

# EPJ plus focus point paper update

*Luca Quaglia and Dayron Ramos*

# Overview

- General updates
- Status of data collection
- Updated preliminary figures
- Conclusions

# General updates

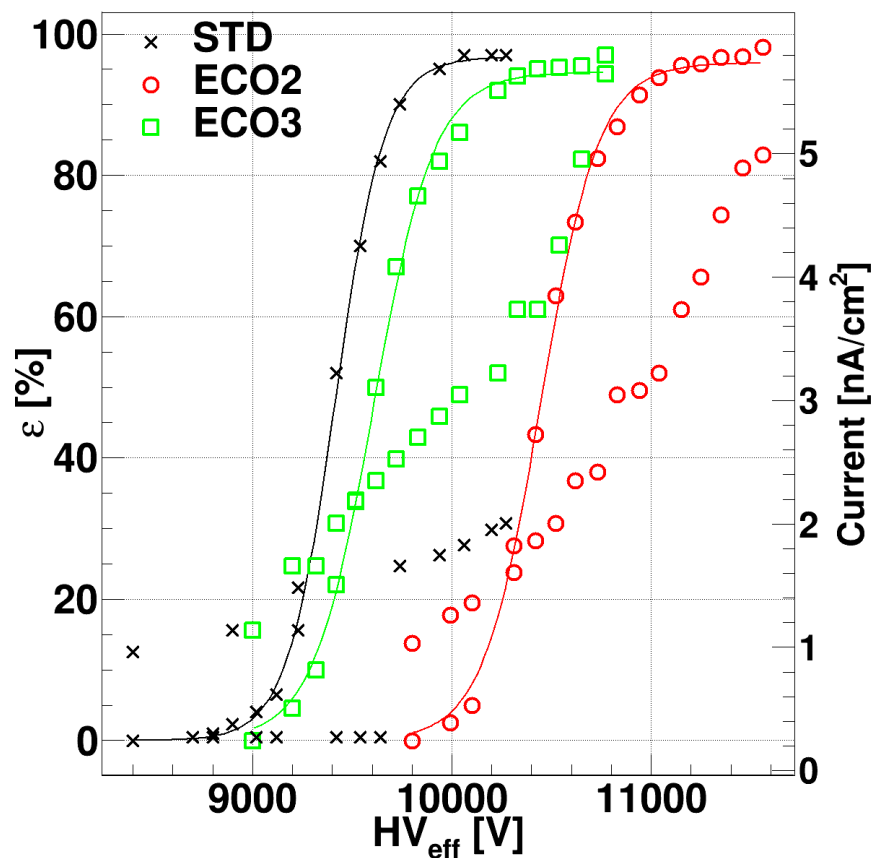
- New data added to the table
  - BARI-1p0 data at source off with HFO/CO2 scan
  - ATLAS small at source ON will be added to the table
  - Missing ATLAS BIS 7/8 at source OFF
- Update of preliminary plots wrt last week meeting w/comments, mainly different markers as well as different colours for the mixtures
- Data from EPDT detector with source OFF and ON

# Dose measurements TB 2022

- Figure to be produced
- Only measurement of dose on trolley 1 for CMS reference but can be used to compare to this year's measurement

# Preliminary figures - 1

- Eff and current vs HV at source OFF for STD/ECO2/ECO3 w different markers  
→ missing errors

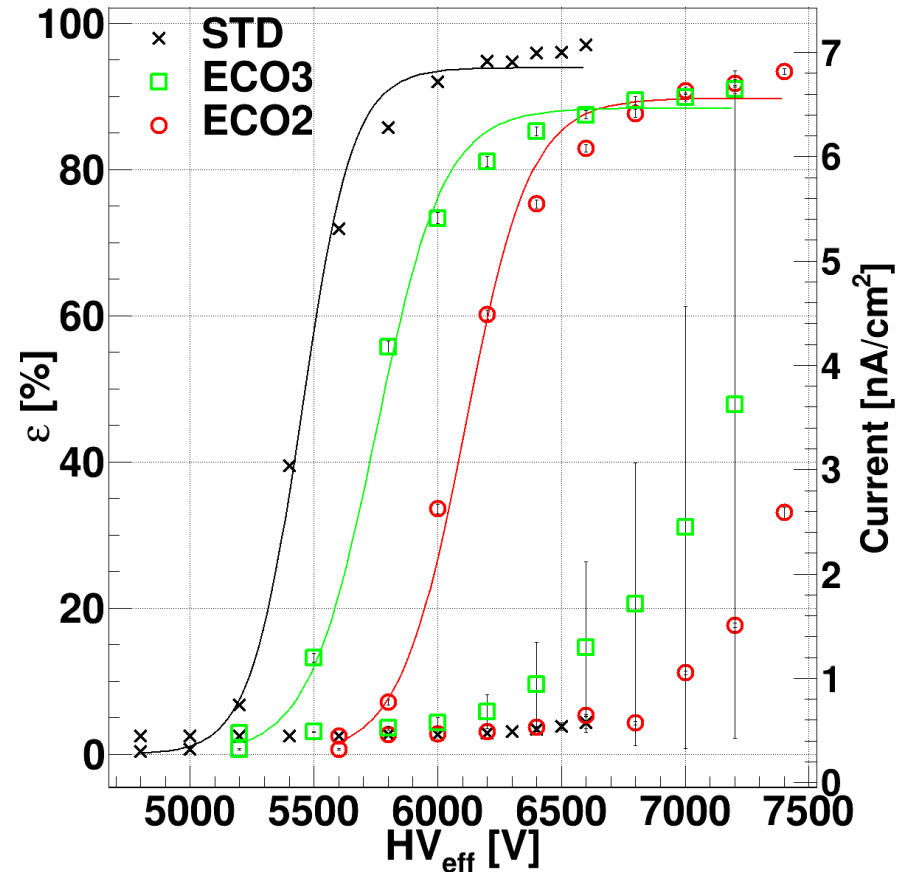


# Preliminary figures - 2

- Eff vs HV at source ON for STD/ECO2/ECO3
- Current vs HV source ON for STD/ECO2/ECO3  
→ data in the process of being filled in the table

