



CNAO data-taking: goals and questions

G. Battistoni – G. Traini

Physics goals



- Pre-run necessary activities:

- Check of low intensity beam in XPR (it would be the first time there). Beam width and position to be verified at all programmed energies (see below)
- Usual empty target run, alignments etc.
- Calibrations (to be performed after the physics run?)
- DeltaT of cables
-

Fragm. Trigger!

- Minimum:

- Repeat with ^{12}C the same measurements performed at GSI in July (200 MeV/u + 400 MeV/u with C and C_2H_4 targets) possibly using Fragn. Trigger

- Additional possibilities:

- Add an intermediate energy (300 MeV/u)
- Moving at different angles TW + Calo
- High intensity run dedicated to neutrons

Questions



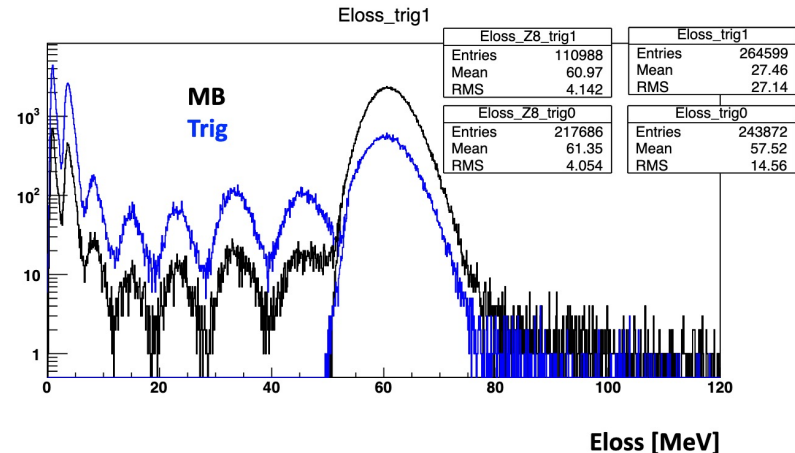
- Which calibration runs are needed?
- Are SC and BM sufficient to monitor the low intensity beam at CNAO?
- At GSI we were forced to have TW at 180 cm from target. This is not necessary at CNAO
 - ToF resolution would allow us to have TW closer and gain in solid angle (MSD have also to be moved of course to match the acceptance)
 - Do we adapt this choice with energy?
- ...

Other: Is "Osteria della Madonna" still running?

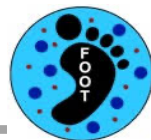


Timing considerations

- The DAQ rate @ GSI was 200-500 Hz in normal conditions (the machine duty cycle is included)
- Let's assume as a goal at least 10^7 (2×10^7) minimum bias events for C (C_2H_4) target
- Looking @ the GSI data (400MeV/u runs, “right spot size”), the fragmentation trigger allows for a factor ~ 5 gain in the number of acquired fragments
- Making calculations.. It translates in:
 - 3h/Energy/Target C
 - 6h/Energy/Target C_2H_4
 - 18h to reach the “minimum goal”
(2 energies 2 targets)



A couple of recommendations



- In view of the optimization of next data taking it would be fundamental to concentrate some effort of analysis of GSI2021 data to understand quickly:
 - Alignment
 - Performance of Fragmentation Trigger: how many “Minimum Bias” events do we need to measure the efficiency of this trigger?