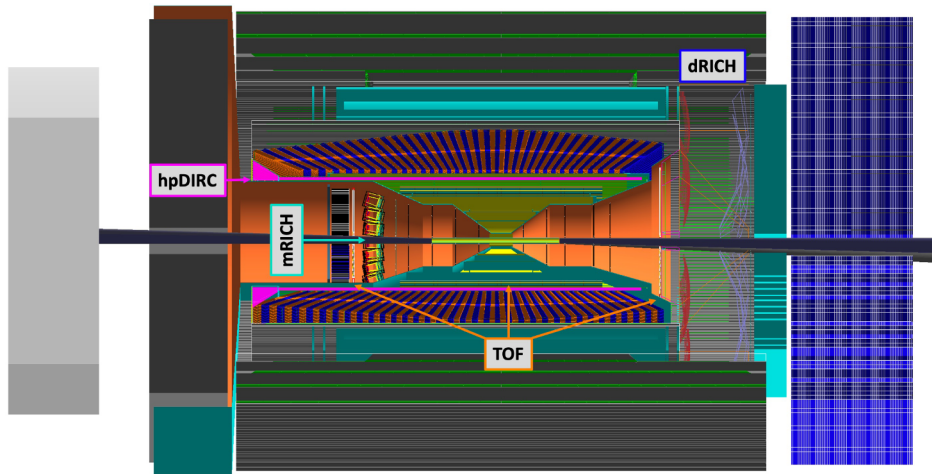


# Discussion on specific charges to TOF- PID design

Detector 1 TOF-PID WG

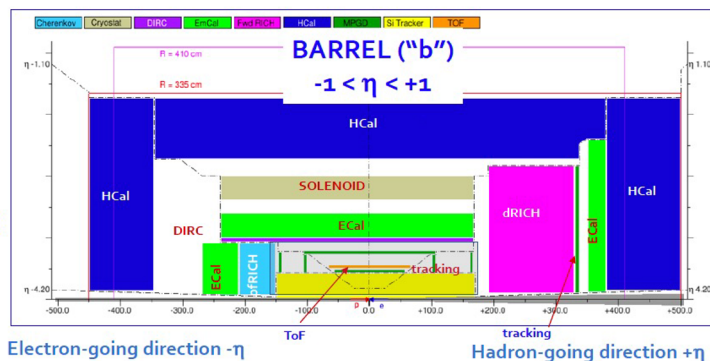


ECCE design  
(reference design for detector 1)

ATHENA design

Hadron beam (41-275 GeV) → ← Electron beam (5-18 GeV)

Backward  
Endcap ("n")  
 $\eta < -1$



Forward  
Endcap ("p")  
 $\eta > +1$

Electron-going direction  $-\eta$

Hadron-going direction  $+\eta$

# Charges and tasks (based on the reference design)

- Finalize requirements on the time and position resolution based on physics requirements and performance (engage with physics, tracking, Cherenkov-PID WG): optimal and minimal scenarios
- Study and determine maximal material budget allowed without impacting the energy resolution of scattered electrons (engage with calorimeter WG).
- Investigate the pros and cons of pixel vs strip sensor options to arrive at the optimal design (engage with far forward WG to seek for a common solution if possible)
  - O(mm) vs O(cm) in length
  - Bump bonding vs wire bonding
- Study and determine maximal material budget allowed without impacting the tracking performance (engage with tracking WG)
- Investigate the requirements/constraints on the cooling and mechanical support
- Investigate the requirements/constraints on the service distribution, DAQ and detector integration (engage with DAQ, integration WG)
- Consider upgrade and staging options
- Investigate feasible fallback options to reduce the risk