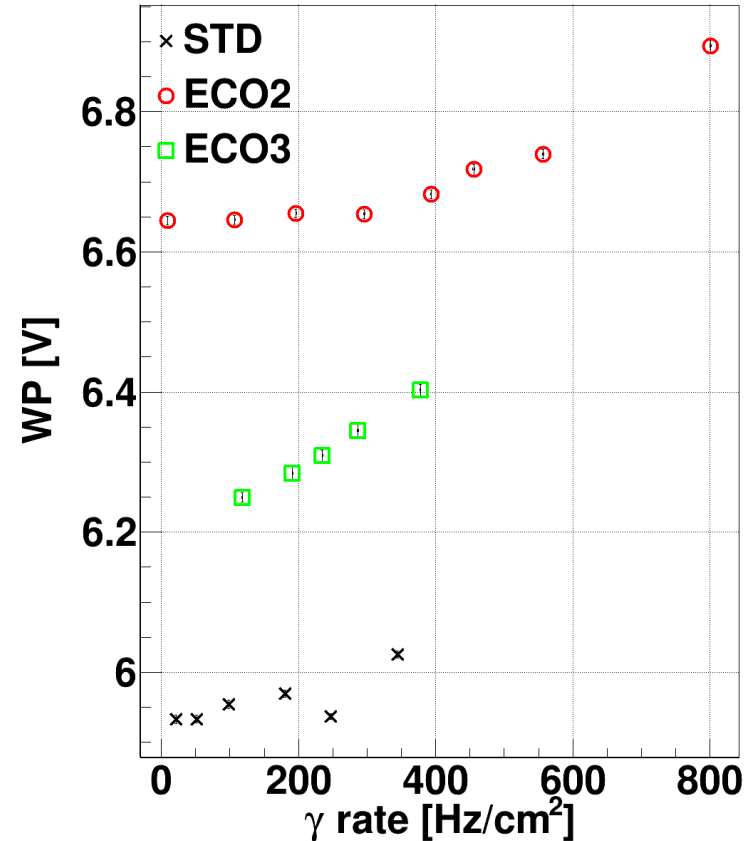
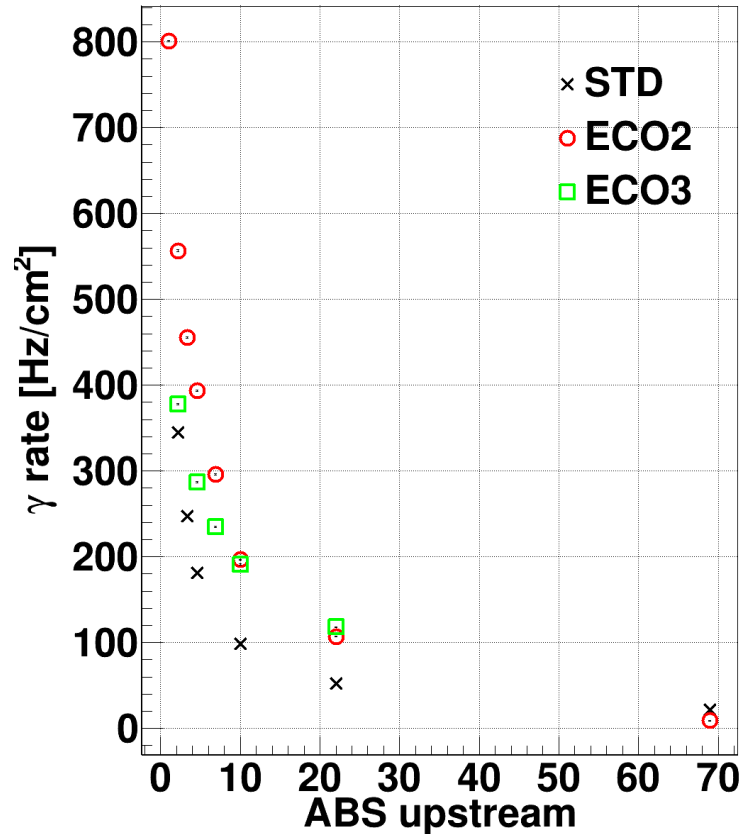
# Preliminary figures - 3

- Eff vs HV at source OFF for STD/ECO2/ECO3  
→ missing data from other mixtures from HFO/CO2 scan and errors on current too large



# Preliminary figures - 4

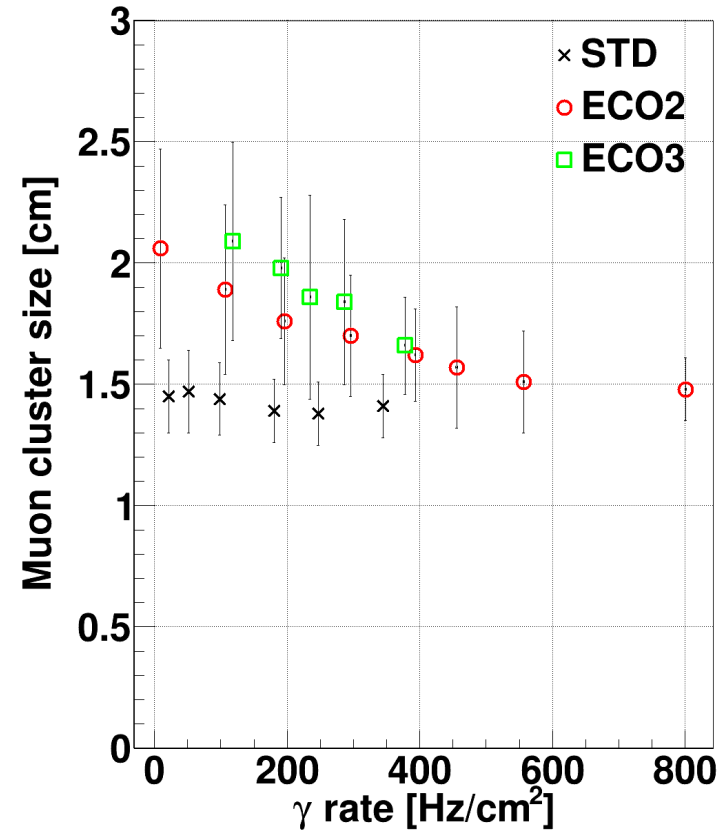
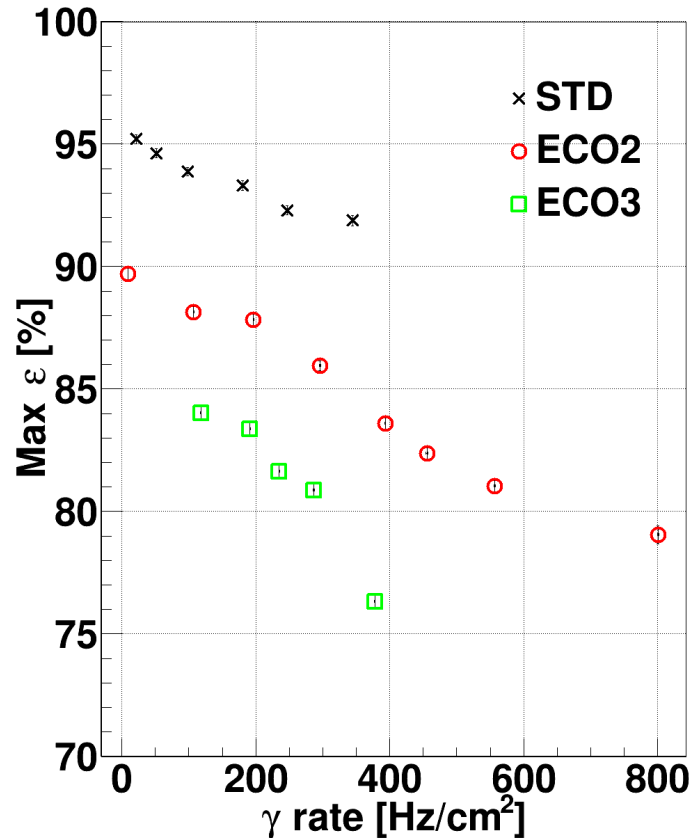
- Gamma rate (at wp) vs ABS for STD/ECO2/ECO3
  - WP vs gamma rate for STD/ECO3/ECO3
- data from other mixtures from HFO/CO2 scan not taken





