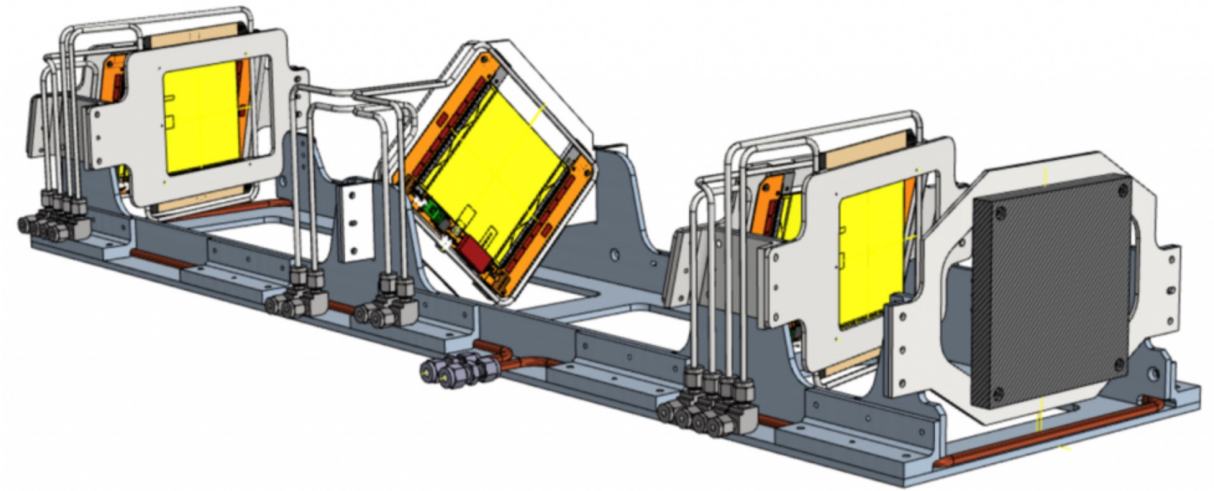


MUonE group update



E. Bottalico
Muon Group Biweekly
9 Feb 2026

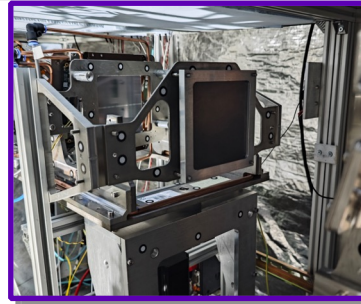
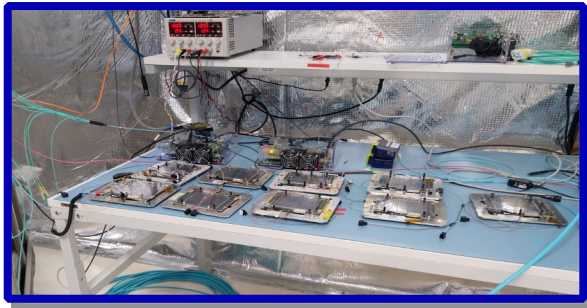
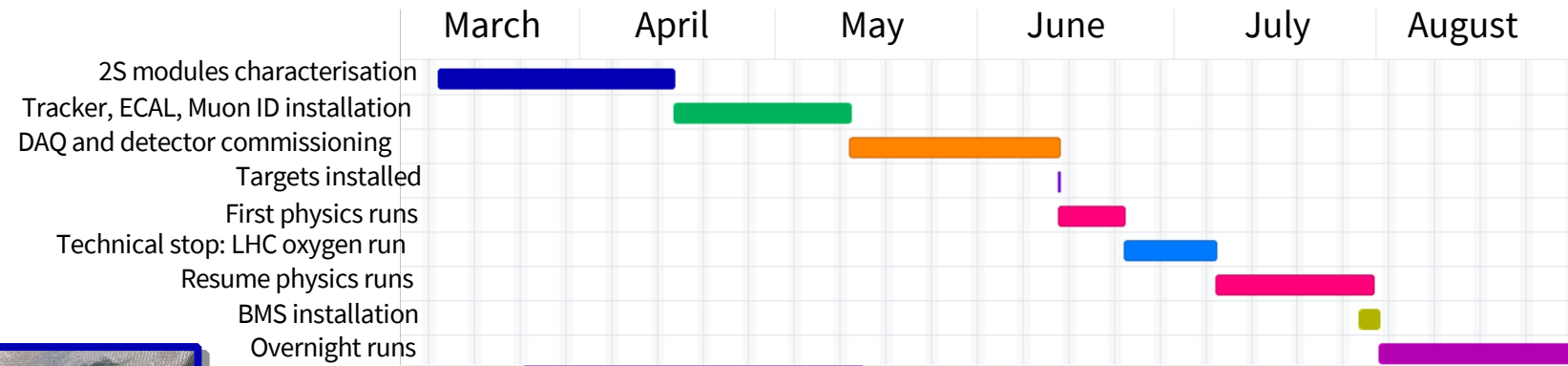
LEVERHULME
TRUST



