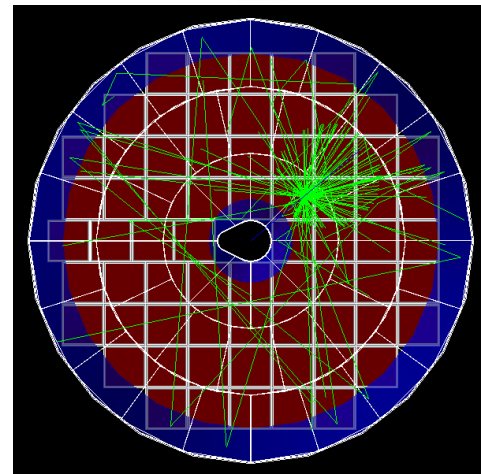
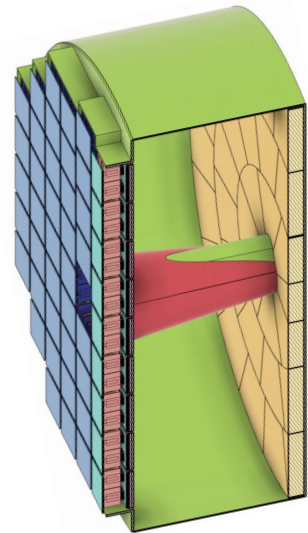


Update on pfRICH geometry

- Boundary conditions at the IP verified
- Vessel layout for March review purposes frozen
 - CF/HC sandwich a la sPHENIX TPC & aluminum sensor+FEE support plate
 - Fine tuning of the CAD model is ongoing
- Aerogel: for now, stick to CLAS12 parameterization rescaled to $\langle n \rangle \sim 1.044$
- Readout and services configuration:
 - Reserved 50mm space along the beam line overall for HRPPDs, ASIC boards, cabling & cooling
 - Assume EICROC configuration with a flat mounted ASIC PCB
 - Cabling layout is still work in progress
- GEANT model is pretty much synchronized with a CAD one
 - Up to the sensor base plate and the outer conical mirror tilt



Update on HRPPD-to-ASIC interface

- Proceed with Samtec compression interposers as a lead option
- Fallback: conductive epoxy & semi-manual soldering

COMPRESSION HARDWARE

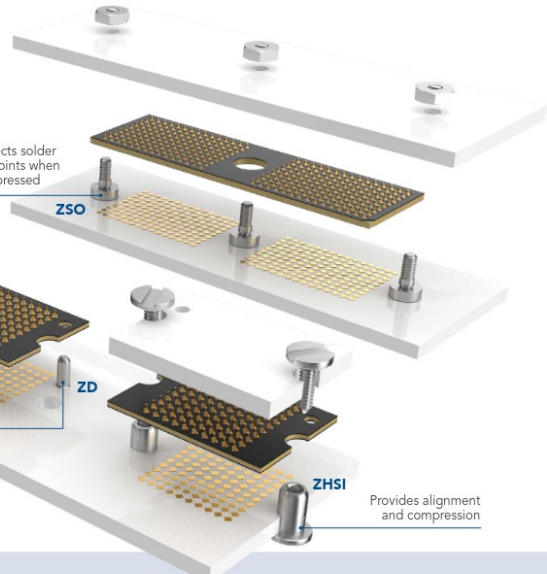
ULTRA LOW PROFILE SYSTEMS FOR Z-RAY® INTERPOSERS

- Designed for Z-Ray®, the lowest profile, most flexible high-density micro interposer in the industry (ZA8 and ZA1 Series)
- Precise alignment, compression and retention of interposers with either dual compression (LGA) or single compression with solder balls (BGA)
- Ultra low profile
- Reduces risk of damage to the interposer
- ZSO Series for single compression with solder balls
- ZHSI and ZD Series for dual compression interposers



Provides alignment

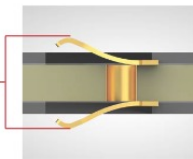
Protects solder ball joints when compressed



