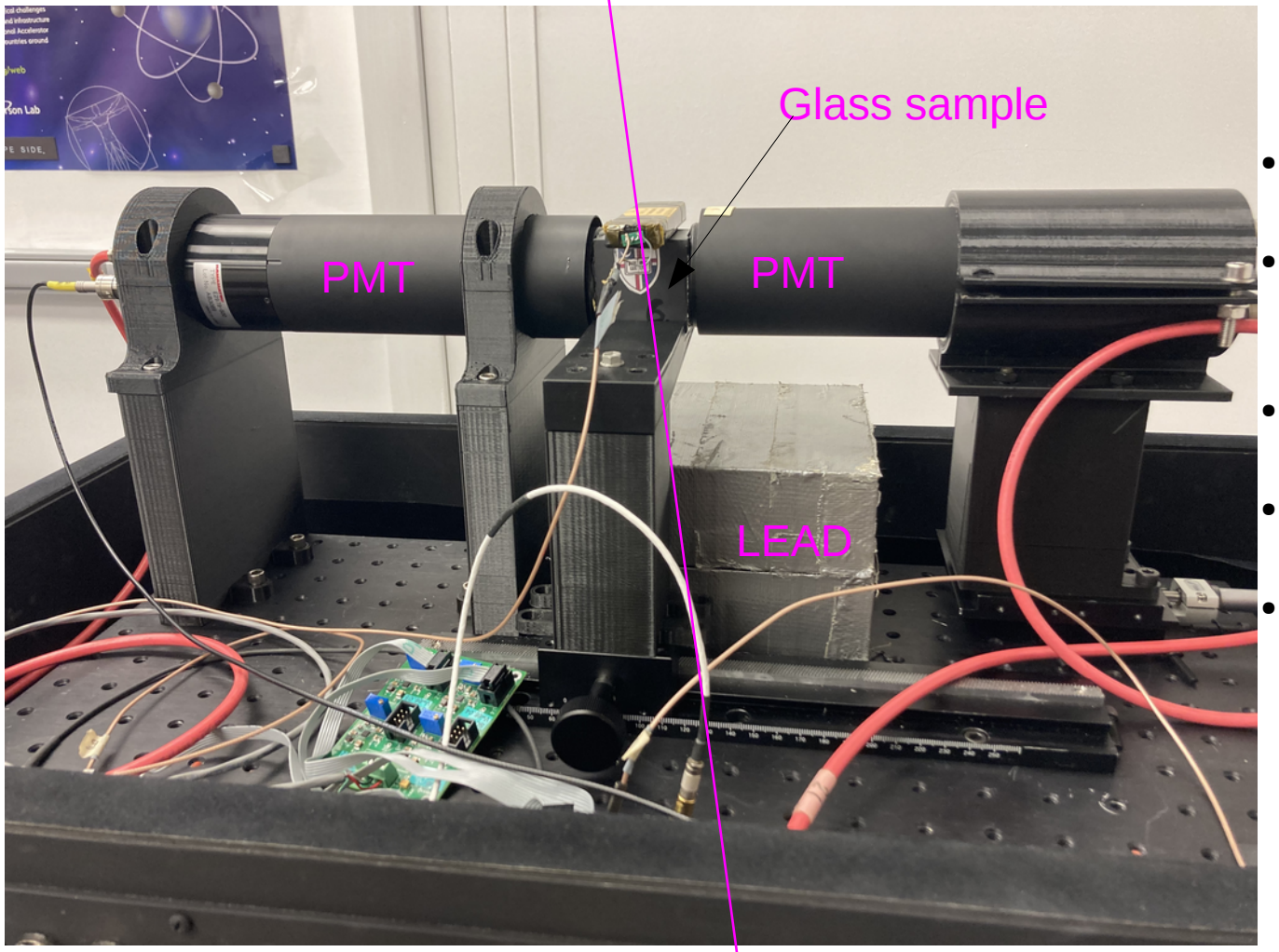
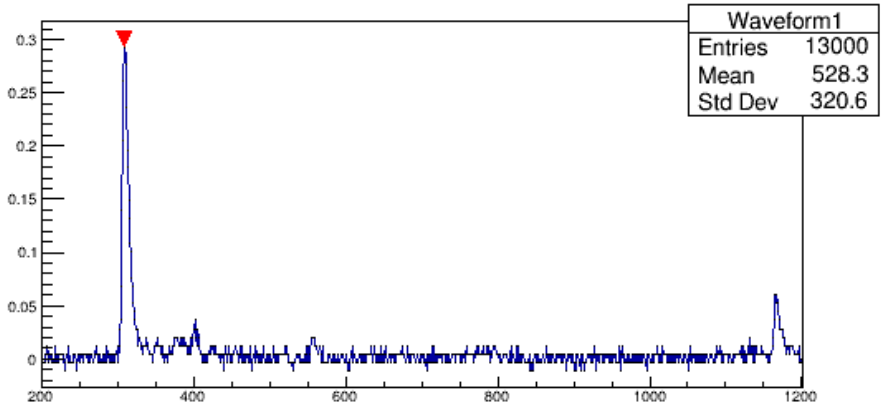
SciGlass dual readout setup