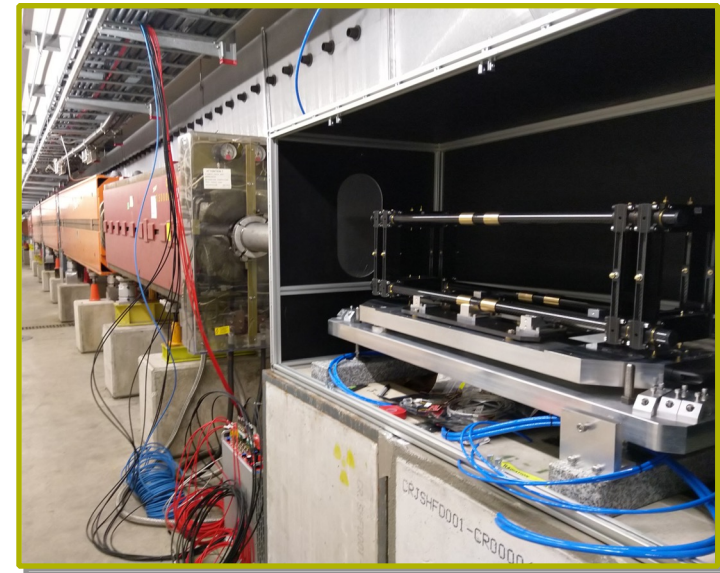
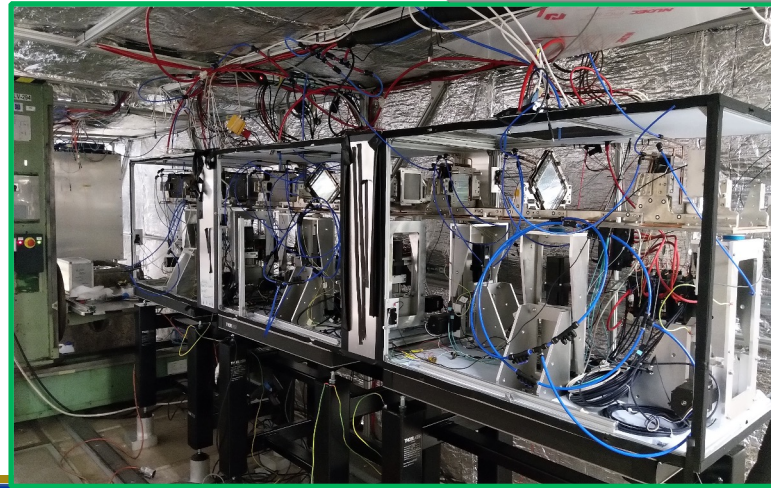
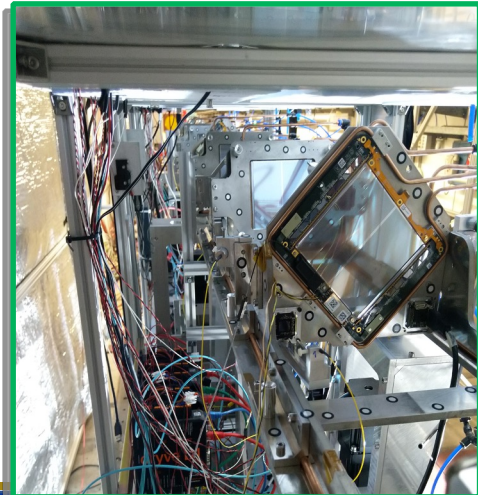
UNIVERSITY OF
LIVERPOOL



