CNAO Data Taking
TW measurement plan

07/10/2020

What we need to do…

- Assemble the detector and check that everything works as expected
- Detector scan with several energies
- Investigate the effect of the calorimeter in the TW
- Check reproducibility of results

Calibration plan

Ione	Energia
C	115 MeV/u
C	150 MeV/u
C	200 MeV/u
C	300 MeV/u
C	400 MeV/u
p	70 MeV
p	95 MeV
p	135 MeV
p	220 MeV

- Time needed for each scan: about 20 minutes, about 10^3 counts/cm
- During all the scans the Margarita will be read together with the TW in the nominal position
- Decoding of the calibration data will take a while, but some monitoring on data will be taken right after the scan
- Calibration should be performed on two different days so to have time to analyze data after a first set of scans
- Separation among different days will be useful also to test reproducibility

Roadmap

- I part: assembly of the system and power on
- II part: First fast scan
  - Check signals from all channels
  - Threshold setting and verification
- III part: Calibration
  - Scans performed with both carbon and proton (about half of the energies)
- IV part: Calibration
  - Scans performed with the remaining energies plus one of the first day
  - Test with/without calorimeter
  - Test with different data rate
  - Single scan with Margarita close to the TW

Timeline

- I part: assembly of the system and power on
  - At the end of PART I the system should be ready to acquire a scan of the TW.
  - Needed time is difficult to esitimate, maybe a full day
  - Comprehend cabling in/out the room, movement tests, cosmic acquisition.
- II part: First fast scan
  - At the end of PART II the system should be ready for calibration.
  - 8 hours of work, 6 without beam and 2 hours with beams
- III part: Calibration
  - At the end of PART III Calibration is partially performed and critical issue should raise at this stage.
  - 8 hours of work, always with beam and no detector in front of TW (except for Margarita)
- IV part: Calibration
  - At the end of PART IV Calibration is completed
  - Need to be performed at least one day after Part III
  - 8 hours of work depending also on the results of Part III

Discussion

- 3-phase current access in the experimental room
- Acquisitions in part II will be made using the oscilloscope function of the WaveDAQ
- Acquisitions in part III and IV can be made with the whole DAQ or only our part