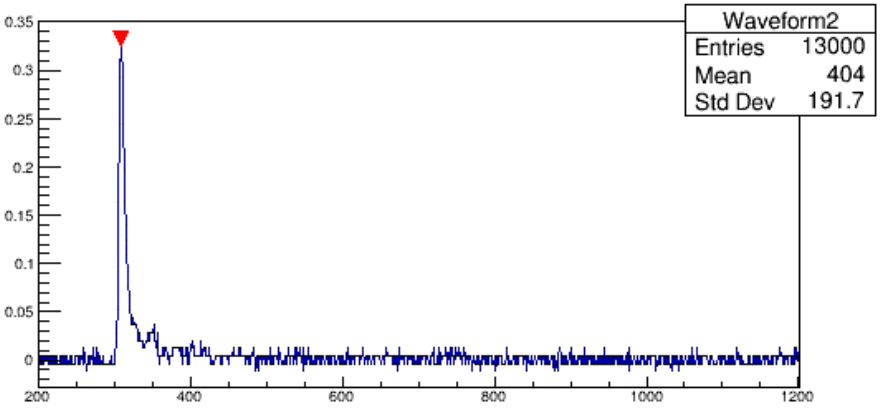
Muon, E ~ (2-4) GeV



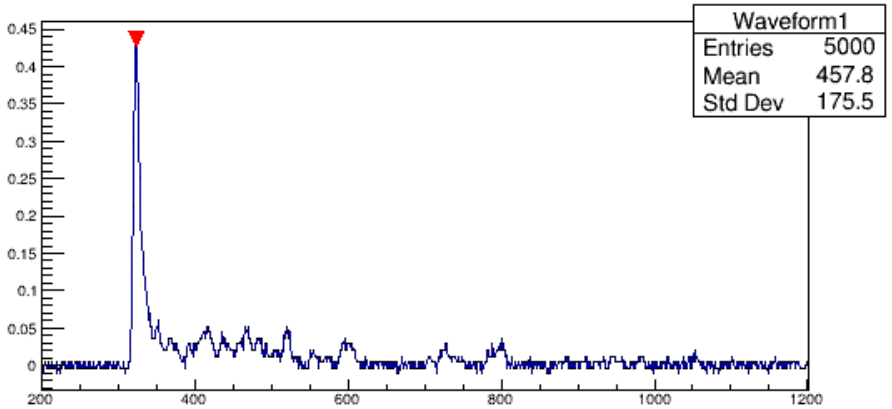
- Measurements with cosmic muons
- Two lead blocks to reduce soft electron background from ceiling
- Trigger - coincidence between two plastic scintillators
- DAQ Tektronix scope MDO4043C
- Full waveform readout event by event and offline analysis of individual waveforms