MUonE Phase 1 update



Riccardo's courtesy

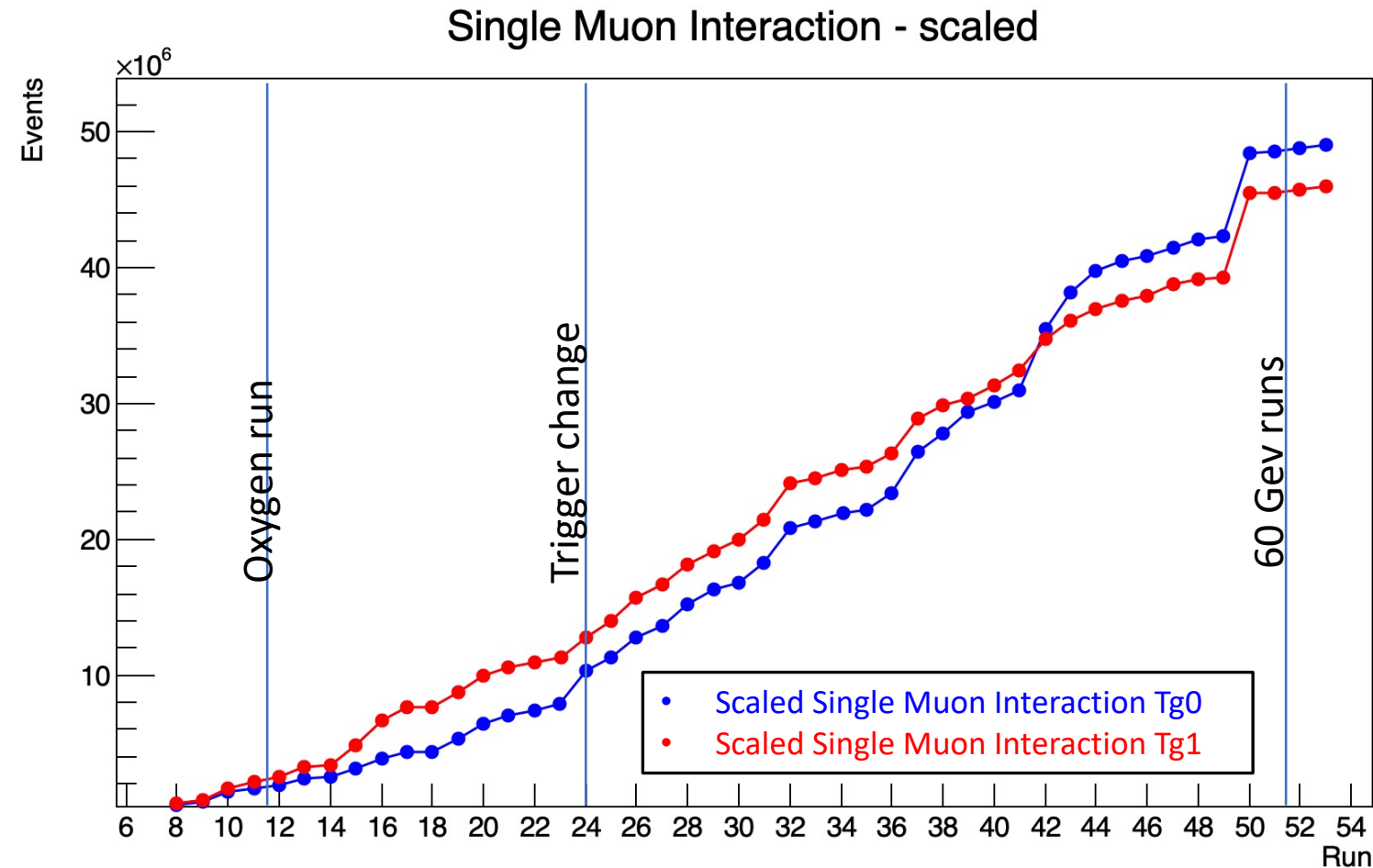




Phase 1 statistics



- This is the entire statistics collected for single muon interaction triggered events scaled by analysis cuts acceptance. The total number is order 10 times larger wrt 2023 test beam!



