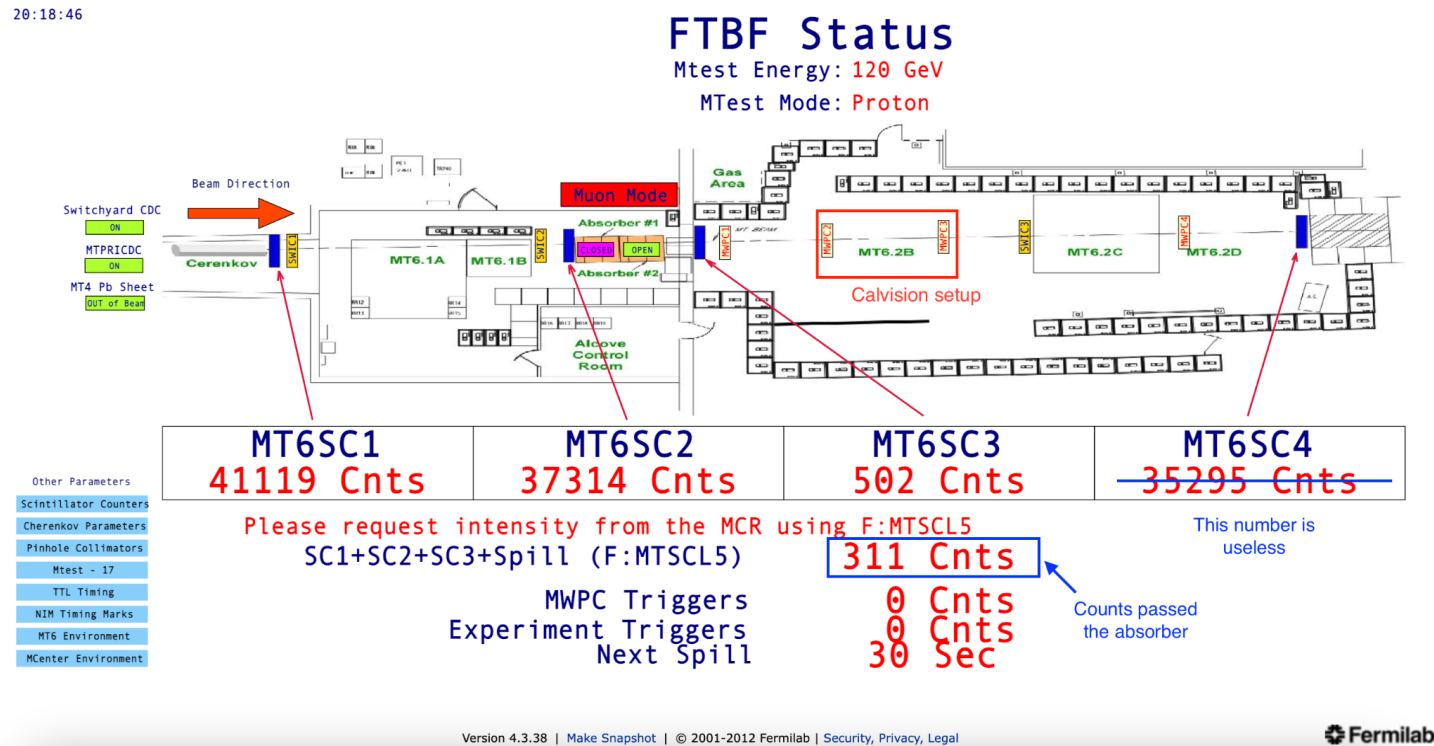


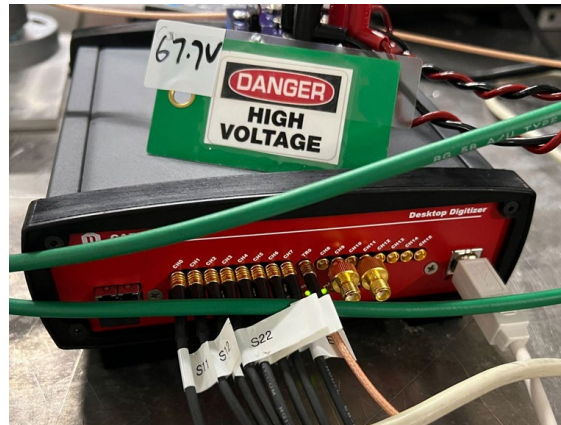
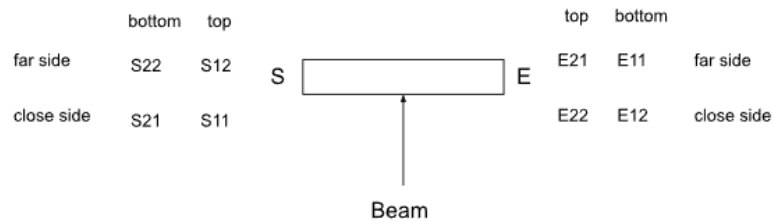
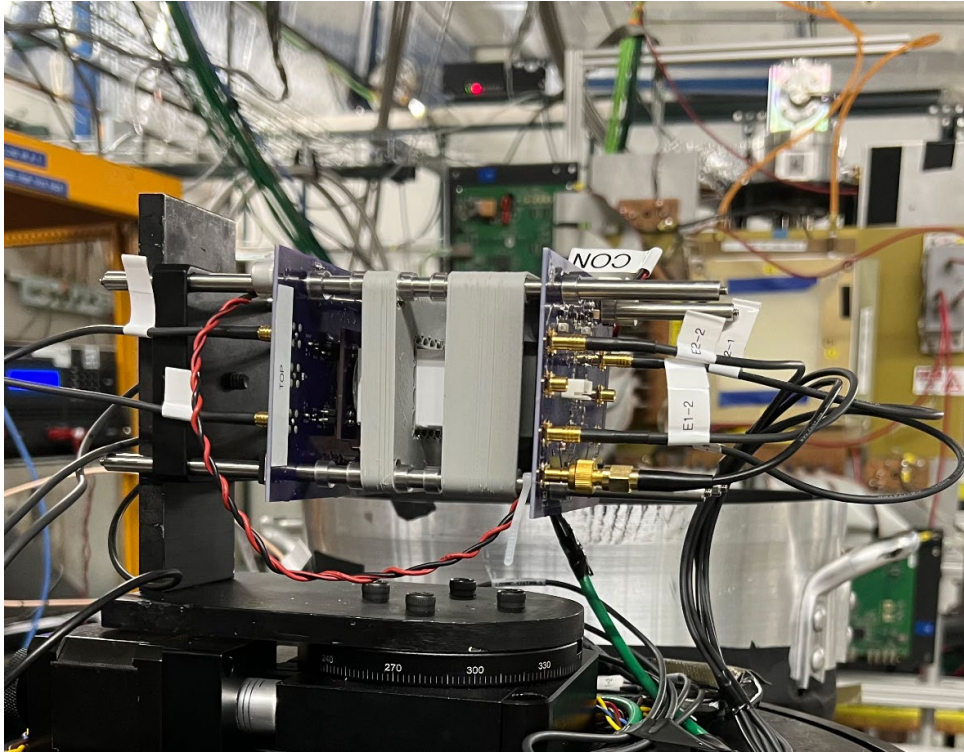
Fermilab test beam

- Many people worked hard to make our test beam studies possible at Fermilab

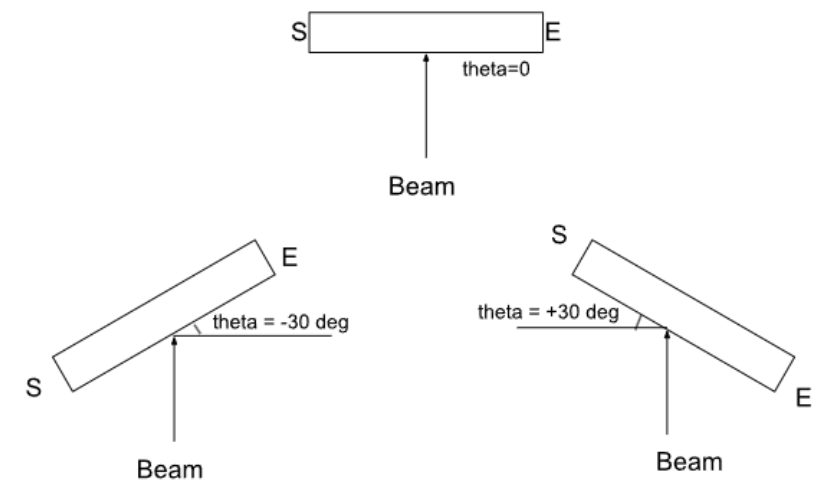


- Beam: 120 GeV protons, ~45k protons evenly distributed in 4 s, only one spill per minute, 8 mm horizontally and 4 mm vertically, only at most one proton expected in our readout window
- Originally planned to run in the muon mode, but no events observed with the 1 cm² trigger we have
- In the proton mode, we collected about 3k events per spill. We normally ran 15 minutes and thus ~45k events per run

