



FT operations

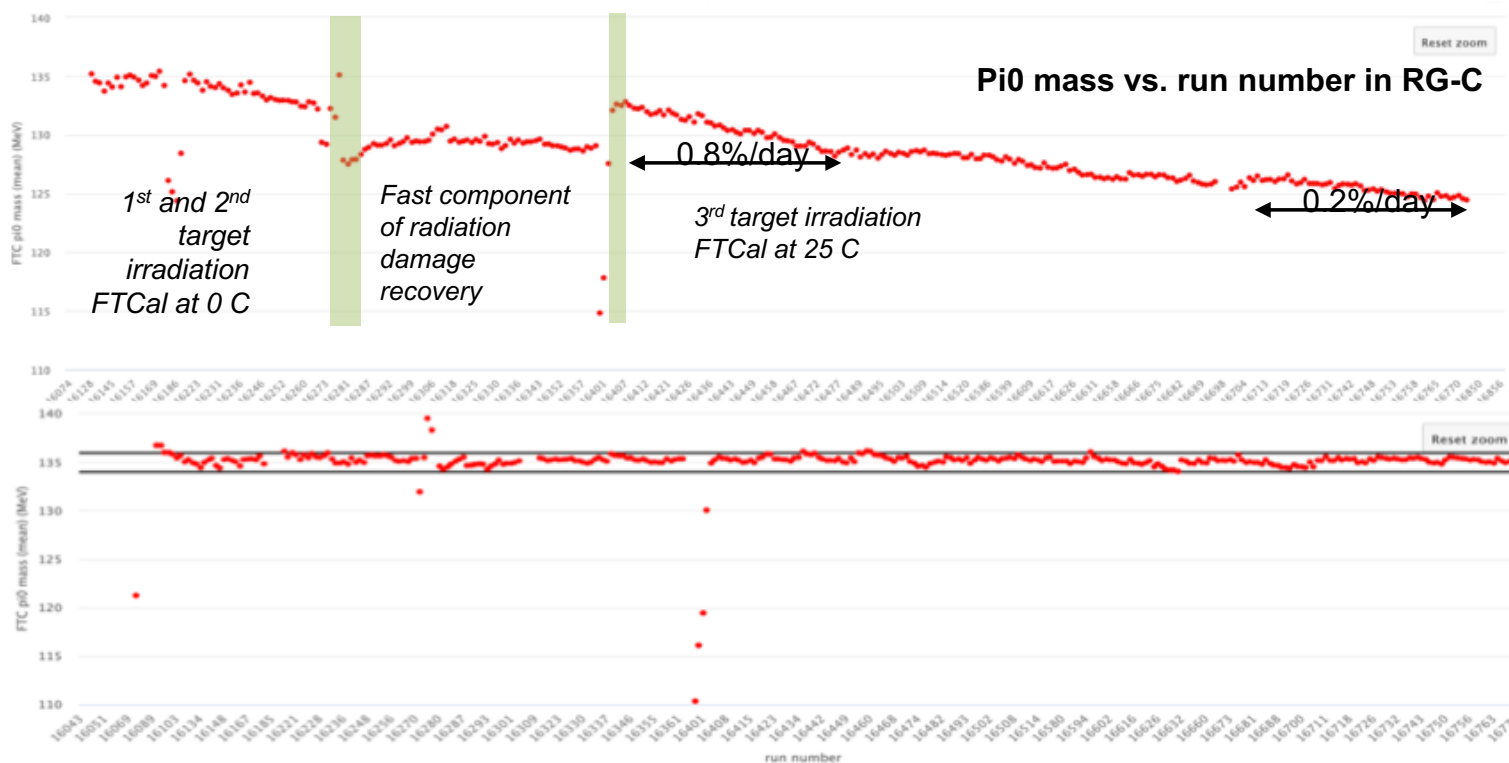
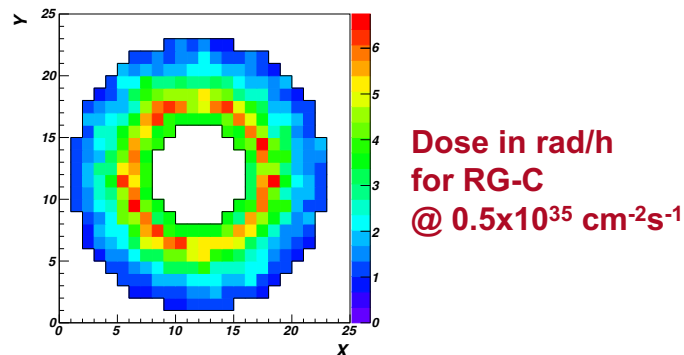
R.DeVita (JLab/INFN), M.Battaglieri (INFN/GE)