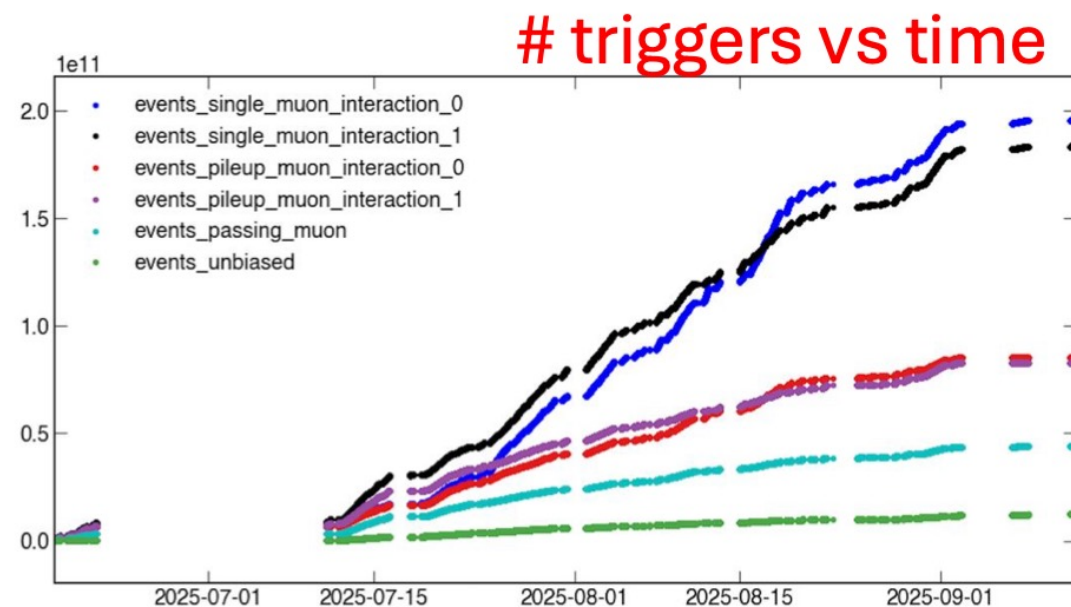
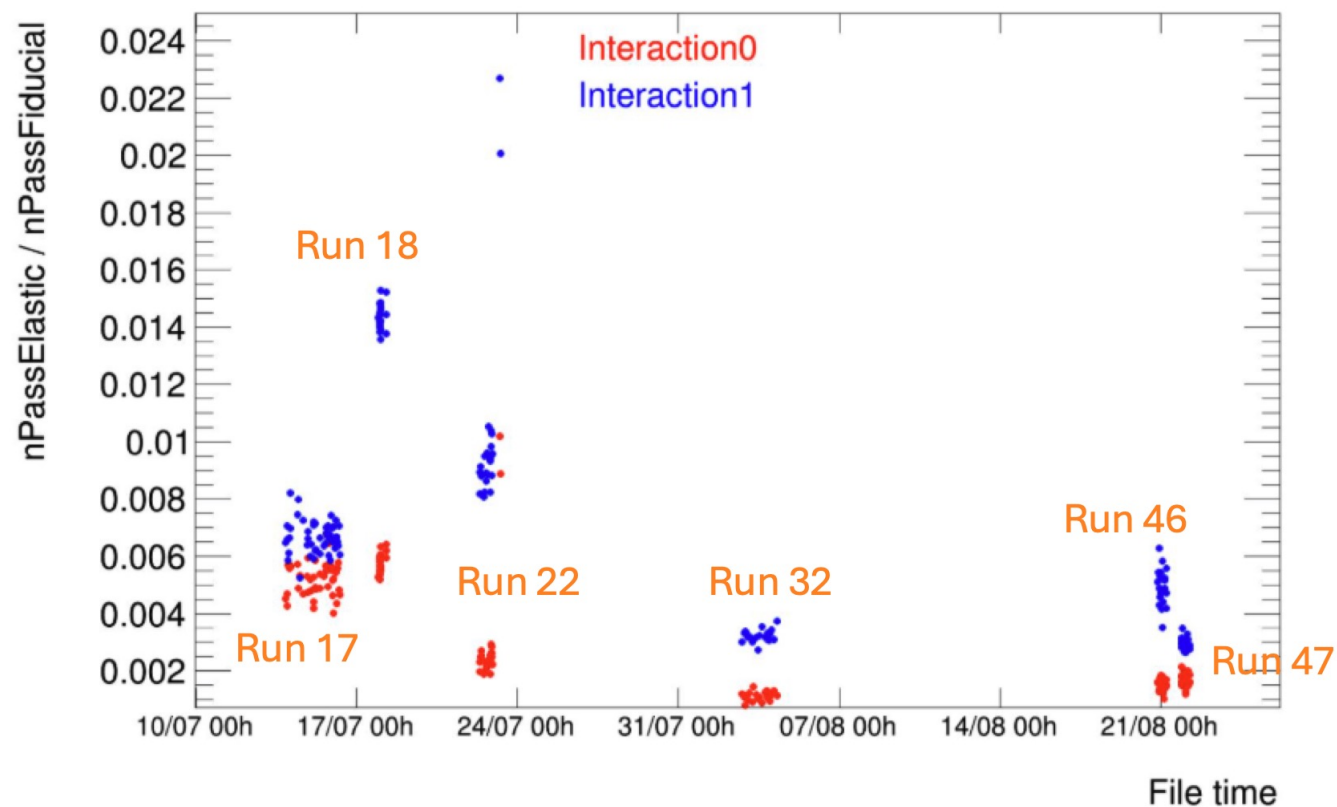
Scaled	Integrated Number of events [10^7]
Single Muon Interaction 160GeV (Tg0)	4.85
Single Muon Interaction 160GeV (Tg1)	4.55
Single Muon Interaction 160GeV (Tg0+Tg1)	9.40