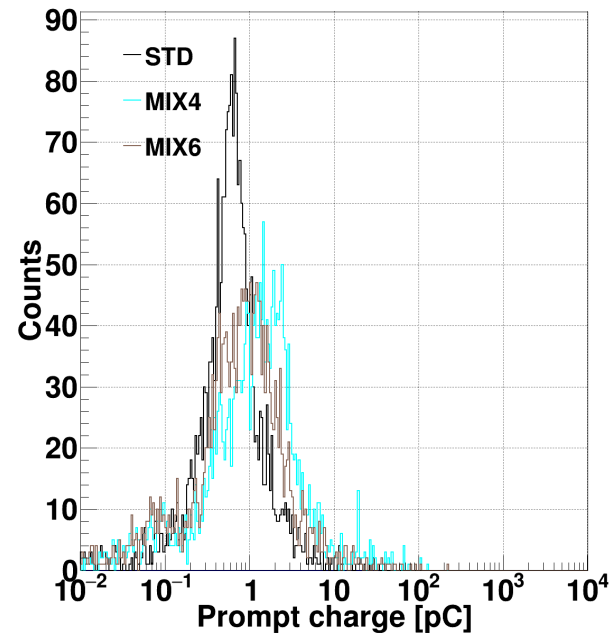
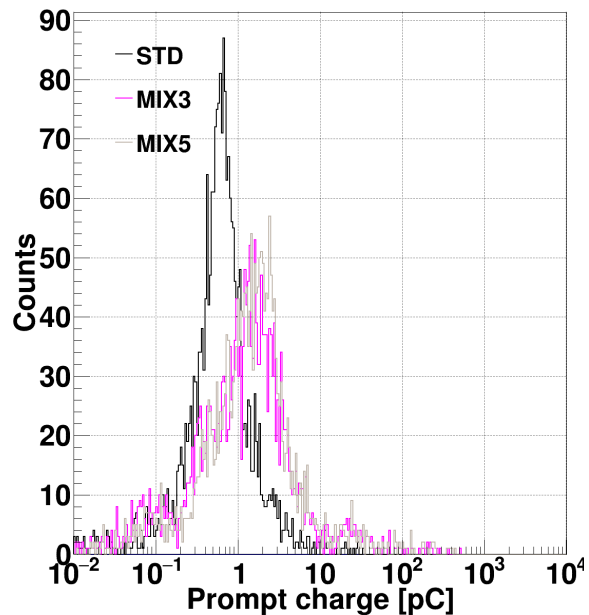
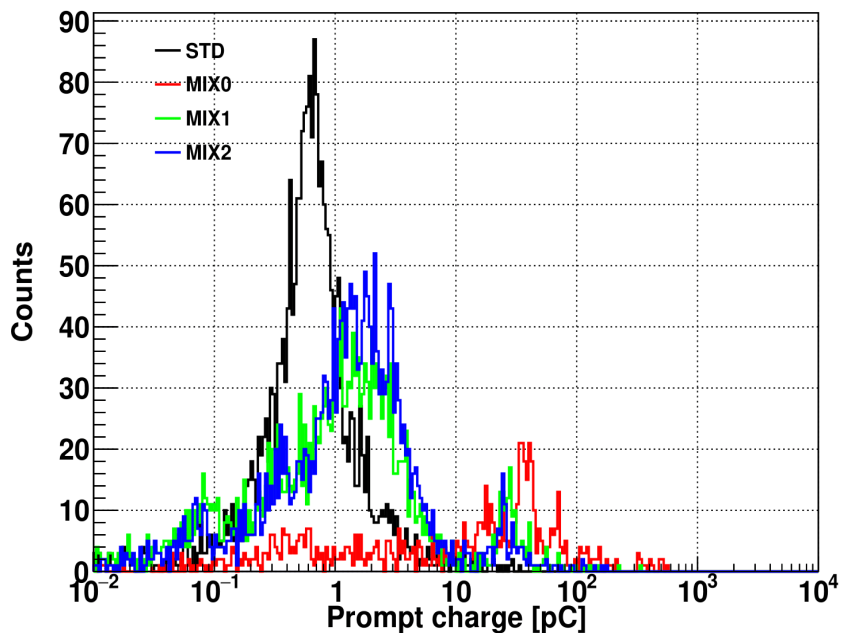
# Preliminary figures - 5

- Max eff vs gamma rate for STD/ECO2/ECO3
- Muon cs at working point vs gamma rate for STD/ECO3/ECO3
- data from other mixtures from HFO/CO2 scan not taken



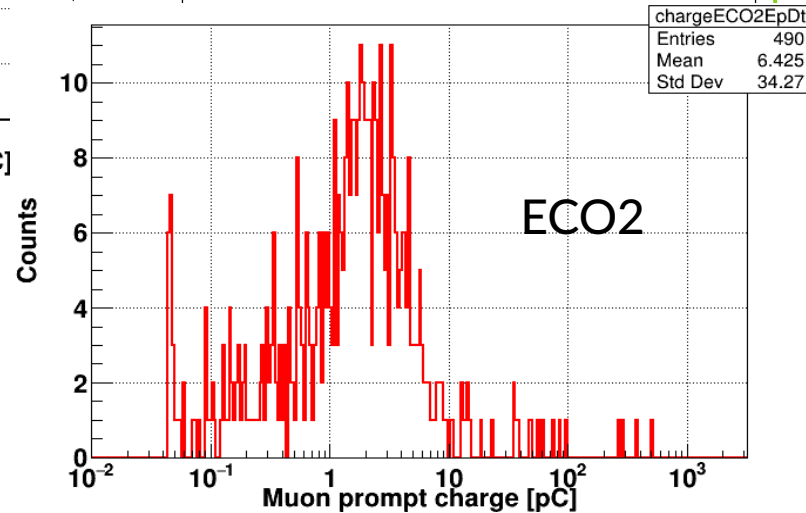
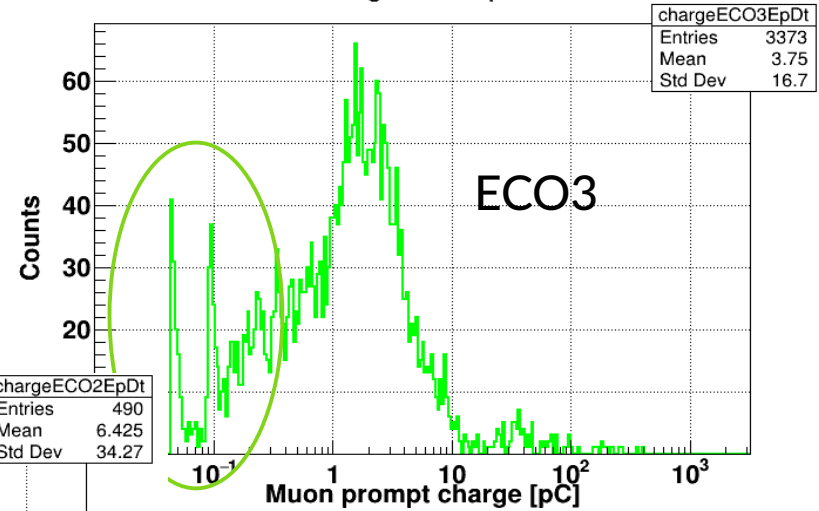
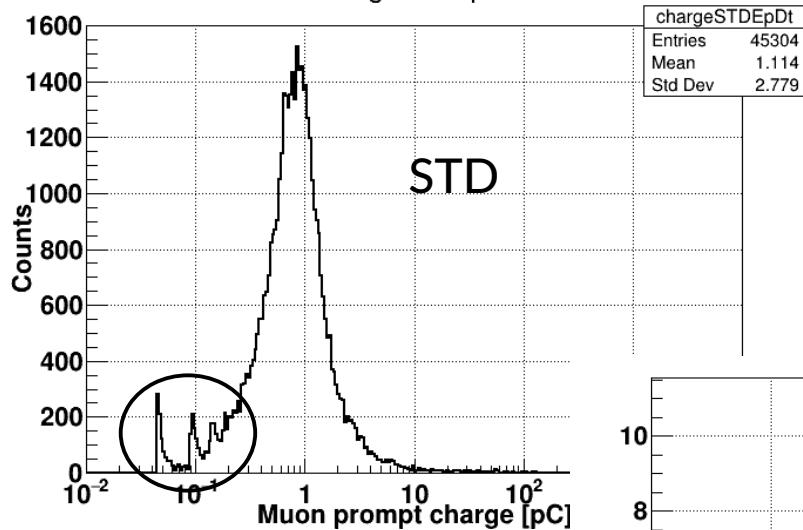
# Preliminary figures - 6