Provides alignment and compression

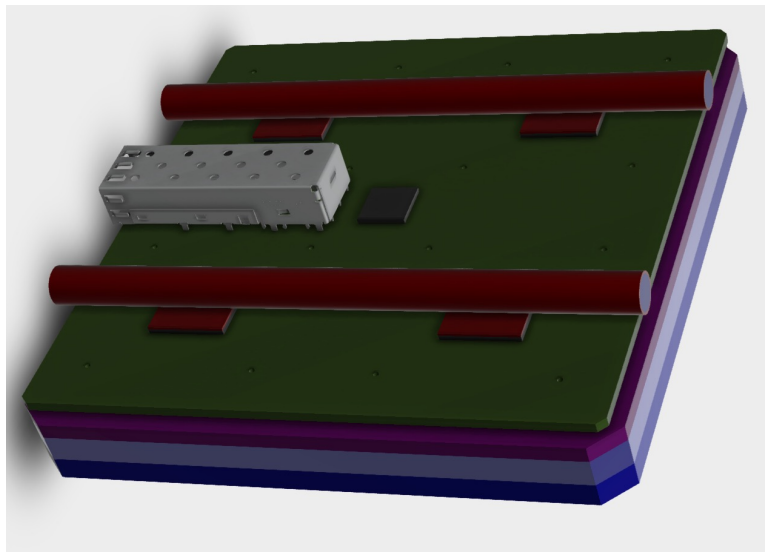
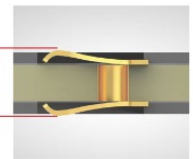
UNCOMPRESSED

1.4 mm standard



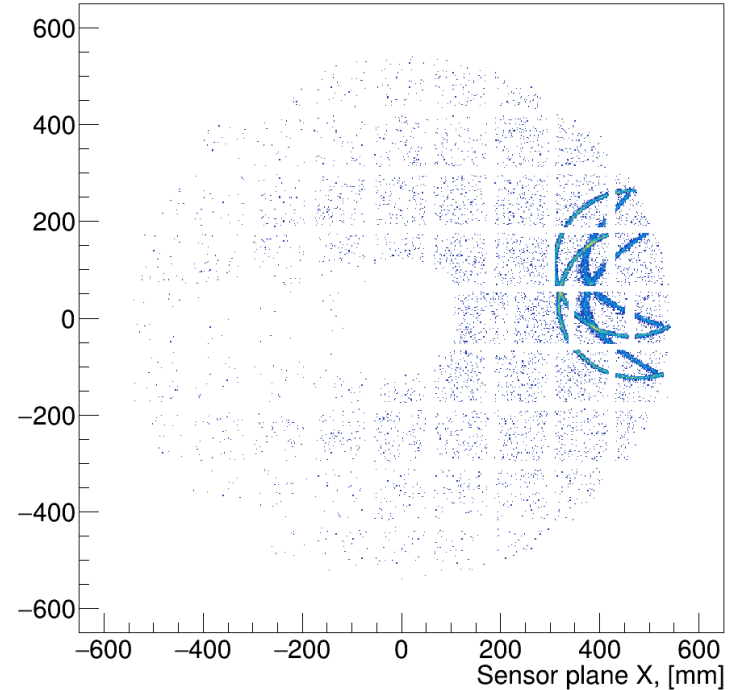
COMPRESSED

1 mm standard



Update on pfRICH GEANT environment

- Simulation
 - HepMC3 input
 - MARCO magnetic field
 - Aerogel, optical photons, HRPPDs, beam pipe cutaway
- Digitization
 - DC-coupled HRPPD, 32x32 pads, no charge sharing
 - *Spatial* overlap of photons accounted
 - Hit *timing* is yet estimated as a weighted mean
 - And yet no noise hits implemented
- Reconstruction
 - Event-level χ^2 -based statistical model
 - More or less realistic configurable ring finder
 - Complete hit-to-track ambiguity resolution
 - Extensions implemented: dual aerogel, pyramid mirrors



π and K @ 7 GeV/c: ~5% misidentification rate
(plot accumulated over 1000 two-track events)

Upcoming events

- “EICROC for EIC HRPPD/MCP-PMT photosensors” meeting: March 6th, 2023
 - A definitive “yes or no” assessment

February 27	GDML geometry to be submitted to the Software WG
March 3	Detector CAD model presentation to the PID WG
March 6	Software suite presentation at the GD/I meeting
March 10	Detector simulations summary to the PID WG
March 17	Physics simulations summary to the PID WG