Offline Database



- Thanks to Saskia's work on building the offline database, we can now perform data quality monitoring plot on Run 2025 data.



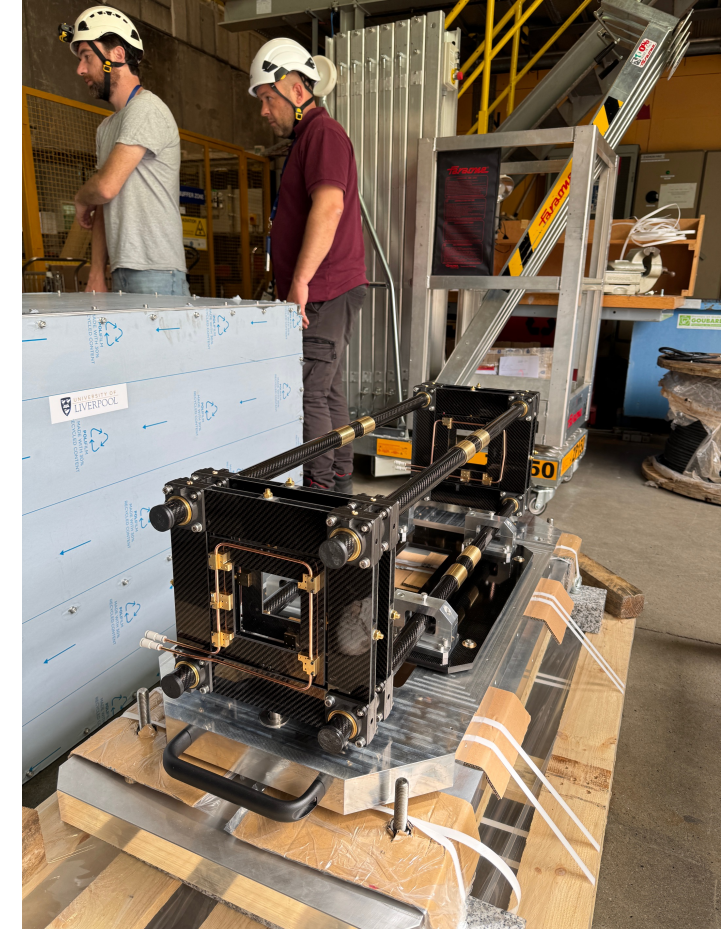
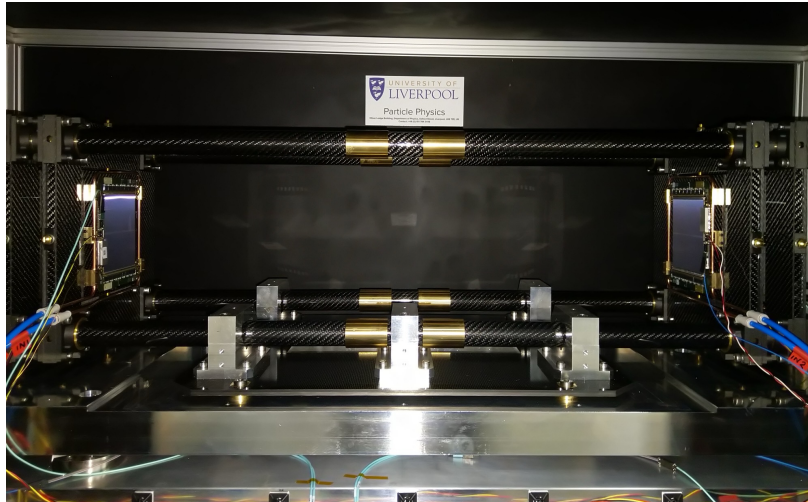
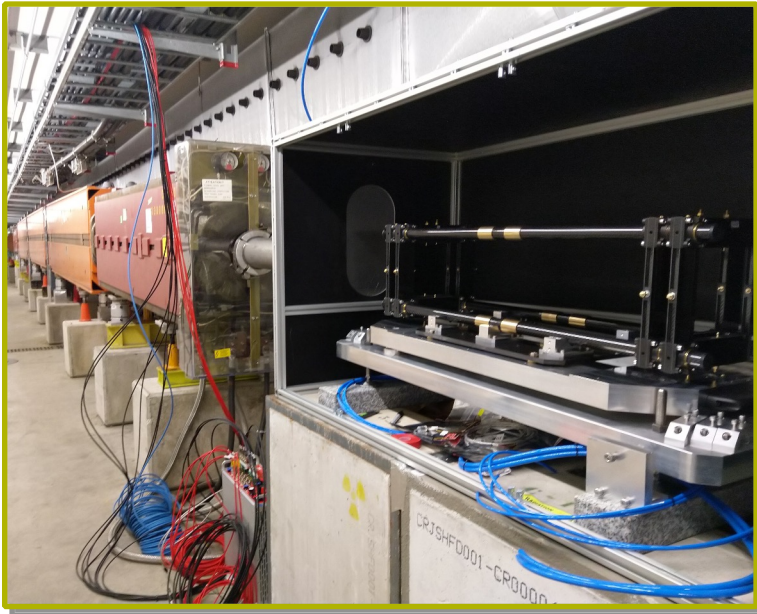
MUonE Dec Collab Meeting - Saskia