- Prompt charge distributions at source OFF



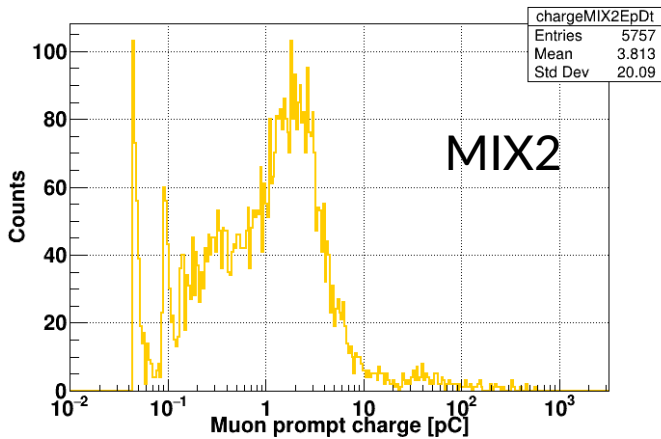
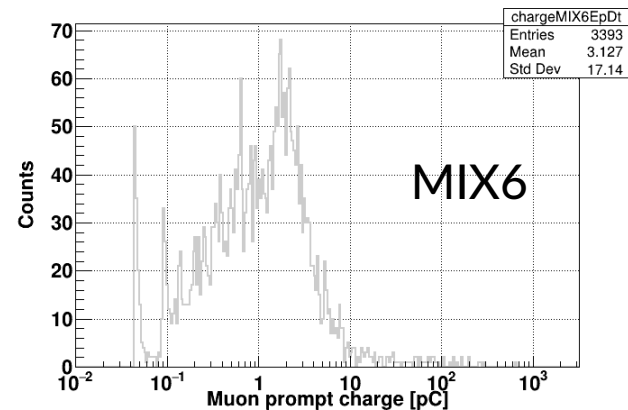
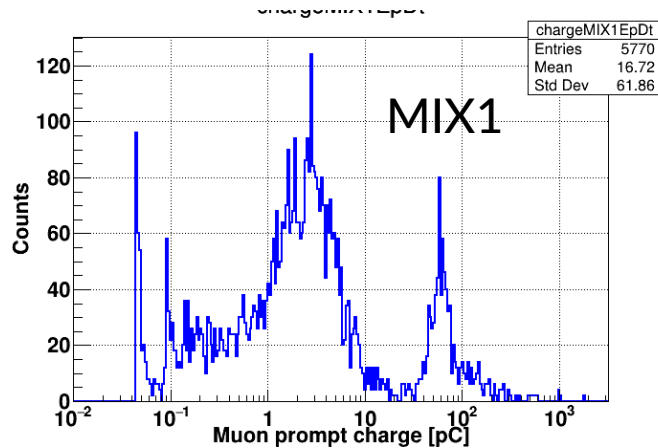
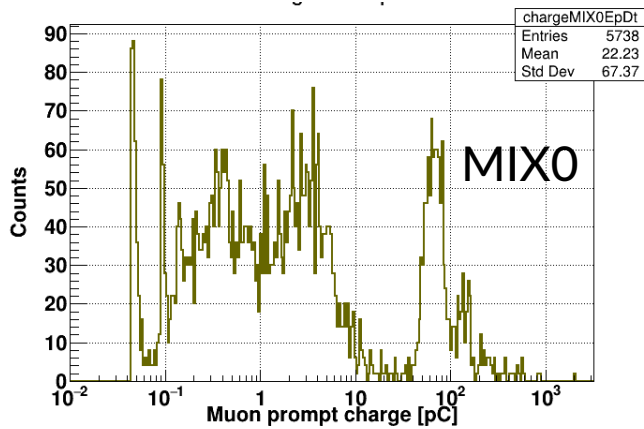
# Preliminary figures - 7

- Prompt charge distributions at source OFF
  - very small data sample for ECO2 + peaks in the left tail of the distribution noticed in all mixtures



# Preliminary figures - 8

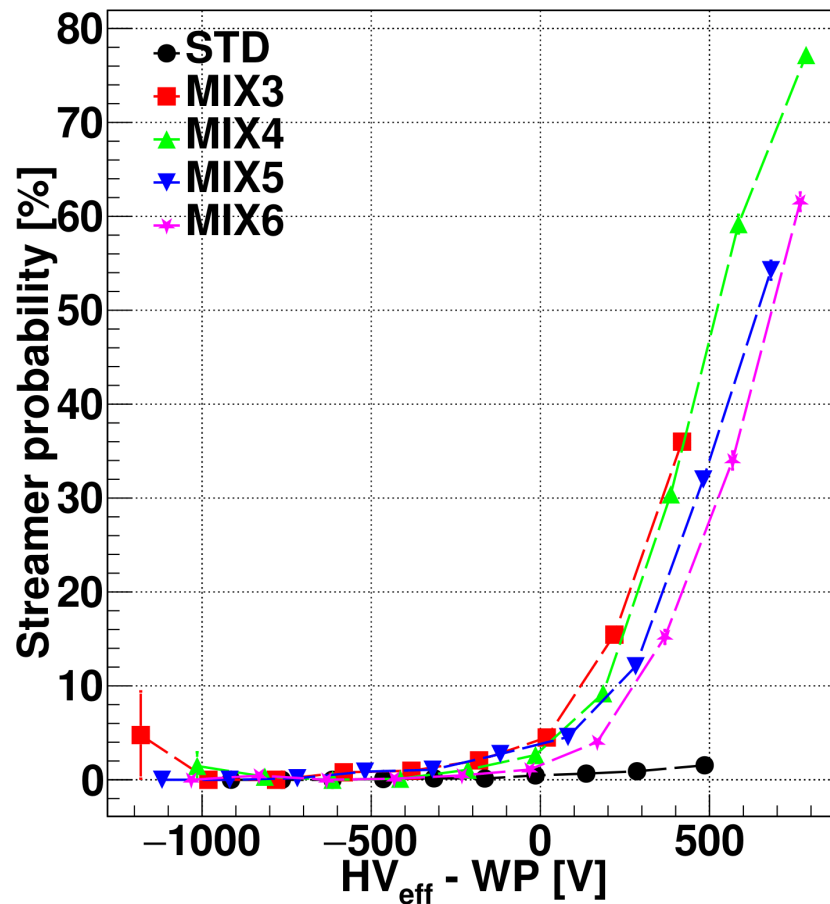
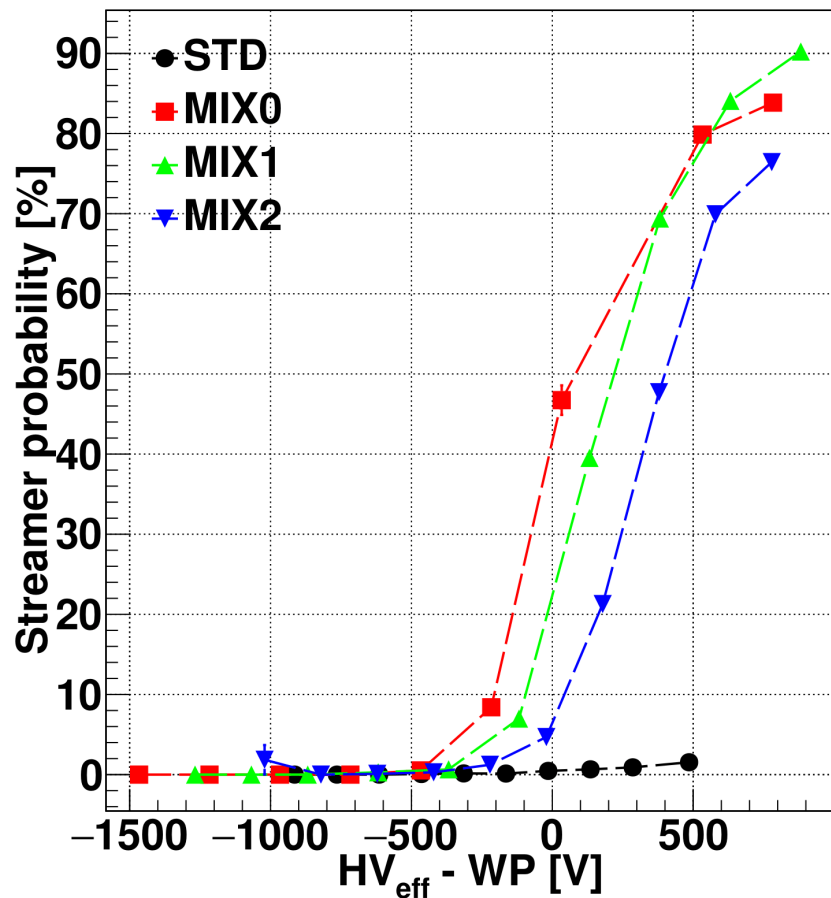
- Prompt charge distributions at source OFF  
 → peaks in the left tail of the distribution noticed in all mixtures



