEM failures with gain map (3 months)
- Finalization of the small prototype, and initiation of a longer term R&D (3 months)
- Initiation of a longer term R&D in parallel with large version construction

Complementary financial resources

- (Total budget 90kEUR, EU part 45kEUR)
- Group-level funding: at least 5kEUR / year available for this project (materials, equipment)
- Dedicated grant application submitted, probably covers about 50% of matching
- Institute-level funding (if sources from above seem insufficient)