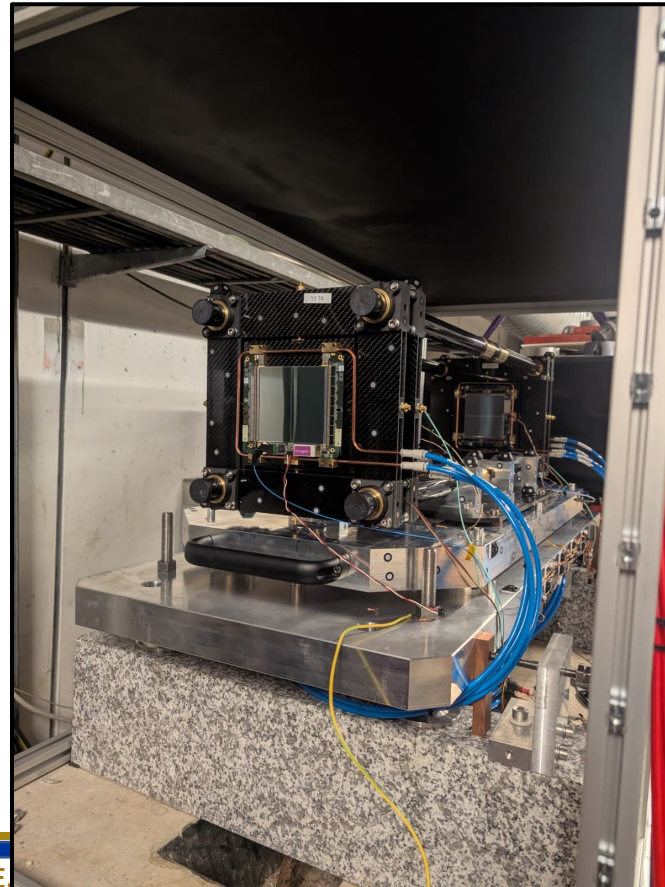
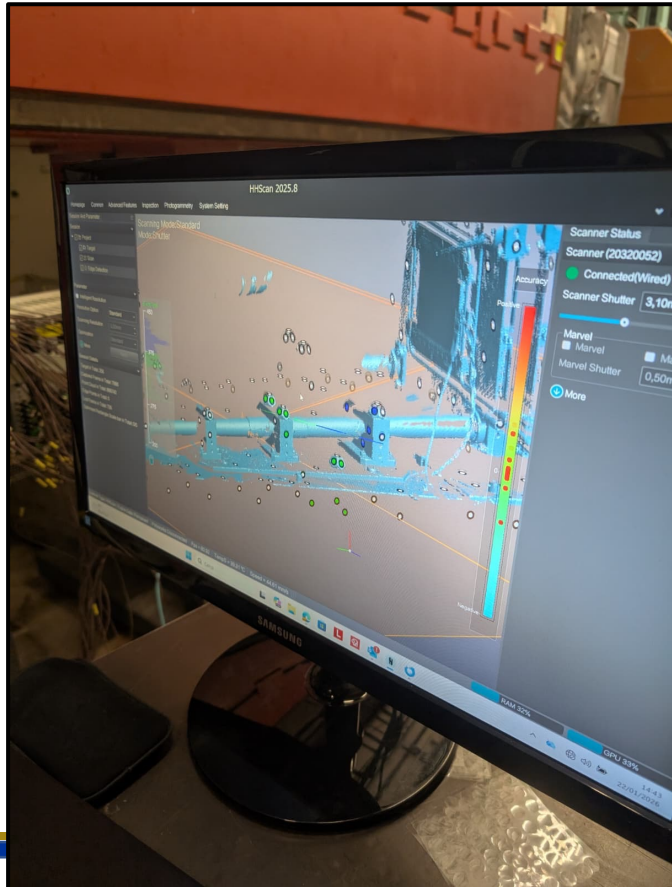
BMS installation