MIX4

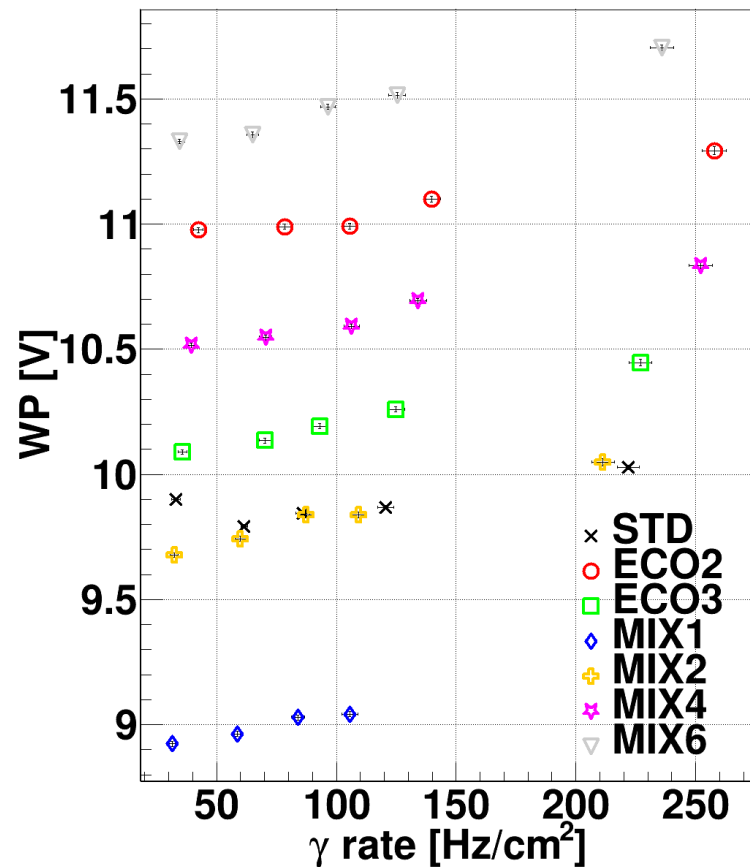
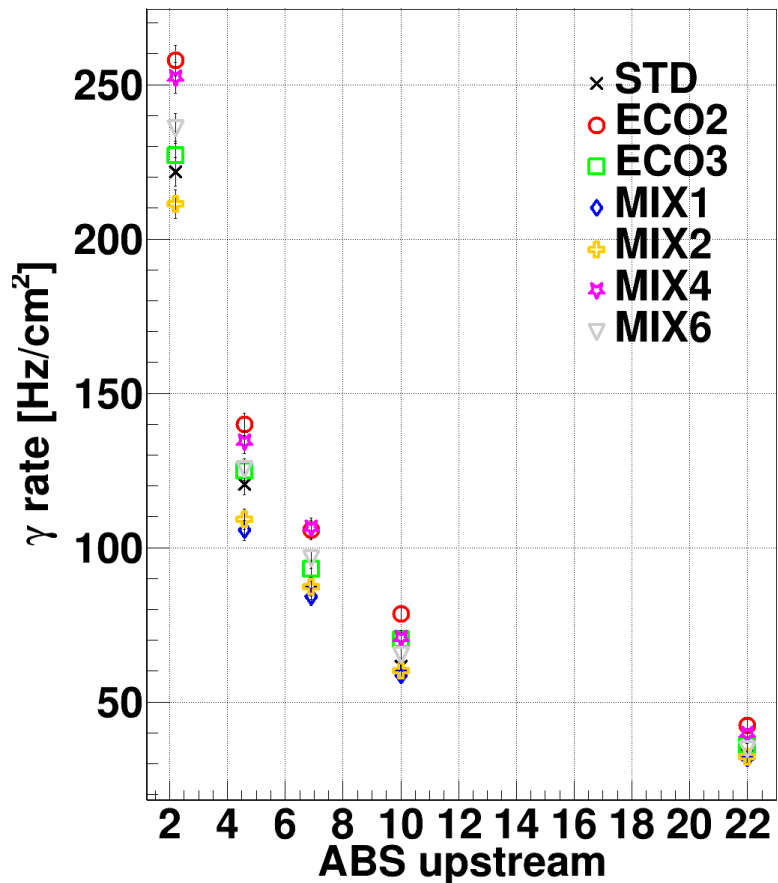
# Preliminary figures - 9