Experimental setup

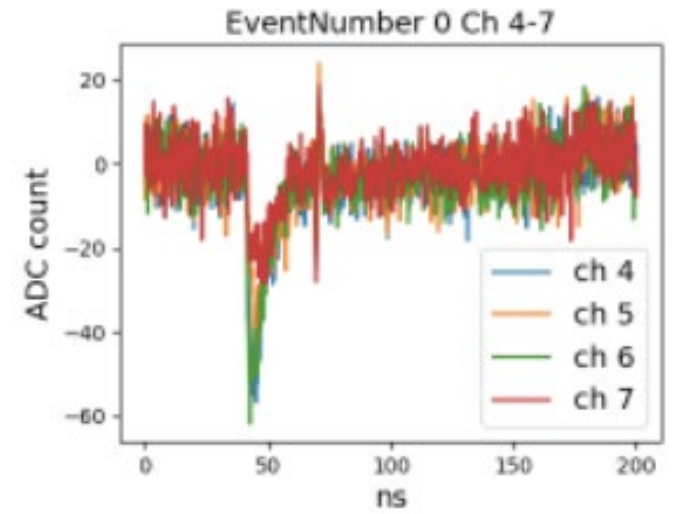
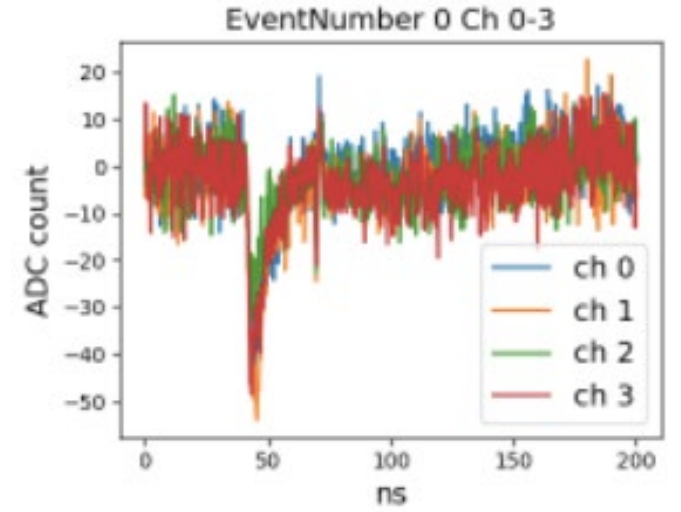
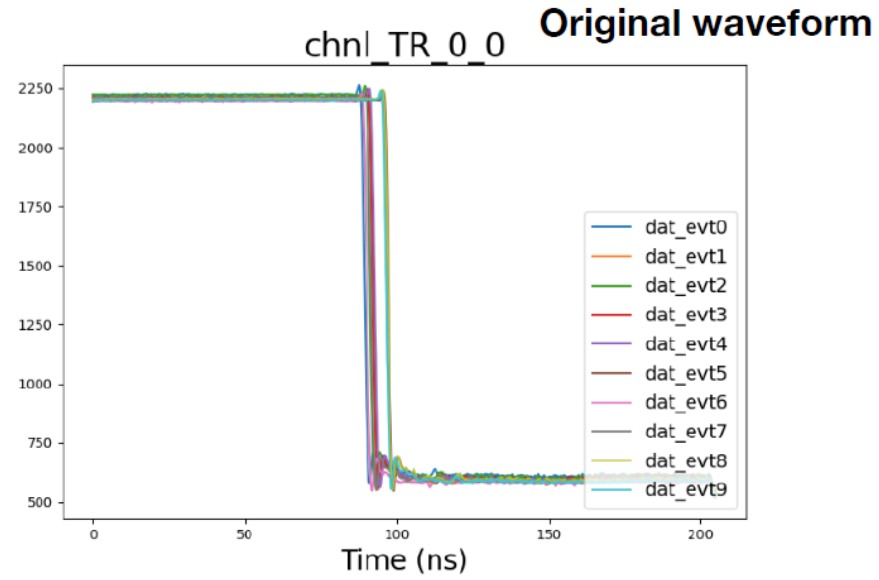
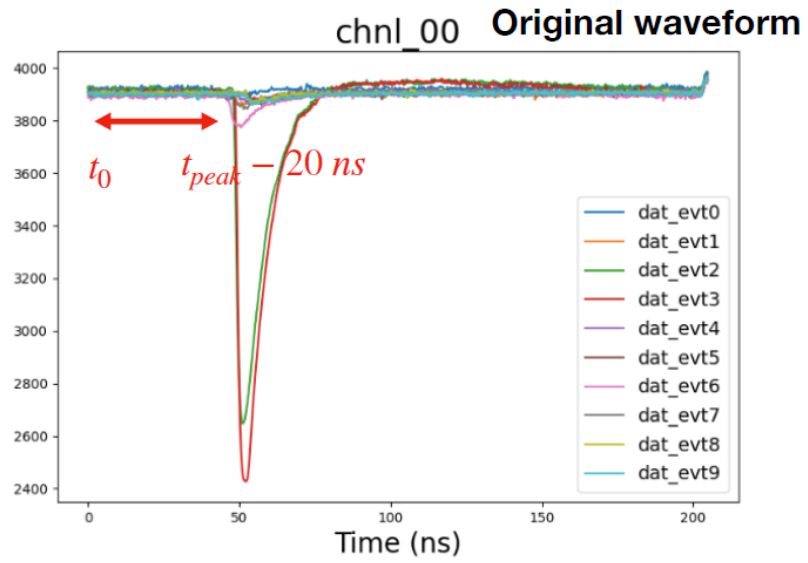