Activities in 2023-24

- Full detector checkout and test with cosmics, preparing for the next run
- Support to background studies for the upcoming run (RG-L)
- Calibration of the 2022 data (RG-C) and recalibration of the old data
- Tuning of the simulation package to match the measured resolution

Forward Tagger in RG-C

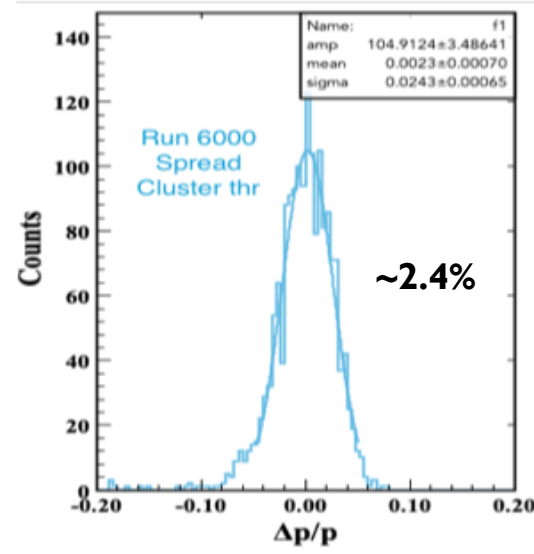
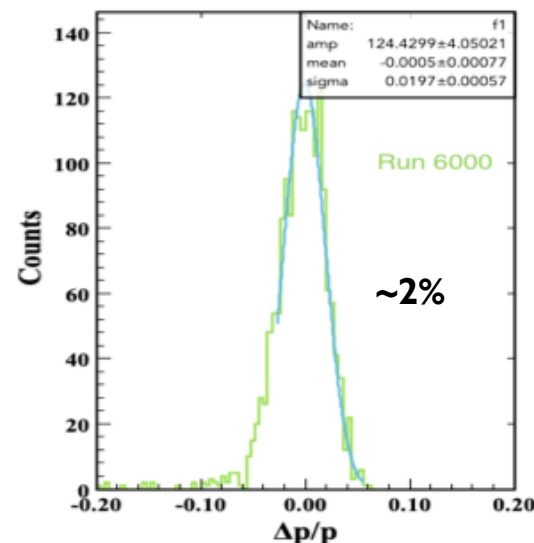
- FT needed as photon detector for DVCS
- System exposed to high radiation levels due to rastered beam, with loss of LY of 0.2-0.8%/day at 4-5 nA ($0.5 \times 10^{35} \text{ cm}^{-2}\text{s}^{-1}$ per nucleon) consistent with previous runs and estimates from MC simulations
- Mitigated with extensive calibrations:
 - Improvements to calibration code to minimize human intervention and provide better metrics on results quality



Before and after calibration

Tuning of MC simulations

- Current simulations do not reproduce the resolution observed in data
- Systematic check/update of detector digitization algorithm:
 - Using measured light yield to account for crystals' non-uniformity
 - Using measured thresholds
 - New smearing function in ADC calculation to account for calibration accuracy
- M.Spreafico (postdoc) and T.Vittorini (PhD student) will take care of FT calibrations in 2025
- Cooling liquid needs to be replaced



FTCAL energy resolution, courtesy of M. Spreafico