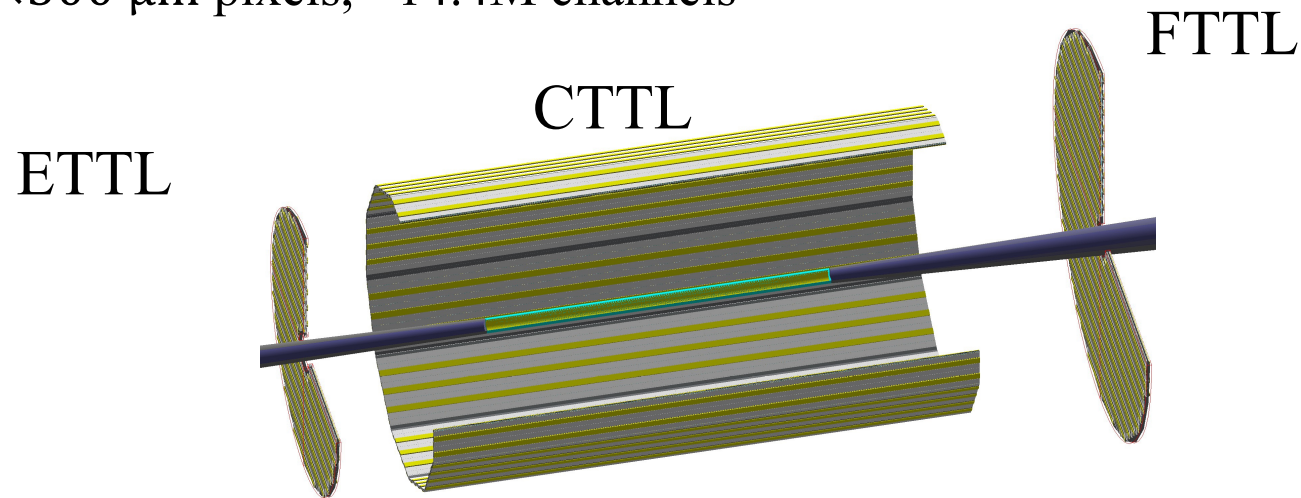


# Detector Layout and Requirement

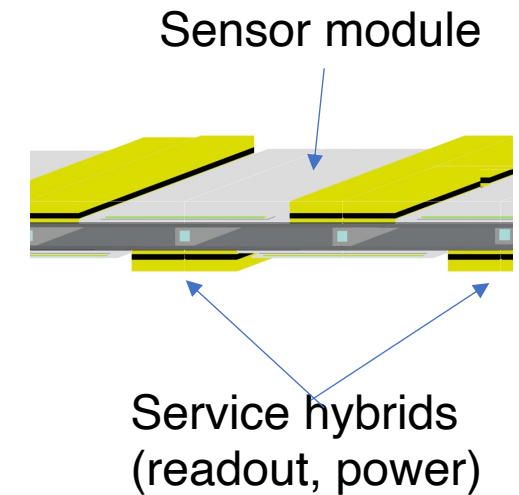
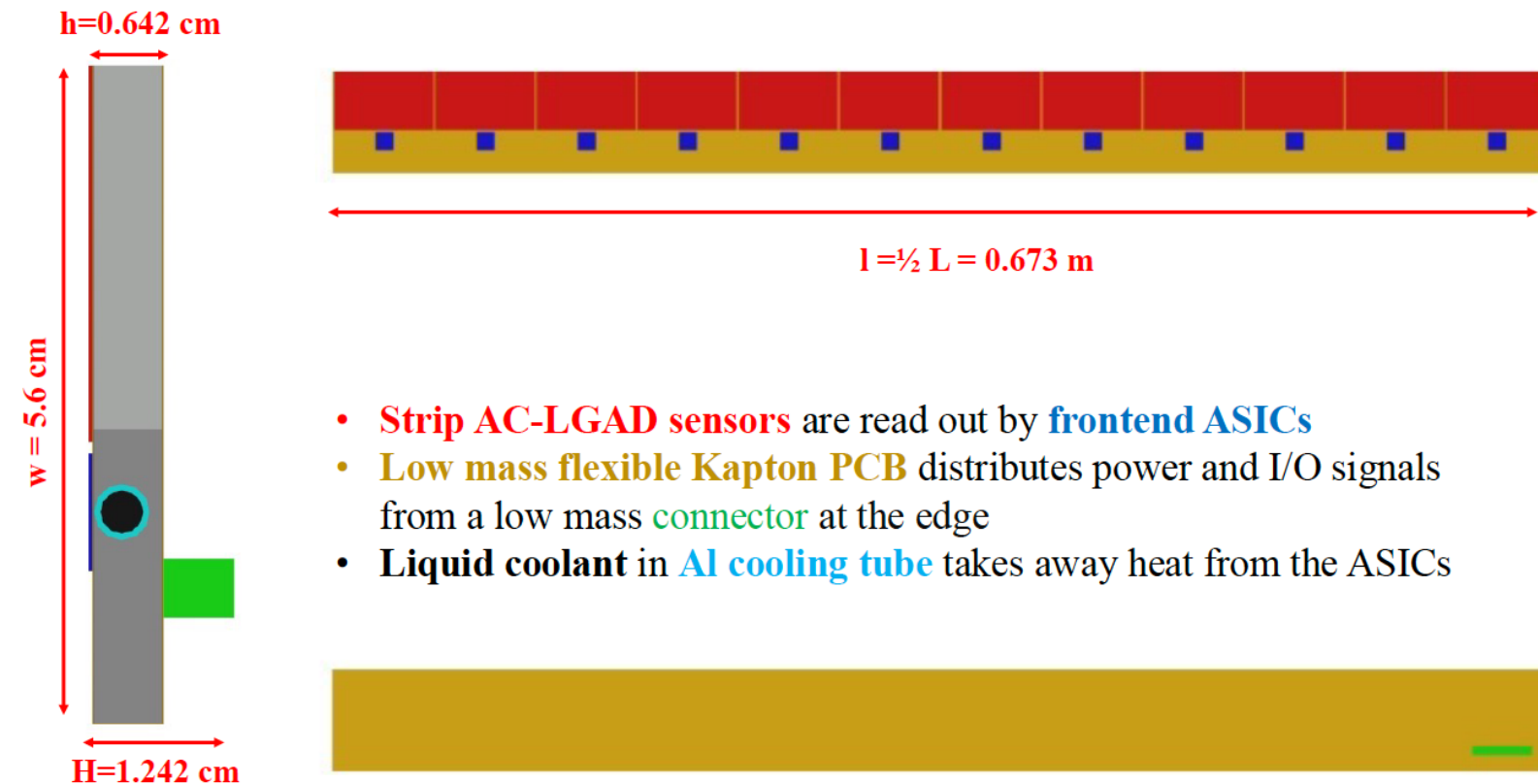
- Recent simulation studies by Nicholas suggested
  - Little difference in tracking efficiency and resolution between AC-LGAD pixel vs strip design, and with different material budget.
  - Their impact on angular resolution (relevant for Cherenkov detectors) has not been fully studied
- This is not the final conclusion, as the optimization of tracking detector configuration is still on-going for achieving better momentum resolution, and the low tracking efficiency at low momentum in the forward/backward direction is under investigation.
- Moving forward in detector modeling and service for integration and DD4HEP
  - Barrel:  $500\text{ }\mu\text{m} \times 1\text{ cm}$  strips,  $\sim 2\text{M}$  channels
  - Endcap:  $500\text{ }\mu\text{m} \times 500\text{ }\mu\text{m}$  pixels,  $\sim 14.4\text{M}$  channels



# Detector Layout and Requirement

Moving forward in detector modeling, and service for integration and DD4HEP

- Barrel:  $500\text{ }\mu\text{m} \times 1\text{ cm}$  strip based on STAR IST
- Endcap:  $500\text{ }\mu\text{m} \times 500\text{ }\mu\text{m}$  pixels based on CMS ETL



# FY23 Planning

- Test beam
  - New BNL sensors, January 2023 at FTBF, ...
  - HPK sensors, May 2023 at FTBF, ...
  - ASIC+Sensor
- Sensor production
  - BNL IO
  - One with HPK/FBK
- ASIC
  - EICROC1, HPSoC, FCFD1
- Flex, Mechanical structure and Cooling