Four 6mmx6mm SiPMs on each side
0-3 on the S side
4-7 on the E side

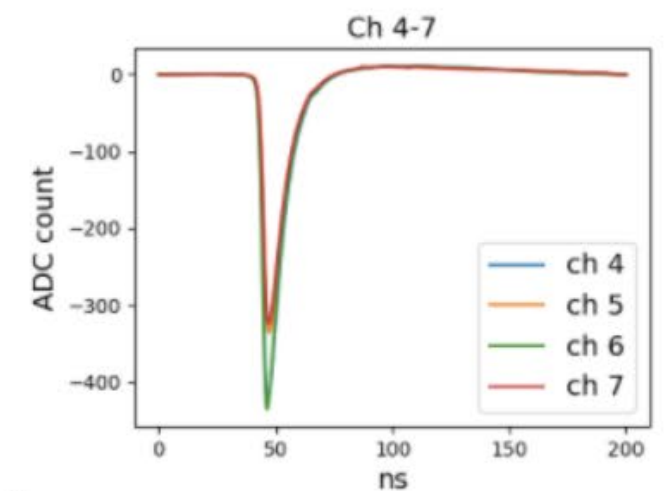
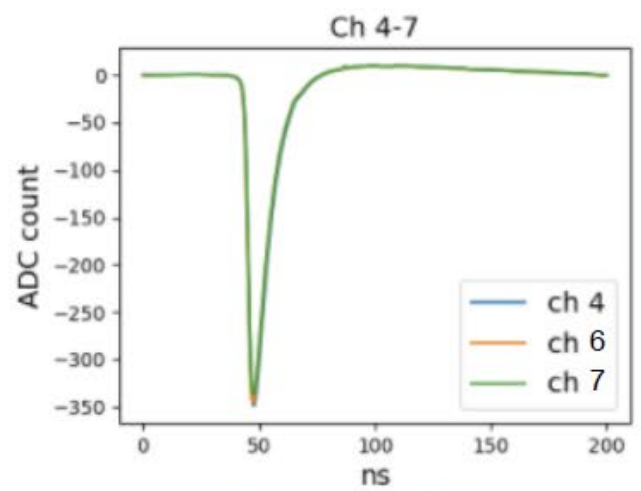
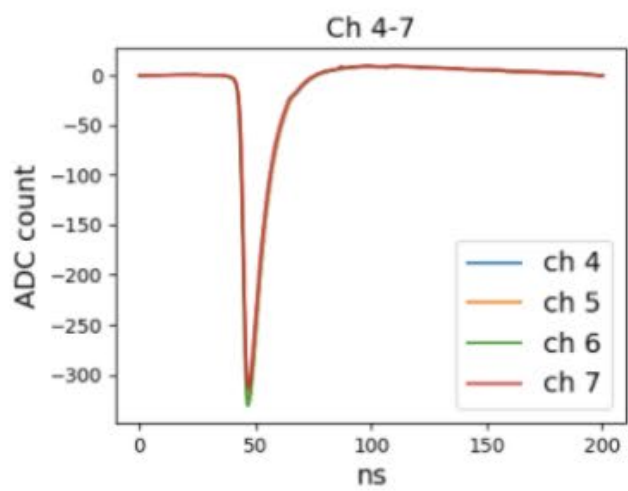
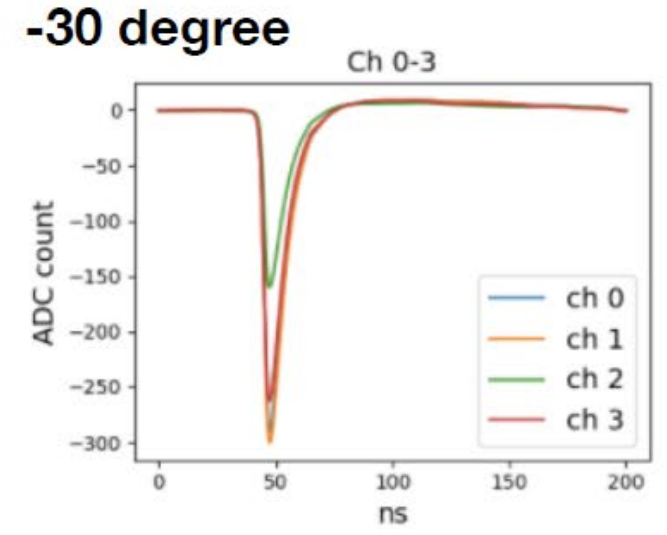
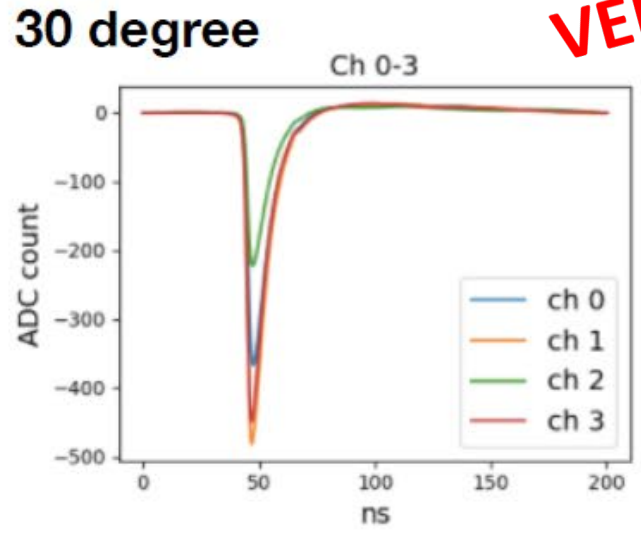
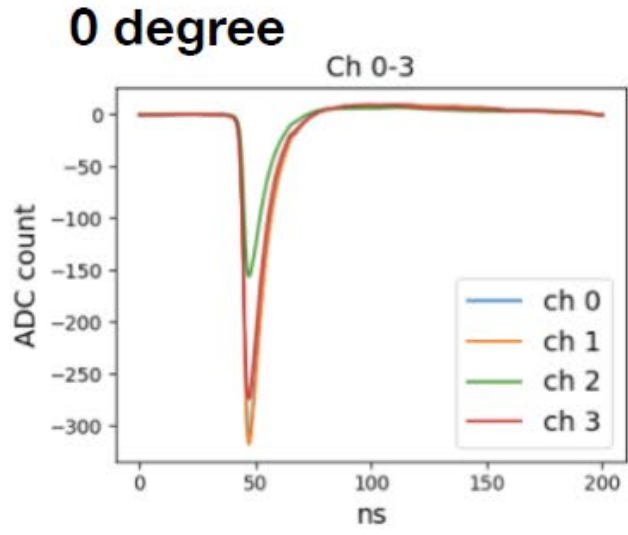


Runs taken

- As a second user and only have access every 10 hours
- PbF2 crystal with different rotation angles
- PWO crystal with R60 filter placed on the S side with different rotation angles
- BGO crystal with U330 filter placed on the S side with different rotation angles
- PWO crystal with no filters on either side with different rotation angles
- Beam only available from Friday afternoon around 4 pm to Monday morning around 6 am, accelerator issues and no beams for Monday and Tuesday
- In total ~5M events collected with 121 runs
- All data available at:
<https://www.dropbox.com/sc/1fo/sm8u74vzdonjtt5bfozhe/h?dl=0&rlkey=omv08dy6swlvrzx2rwa78m2au>



VERY PRELIMINARY



(Some issues with ch5, so not showing for now)

Came back from Fermilab yesterday and offline data analysis just started, MC simulation ongoing, lots of details to understand
Also probably need to discuss about another test beam study at Fermilab in November