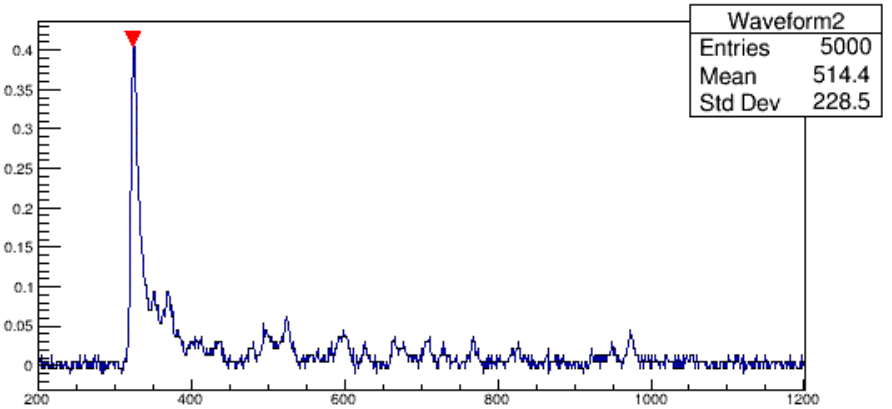
Sample 6 (no cerium)



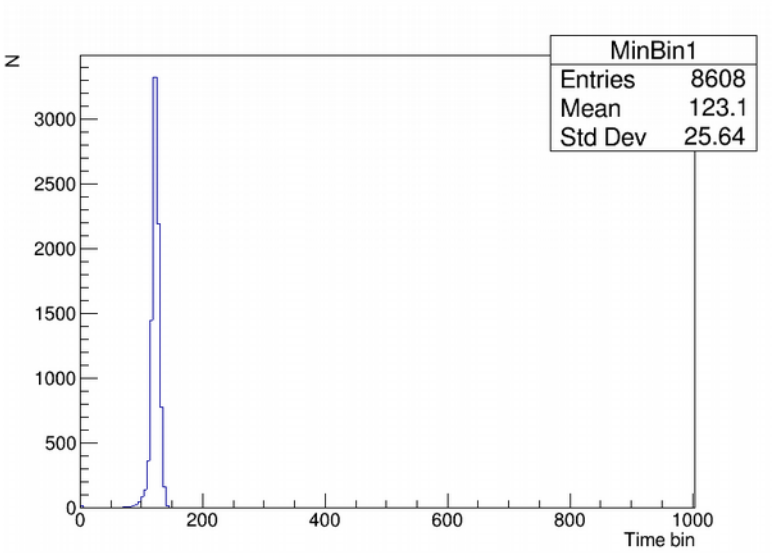


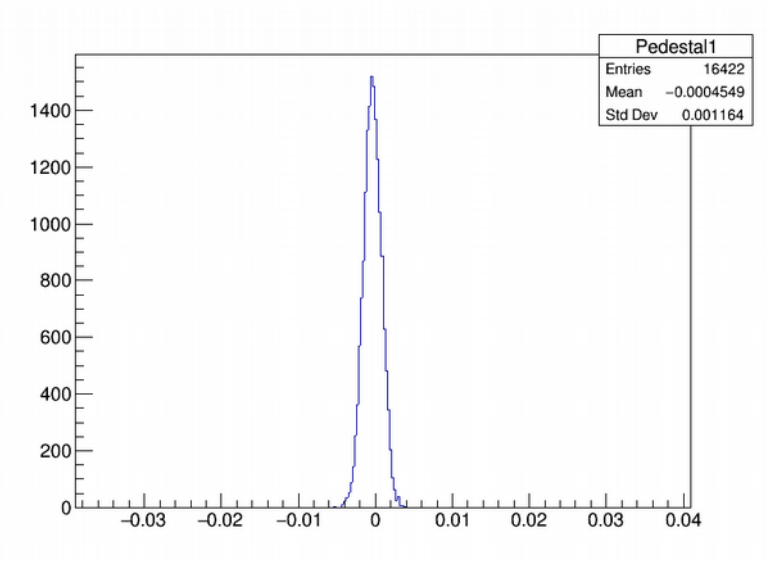
Sample 9 (with cerium)



