

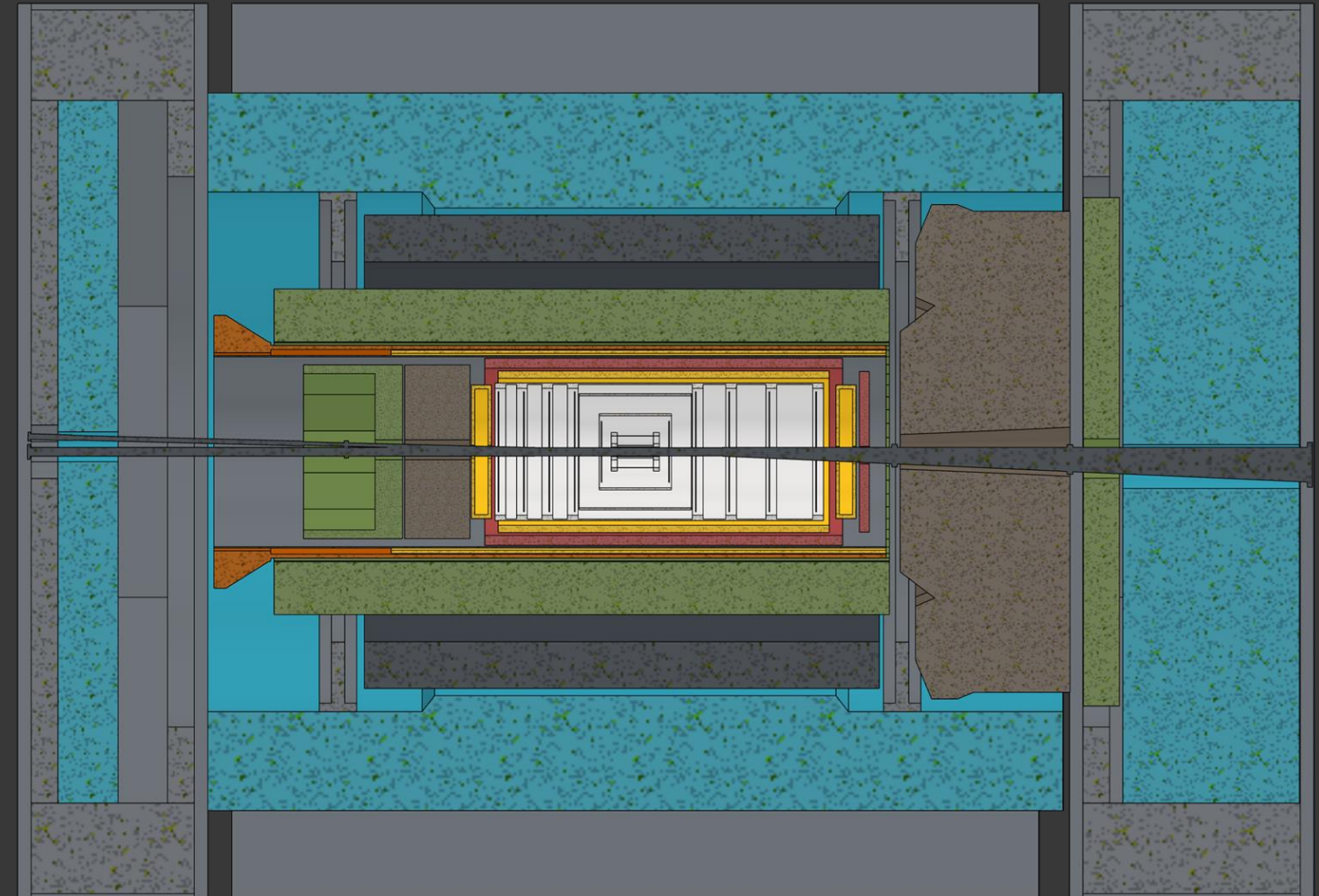
Envelope and Endcap Update

Dan Cacace

Envelope

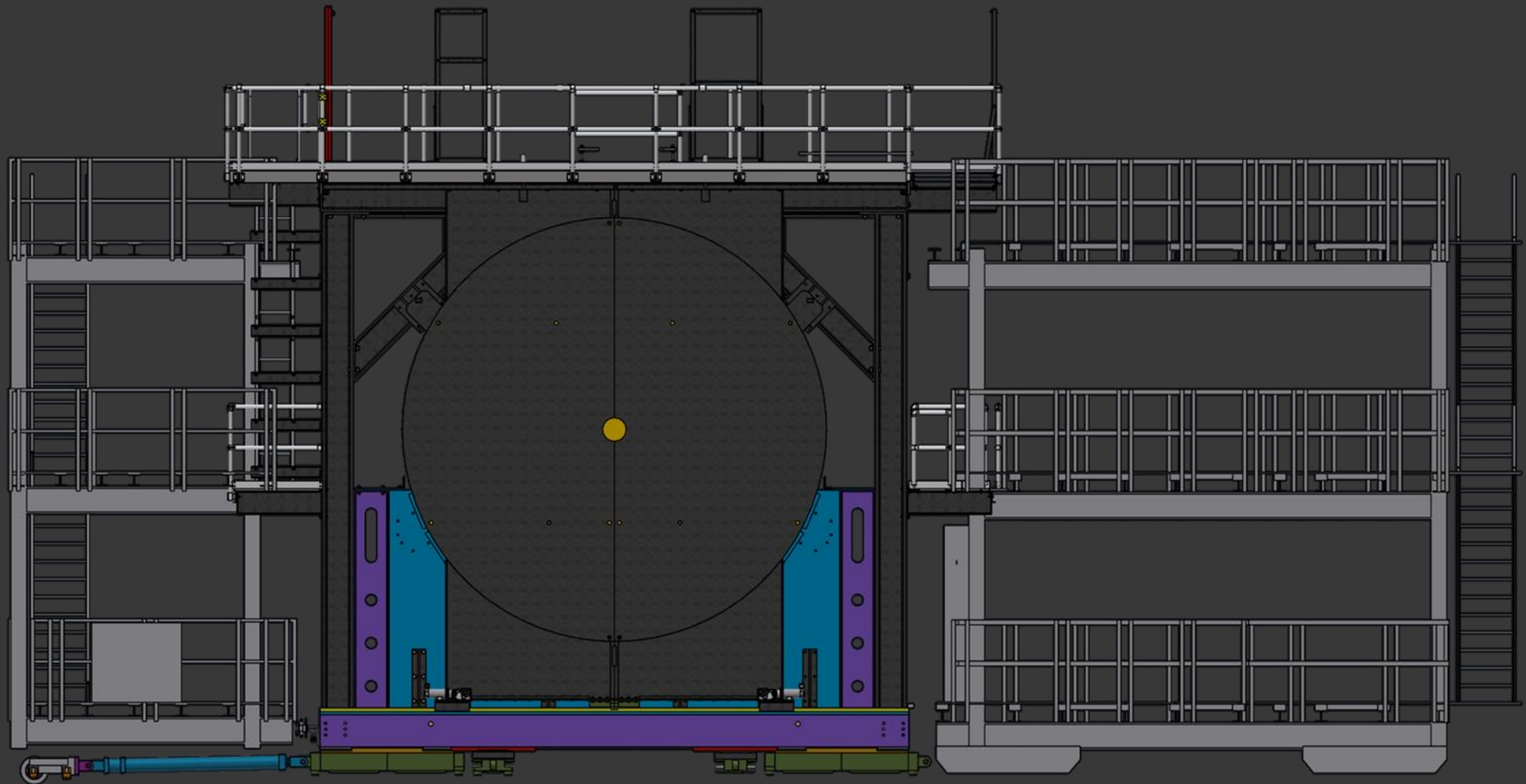
ePIC Envelopes Update - 03-03-2025 Since 04-17-2024

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|---|--|--|-----------|
| ePIC Envelopes Update - 03-03-2025 Since 04-17-2024 | | 1212.5mm | No Change |
| • Beam Pipe | • AC-LGAD Barrel | • Magnet | |
| ○ Significant changes, all pipe diameters and flange diameters and locations have changed. | ○ Overall length: 2675mm | ○ No Change | |
| | ○ Center offset from IP: 212.5mm | • HCal Barrel | |
| • SVT Barrel | • AC-LGAD Disk | ○ No Change | |
| ○ Note: Barrel models do not match envelop radial locations. Need to confirm which is correct. | ○ Overall length: 75mm | • HCal Forward | |
| | ○ Center offset from IP: 1712.5mm | ○ Tower pitch increased to 101mm vertically and 202mm horizontally | |
| | ○ Inner radius: 65mm | ○ Changed to octagonal outer shape | |
| • SVT Disks Forward | • GST | ○ Thus, the outer octagon flat to center is 2626mm | |
| ○ Slight Changes to ID positions and diameter | ○ Overall length: 5025mm | • HCal Backwards | |
| | ○ Center offset from IP: 637.5mm | ○ Tower pitch increased to 101mm vertically and 202mm horizontally | |
| • SVT Disks Backward | • MPGD Barrel Outer | ○ Changed to octagonal outer shape | |
| ○ Last disk shifted to 1020mm, remaining discs can remain where they are or equally spaced (as show in the envelop drawing) | ○ Inner radius: 735mm | ○ Thus, the outer octagon flat to center is 2626mm | |
