# Central Simulation Comparisons

### **Configurations Simulated**

- o Two configurations simulated as part of October 2022 ePIC central simulations
  - Arches
  - Bryce Canyon

#### **Arches**

- o Barrel:
  - MPGD layer behind DIRC (not used in track reconstruction)
  - Si-Glass EM Cal
- o Backward: mRICH

### **Bryce Canyon**

o Barrel: Imaging EM Cal

o Backward: pfRICH

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# **Geometry Comparisons**

### **ePIC October Simulation Campaign**

- o Arches → mRICH
- $\circ$  Bryce Canyon  $\rightarrow$  pfRICH
- Tracking setup
  - Same Si disk setup for Arches and Bryce Canyon
  - Only tracking difference was MPGD layer behind hpDIRC (implemented in Arches) which was not used in reconstruction

Arches Si Disks (cm)	Bryce Canyon Si Disks (cm)		
25	25		
45	45		
70	70		
100	100		
135	135		
-25	-25		
-45	-45		
-65	-65		
-90	-90		
-115	-115		

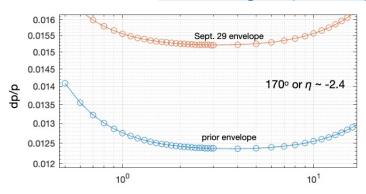
### **RICH Comparisons**

Detector	Z min (cm)	Z max (cm)	Length (cm)	R min (cm)	R max (cm)
mRICH	130	172.7	42.7	8	63
pfRICH	118.6	172.7	54.1	4.6/5.9	63

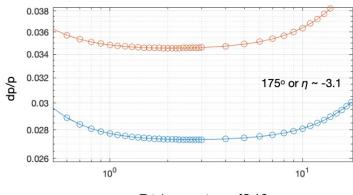
# Tracking Lever Arm Impact

- o Studied in fast simulations
- Red: geometry used in Arches and Bryce Canyon
- Blue: Prior geometry
  - |z| = 25, 45, 70, 100, 135 cm

#### Ernst Sichtermann: ePIC Tracking WG (10/13/22)



Total momentum p [GeV]



Total momentum p [GeV]

3