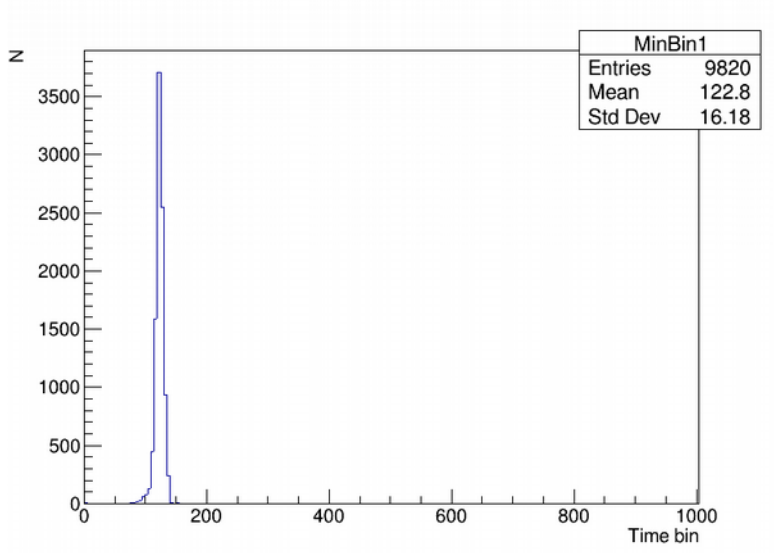


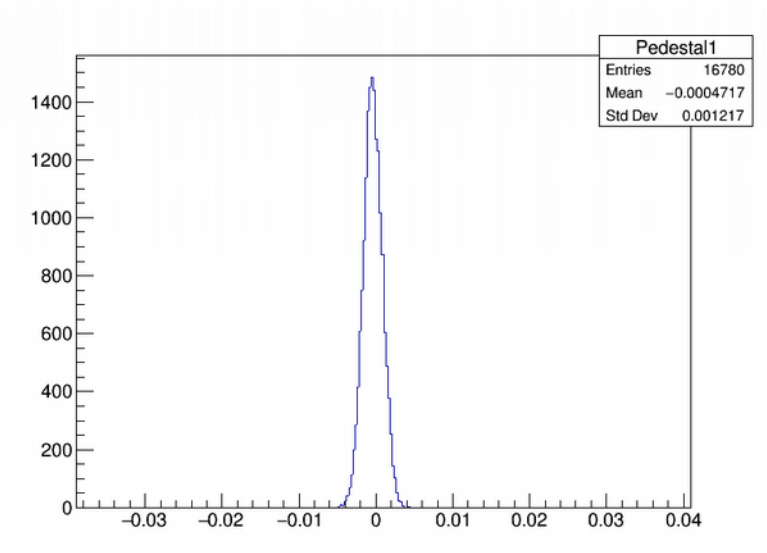
Sample 6 (no cerium)