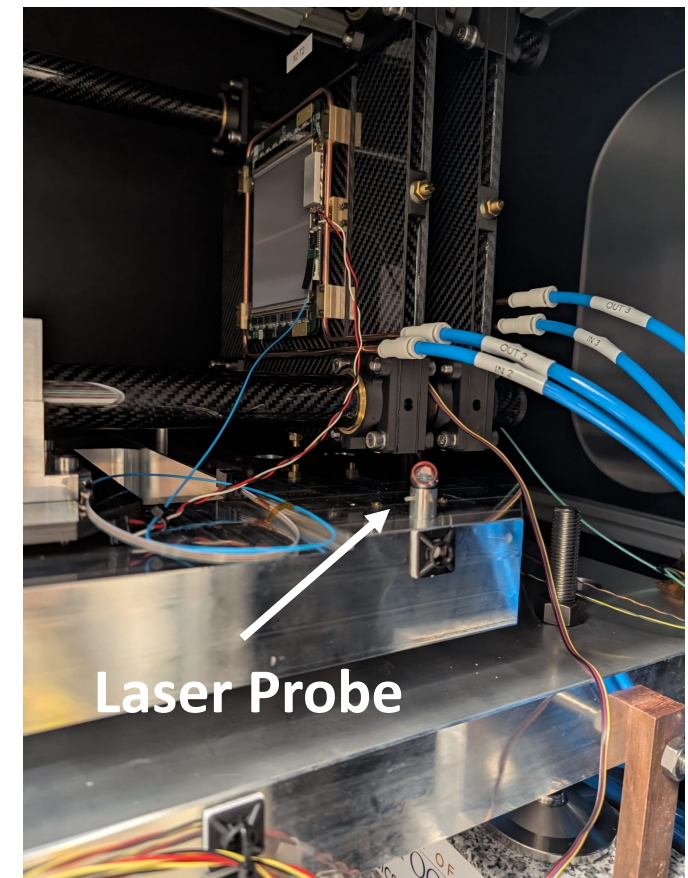
- BMS: Beam Momentum Spectrometer.
- The BMS has been installed during the second half of July.
- Thanks Dave, Alan, Kieran, John and the workshop!



- The BMS 3D scan has been performed in January, to precisely measure the BMS size and the module orientation.
- Essential for precise alignment and reconstruction of the tracks.



- Beside the 3D scan also the laser survey is essential to measure the position of the two BMS stations in the accelerator hall in order to get the right track extraction.





Stickers!!!!



- During the last trip to CERN, Riccardo placed many University and Leverhulme stickers all over the BMS!