- Streamer probability vs HV for HFO/CO2 scan at source OFF



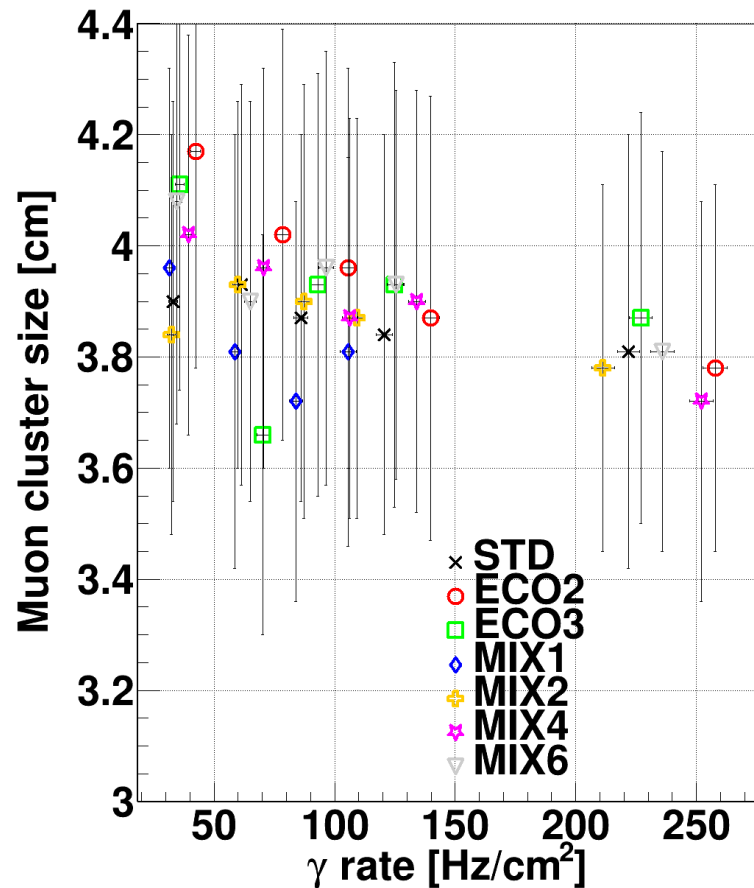
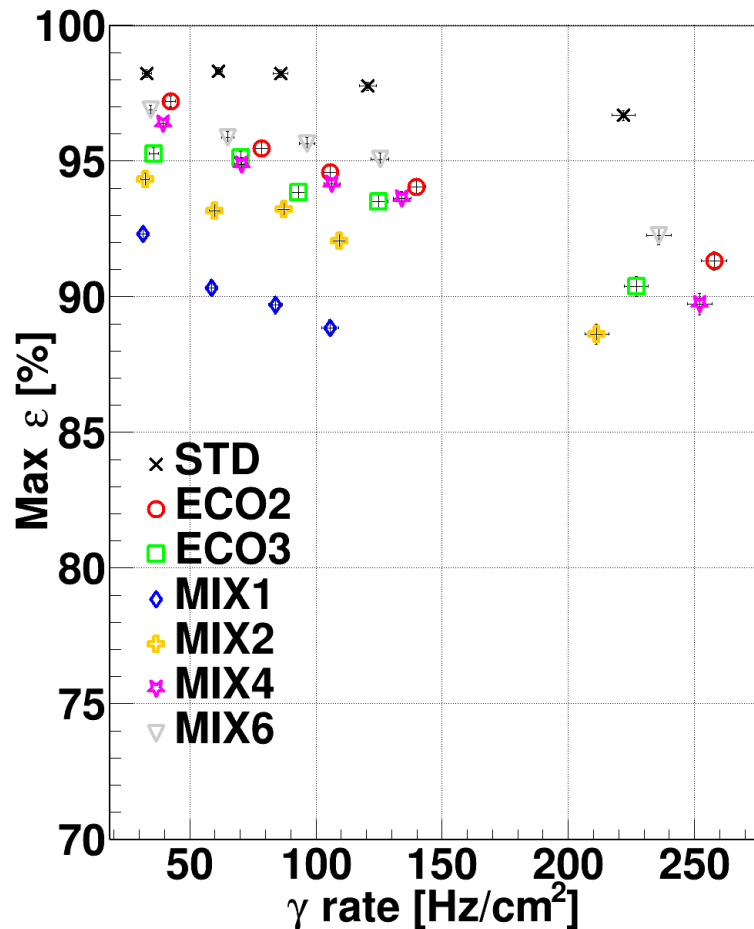
# Preliminary figures - 10

- Gamma rate (at wp) vs ABS for STD/ECO2/ECO3
- WP vs gamma rate for STD/ECO3/ECO3



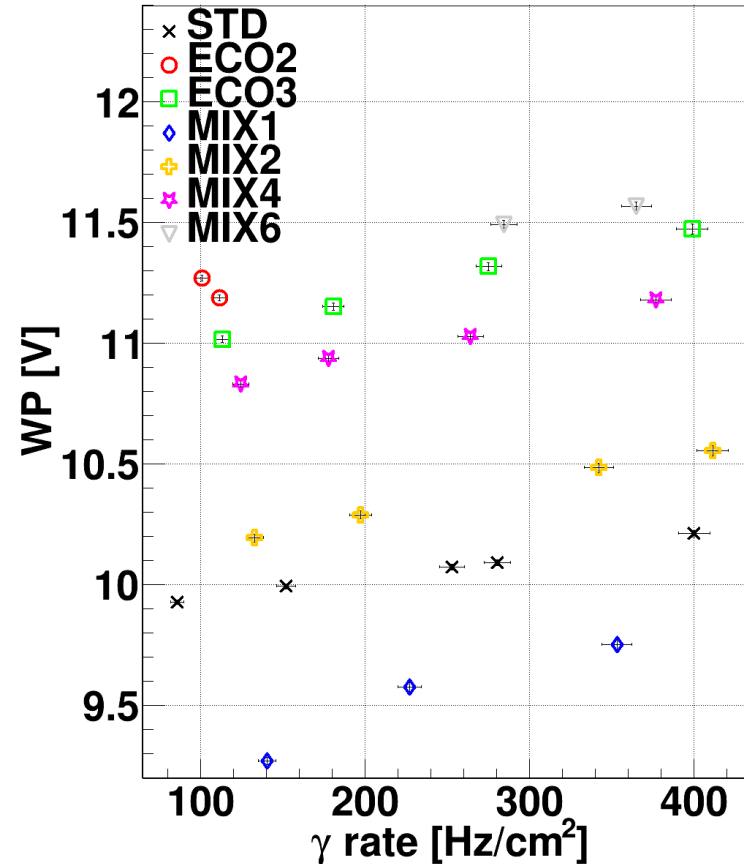
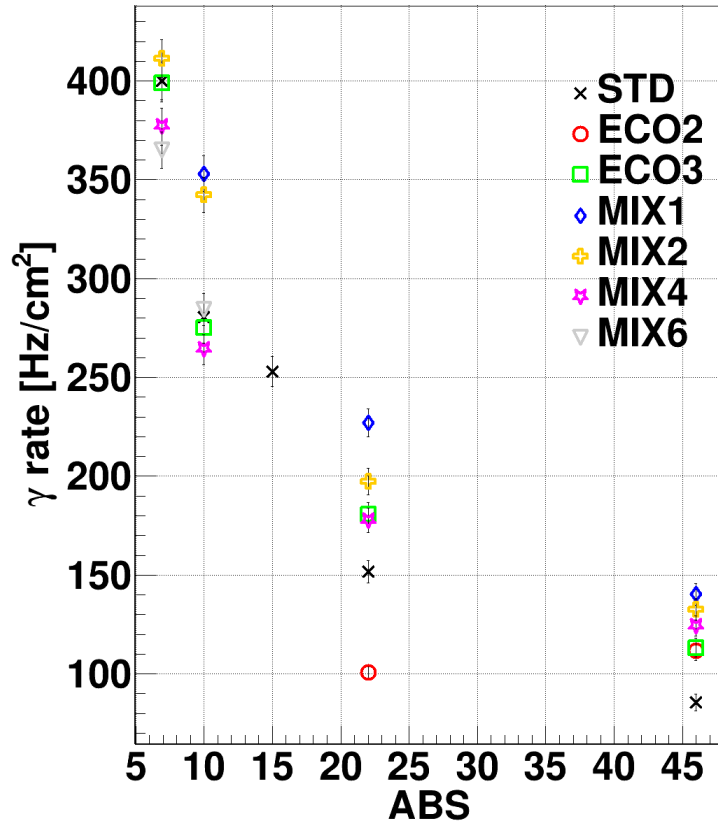
# Preliminary figures - 11

- Max eff vs gamma rate for STD/ECO2/ECO3
- Muon cs at working point vs gamma rate for STD/ECO3/ECO3



# Preliminary figures - 12

- Gamma rate (at wp) vs ABS for HFO/CO<sub>2</sub> scan
  - WP vs gamma rate for HFO/CO<sub>2</sub> scan
- Few points for ECO2?