| ○ Added Mechanical structures from detailed model | • DIRC | • Cradle Barrel | |
| | ○ Inner radius: 765mm | ○ Removed flux return, complete redesign | |
| • MPGD Barrel Inner | ○ Center offset from IP: 425mm | • Cradle Forward | |
| ○ Overall length: 2475mm | • dRICH | ○ Changed to octagonal shape, complete redesign | |
| ○ Center offset from IP: 212.5mm | ○ Inner radius: 130mm @1980mm, 185mm @ 2530mm | • Cradle Backward | |
| • MPGD Disks Forward | • pfRICH | ○ Changed to octagonal shape, complete redesign | |
| ○ Pair of disks overall length: 150mm | ○ No Change | | |
| ○ First disk center offset from IP: 1512.5mm | • EMCal Barrel | | |
| ○ Second disk center offset from IP: 1637.5mm | ○ Outer Radius: 1215mm | | |
| • MPGD Disks Backward | • EMCal Forward | | |
| ○ Pair of disks overall length: 150mm | ○ Tower pitch increased to 101mm vertically and horizontally | | |
| ○ First disk center offset from IP: 1087.5mm | ○ Outer radius: 765mm | | |
| ○ Second disk center offset from IP: | • EMCal Backward | | |



Platforms

Cradle changing to be more like sPHENIX, Considering using STAR and sPHENIX (~100tons) platforms



Endcap

- Adjusted to accommodate 101mm pitch vertically and 202mm pitch horizontally for HCal
- Adjusted to accommodate 101mm pitch vertically and horizontally for EMCal
- Will need to procure base separately for custom Hilman Rollers

