TECHNICAL AND INTEGRATION COUNCIL MEETING

- Klaus Dehmelt

- TIC Meeting on May 08, 2023

Stony Brook University | The State University of New York

Center for Frontiers in Nuclear Science

HANDOVER GD/I → TC

- Handover meeting GD/I → TC and SP
- Identified topics to be pursued in the future
  - Priority list
- List of priority issues (1)
  - Tracking performance study and optimization with reconstruction and background embedding
    - Issues: If pattern recognition fails due to too few hits and massive backgrounds, we must review our endcap tracking. This goes beyond TIC and requires probably a dedicated Task Force
  - Service routing and clearance control
    - If not enough room and depending on bEMC choice evaluate options to move bEMC and DIRC to larger radii (for imaging solution)

HANDOVER GD/I → TC

- Handover meeting GD/I → TC and SP
- Identified topics to be pursued in the future
  - Priority list
- List of priority issues (2)
  - Forward dRICH geometry optimization
    - Issues: currently dRICH doesn't fit in the setup (overlap) → solutions depend on selected bEMC
  - Apparent low-Q^2 gap in our acceptance between 0.01 and 1 GeV^2 → obviously important for physics
    - Mitigation: possible high-resolution tracking right in front of backward EMC
  - dRICH data reduction needs in streaming DAQ

SIMULATION CAMPAIGN

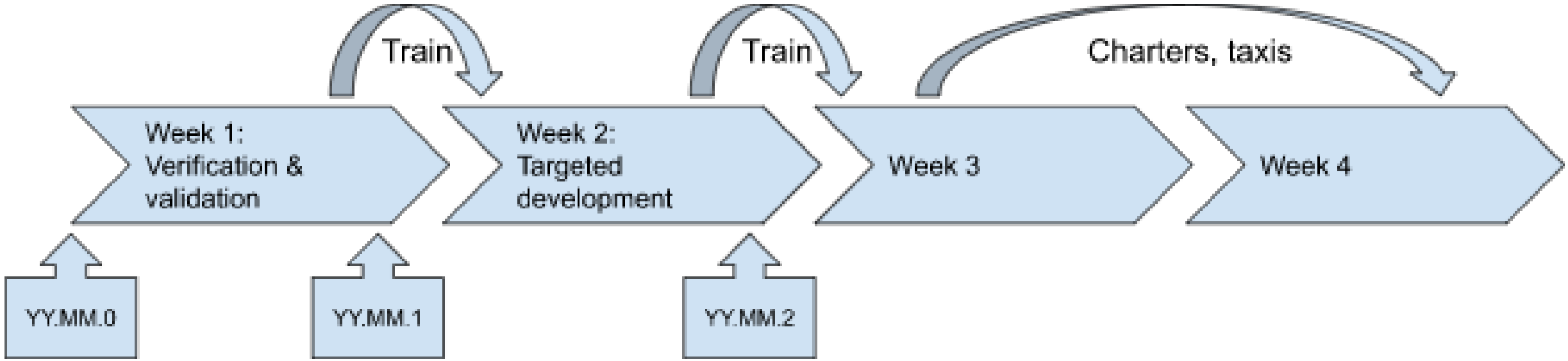
- Re-establish connection between detailed simulations and the evolution of the technical design for the ePIC detector
  - Simulations of detector geometry, design, and performance
  - Detector geometry must be implemented in dd4hep
  - Material for supports and services must be incorporated
  - Simulations must include model for background sources → beam-gas and synchrotron radiation
  - Simulations must include model for detector noise and integration time
  - Basic reconstruction software with known performance characteristics

SIMULATION CAMPAIGN

- Simulation campaign goals
  - Evolution of the ePIC tracker design
  - Optimization of forward calorimetry design
  - Optimization of the backwards EMCal acceptance
  - Acceptance in Q^2
  - Integrate PID in full dd4hep simualtions
  - Quantify the effect of cabling and services

SIMULATION CAMPAIGN

- Simulation production strategy → to be presented



DETECTOR SUBSYSTEM COLLABORATIONS

- We are aiming to start a simulation campaign
- I requested a brief status update
  - status of the implementation of geometry/detector services/digitizer
  - are there open performance issues?
  - are there any issues to be addressed?
  - who will be responsible for the tasks?
  - real material/acceptance vs average material/acceptance

dRICH
hpDIRC
backward RICH (pfRICH)
FFWD
FBKWD - Pair Spectrometer
FBKWD - High-Rate Calorimetry
FBKWD - High-Rate Tracker
Si Trackers
Gaseous Trackers
Backward ECal
Backward HCal
Barrel ECal (Pb/Sci)
Barrel HCal
Forward ECal
Forward HCal
Forward HCal Insert
AC-LGAD TOF (Barrel + Forward)