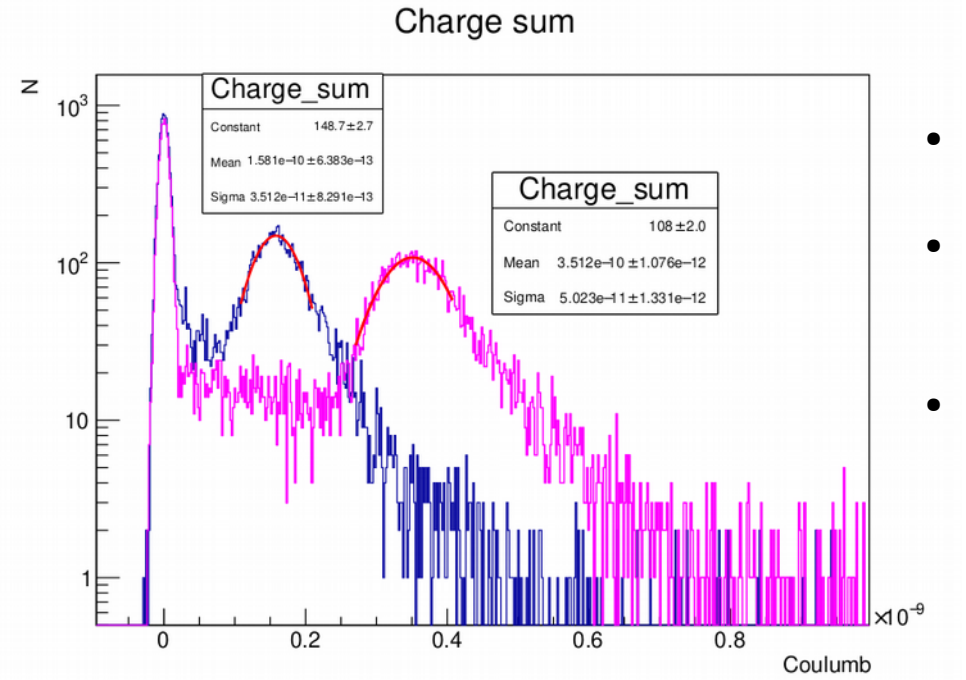




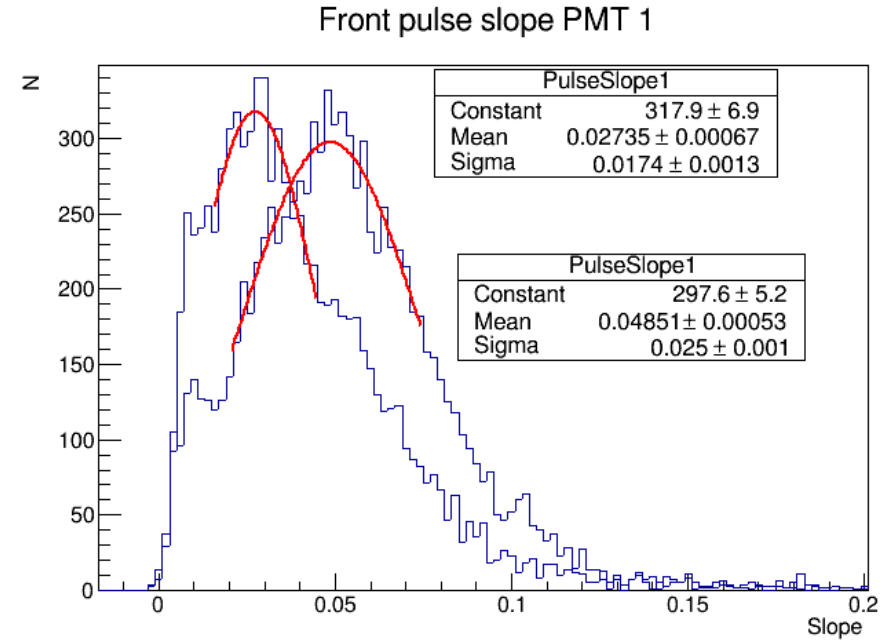
Sample 9 (with cerium)







- Charge (integral) within 80ns time window
- Cherenkov light corresponding to ~50% of total collected photons according to plot
- Chereknov light collection will benefit if glass transmittance improved in the blue wavelength region



- To separate Cherenkov from scintillation using pulse time information from the waveform is difficult
- Effect is visible but to separate faster photo sensors and DAQ needed
- Separation may be possible using waveform shape information using ML techniques (see Petr`s talk)