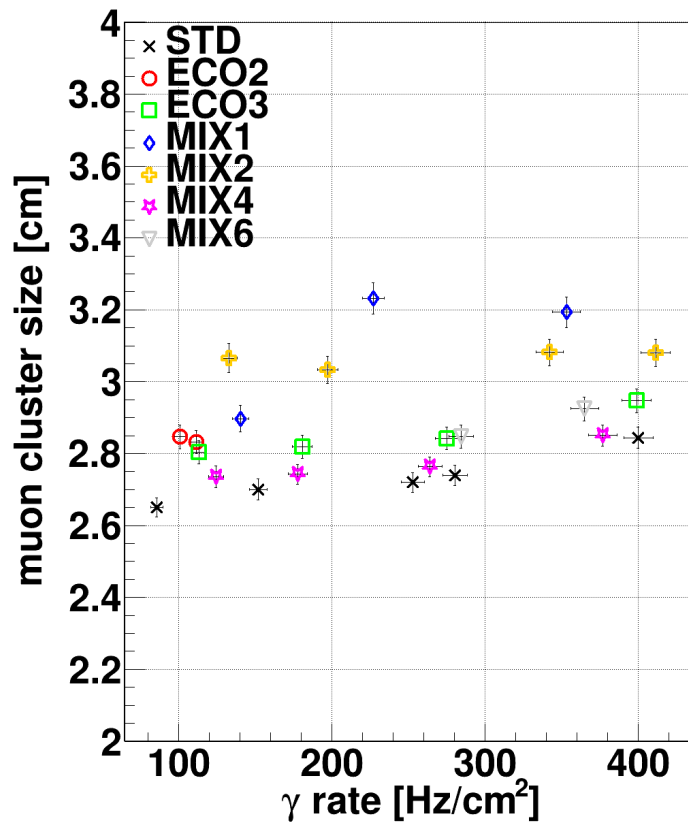
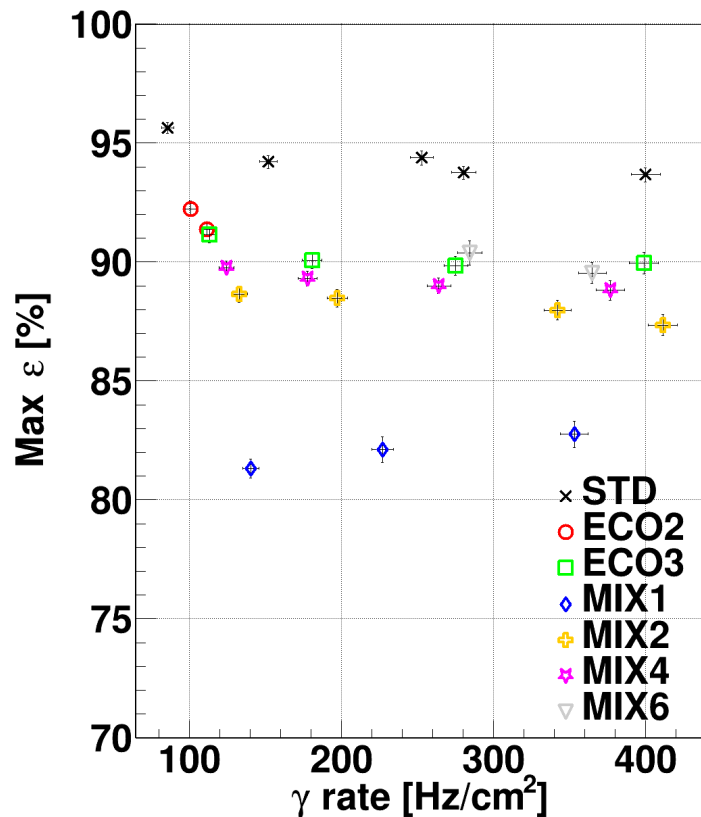




# Preliminary figures - 13

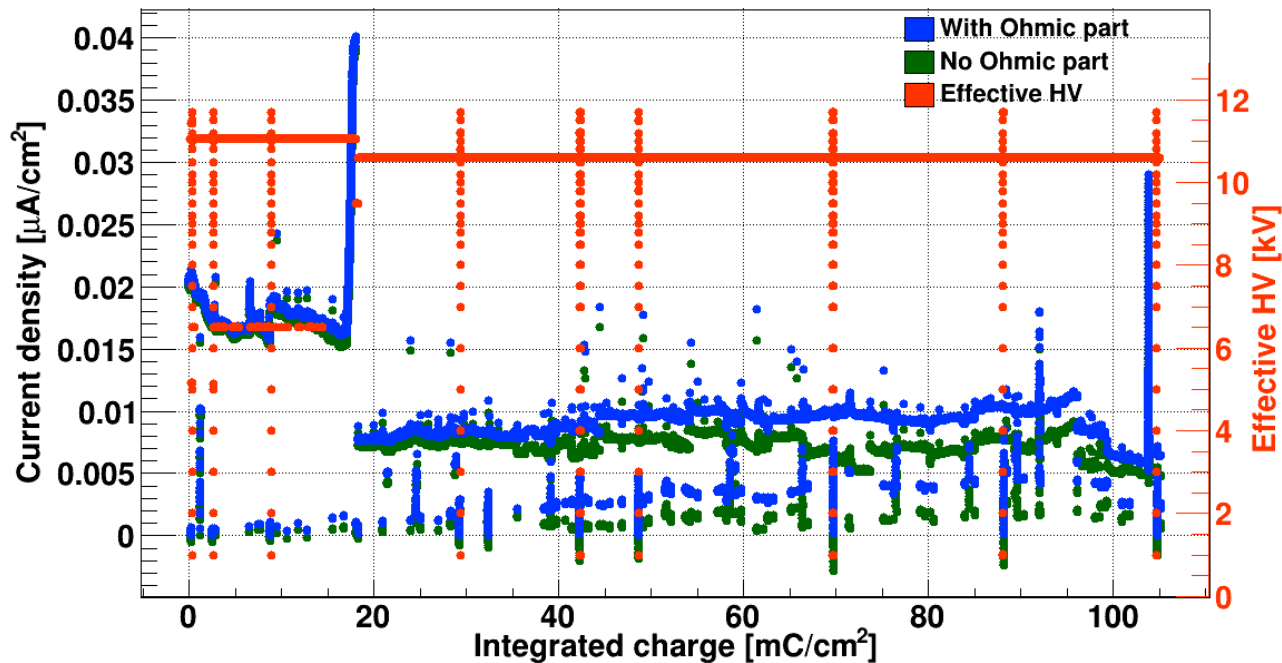
- Max eff vs gamma rate for HFO/CO<sub>2</sub> scan
- Muon cs at working point vs gamma rate for HFO/CO<sub>2</sub> scan

→ Few points for ECO2?



