



# μ – Rwell detectors for the EPIC tracking at EIC Options for the Endcaps

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# **Options**



• Options for Endcap geometry:

➤ 4 Quadrants vs 2 semi-circles

 $\succ$  (R, $\theta$ ) readout vs (X,Y) vs (U,V)

50 cm external radius 5÷ 7 cm internal hole



## Totem T1 @CERN



- 10 semicircles of 190 degrees aperture
- Each semicircle is segmented into three subsections



# Totem T2 @CERN



- 10 semicircles of 190 degrees aperture
- Tracking and trigger performances
- Radial and azimuthal readout

15 cm external radius ~4 cm internal hole





# Totem T2 @CERN



- 256 concentric semicircular strips  $400 \mu m$  pitch and  $80 \mu m$  width
- 1560 pads for azimuthal readout  $2x2 \text{ mm}^2 \div 7x7 \text{ mm}^2$









	190° 100 cm	54 cr 100°	n 54 cm
2 semi-circles	54 cm	4 Quadrants	
PROs	CONs	PROs	CONs
One vertical/horizontal overlap only – less material	Larger detector surfaces are more difficult to handle.	Smaller dimensions are easier to handle	Two vertical and horizontal overlapping regions – more material
The two endcaps may be rotated by 90° one respect to the other to recover	Longer strips: → Readout should be segmented into two sectors to avoid too long strips	Each endcap is intrinsically symmetric	
overall symmetry		Strips length are shorter	







<b>Γ</b> ,φ		Х,Ү	
PROs	CONs	PROs	CONs
Direct radial and azimuthal information	The linear density of the azimuthal strips increases by a factor 10 on the inner hole	The strip length does not vary much along the active area	Alignment is critical
	The radial readout hybrid FE overlaps the active area or flex cables should be used.	All readout FE hybrids may be located outside the active area	Routes to read-out connectors must be accurately studied
	Radial strip length varies by a factor 10.		

# To be studied



- Compass @ CERN
- Forward Micromega Tracker @ CLAS12
- Material budget:
  - $\circ~$  Active area
  - $\circ~$  At the overlapping region