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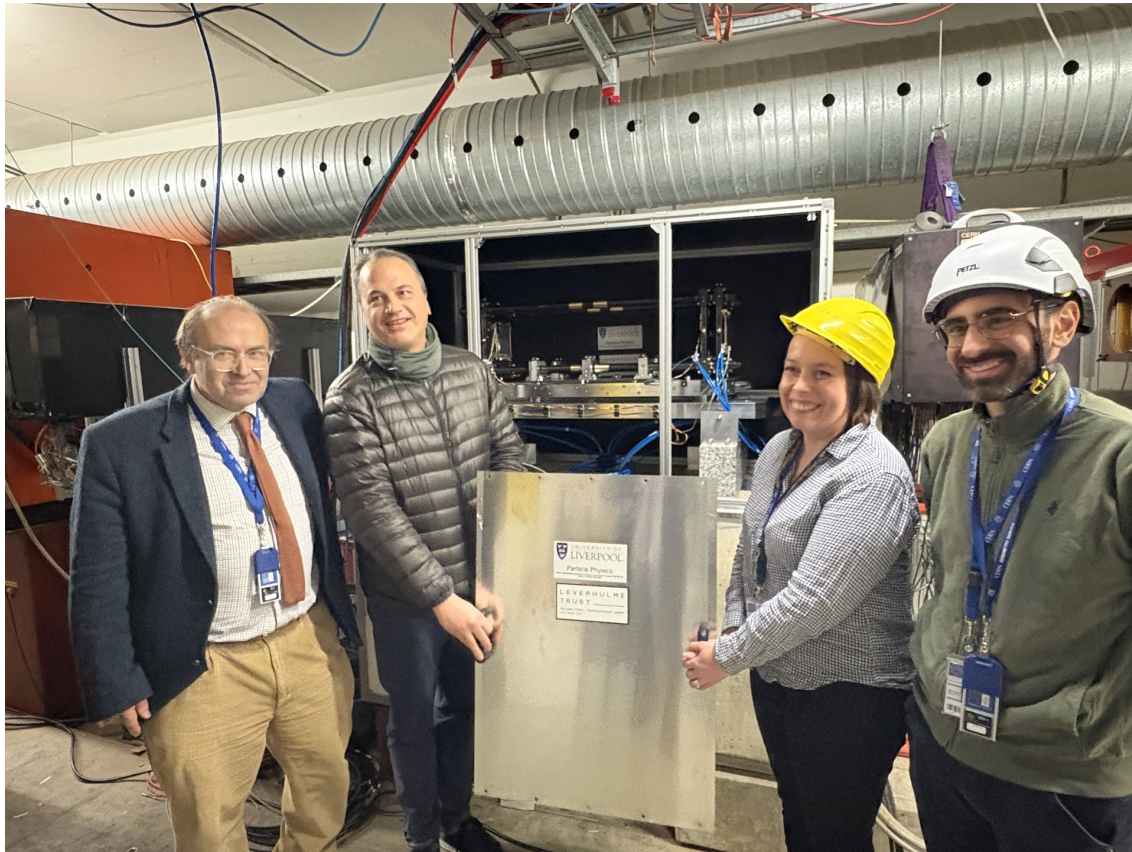
Stickers!!!!



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the BMS!



- Some pictures from last Pro Vice Chancellor's visit to the CERN experiments, including MUonE!





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- **Study of BMS data** crucial for the final precision of our experiment.
- **Investigate** possible **alternative methods** to improve precision (e.g. two energies ratio, signal-to-normalization region ratio and other ideas)



Phase 1 data analysis



- **Detector performance:**
 - Tracker modules synchronization (Clement);
 - Improving simulation of the silicon sensors (Giorgia, Elia);
 - Checking the stability of the efficiency vs runs (Estifa'a);
 - Studying the Muon Filter performance (Cedric).
- **Analysis:**
 - Measure the beam energy from scattering angles using NN (Tom);
 - Background study from simulation (Katie);
 - Data/MC comparison and $\Delta\alpha$ extraction (Clement).
- Offline DQM and online DB (Saskia).



Thanks



BACK-UP



Phase 1 data analysis



- Background study with Mesmer -> Katie 
- BMS data analysis -> Giorgia 
- Efficiency analysis -> Estifa'a 
- Synchronization study -> Clement 
- Data/MC comparison and $\Delta\alpha$ extraction -> Clement 
- Study of the beam energy with $\mu e \rightarrow \mu e$ -> Tom 
- MC optimization for Run32 simulation -> all 