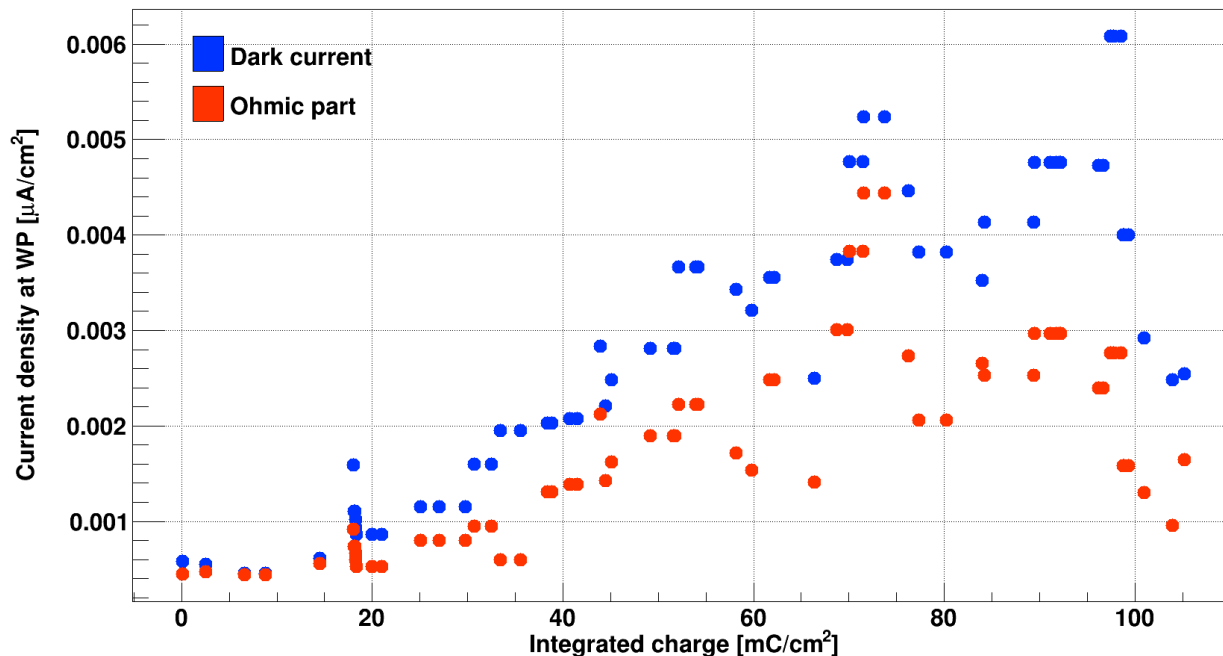
# Preliminary figures - 14

- Trend of the current at all times (source ON and source OFF) vs integrated charge  
→ can be produced for all detectors
- With and without the contribution of the Ohmic part of the dark current (recalculated week by week using the weekly source off scan)
- Also shows the stability of the applied HV



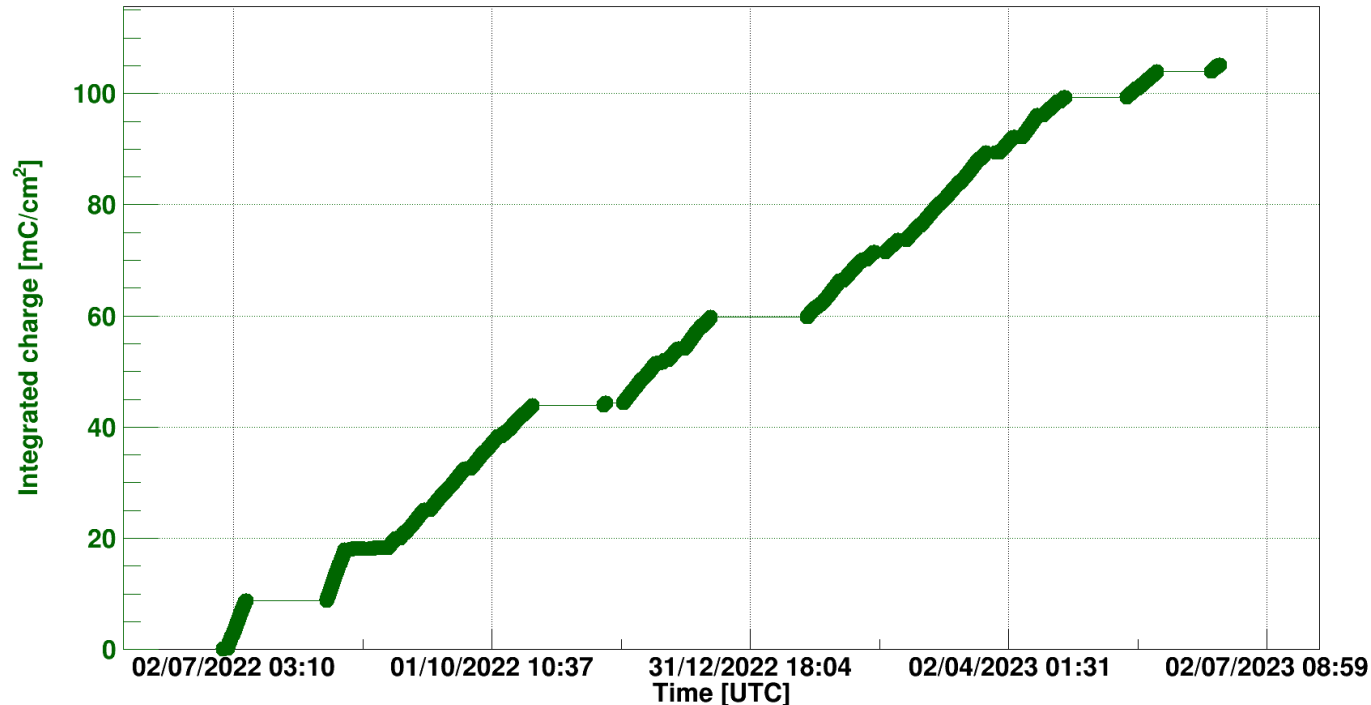
# Preliminary figures - 15

- Total dark current + Ohmic part of the dark current at irradiation voltage vs integrated charge
  - can be produced for all detectors
  - can also be shown vs time but in this way if we didn't have irradiation for some time there are no gaps
  - same source OFF scan shown multiple times, we can also decide to show a single scan per week or something similar



# Preliminary figures - 16

- Integrated charge vs time to show the aging progression
  - can be produced for all detectors
  - integrated charge calculated without Ohmic contribution to the dark current
  - can also be produced with the Ohmic component on the same plot to show the difference between the two scenarios



# Conclusions

- First plots are being produced
- After the meeting we will updated them to the shared folder for you to have a look
- By next meeting:
  - 1) Update of plots with comments from this meeting
  - 2) Production of plots for (hopefully) all detectors involved
  - 3) Continuation of paper writing

**Thank you for your  
attention!**