Ideas for the EPJ plus focus point

Overwiev

- Following the ERICE meeting in November 2022 we have been invited to submit a paper on the EPJ plus journal
- *EPJ-Plus "Focus Point on the Green Transition of Gases Employed for Radiation Detection in Nuclear and High Energy Physics Experiments. Guest editors: Marco Garbini, Archana Sharma"*
- Our idea was to submit a paper with different results, with respect to the one we are currently working on, especially the fact that we don't necessarily want to compare performance across different trolleys, so no need to provide fixed filters
- Few ideas and requests, explained in this presentation but mainly results from 2022 test beams and preliminary aging results

1 mm gaps

- Results from 2022 test beams

- Bari-1p0 (Dayron):
  - TB results with STD, ECO2 and ECO3:
  1) Efficiency and current with source OFF and the three mixtures
  2) Efficiency and current under irradiation (maybe one low and one high rate filters)

- ATLAS BIS7/8 (Giorgia and Giulio):
  - TB results with STD and ECO55/65:
  1) Efficiency and current with source OFF
  2) Efficiency and current under irraditation (one low and one high rate filters)

2 mm gaps

- Results from 2022 test beams

- ALICE and EPDT (Luca and Gianluca):
  - TB results with HFO/CO2 at different concentrations:
  1) Efficiency and current with source OFF and the three mixtures
  2) Evolution of the charge distribution for the different concentrations
  3) Maybe results under irradiation?

- ATLAS-small (Giorgia and Barbara):
  - TB results with STD, ECO2 and ECO3:
  1) Efficiency, currents and charge distributions at source off
  2) Efficiency and current under irraditation (one low and one high rate filters)

Preliminary aging campaign results

- Results from all detectors are available (I can produce the plots myself)
- Calculation of integrated charge for all detectors (with and without ohmic component of the dark current)
- Evolution of dark current (ohmic and total) as a function of the integrated charge
- Trend of total current (with and without ohmic part of the dark current) as a function of the integrated charge
- I will produce a presentation with the aging plots that I can produce for next week meeting

Useful links

- Link to overleaf page with draft of the paper (for now it’s only the template provided by EPJ plus)

  https://it.overleaf.com/6929572117drjyxtfvvvtr

- Link to excel file, still to be created in our shared cernbox folder