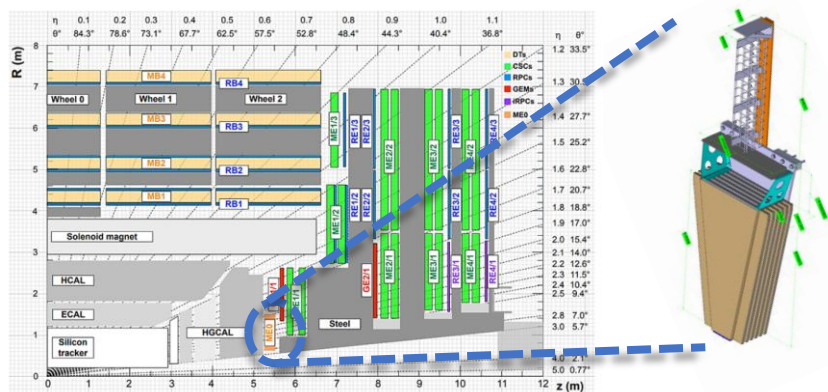


# Novel GEM foil layout for high-rate particle environment in the CMS ME0 muon detector



## Hi-Lumi UPGRADE

- ❑ The phase-II CMS muon endcap upgrade will include a new forward station at high  $\eta \rightarrow$  ME0
- ❑ The ME0 ring (18 detectors  $\times$  6 layers  $\times$  2 endcaps) will be the closest muon station to LHC beam line  $\rightarrow 2.0 < |\eta| < 2.8$

## MOTIVATION

Possible source of gain drop at high rates:

- ❑ Ion space charge
- ❑ Drop in voltage difference across GEM foil

## PROPOSED SOLUTION

- ❑ Dedicated study for the high particle rate expected in the ME0 region
- ❑ New type of segmentation  $\rightarrow$  azimuthal

