

AHCAL ILD barrel and end cap mechanical design

status report

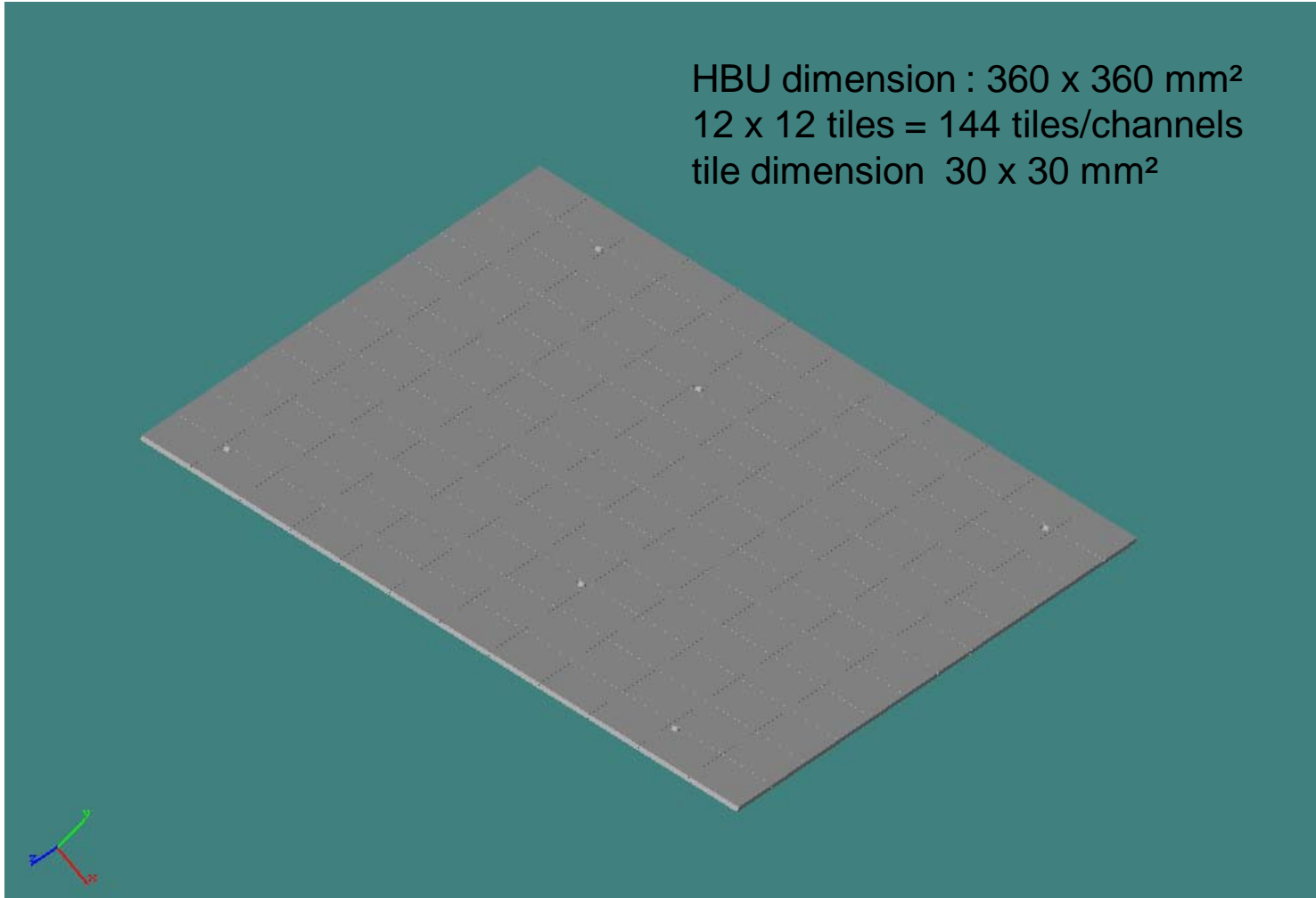
Karsten Gadow

ILD Magnet & calorimeters integration

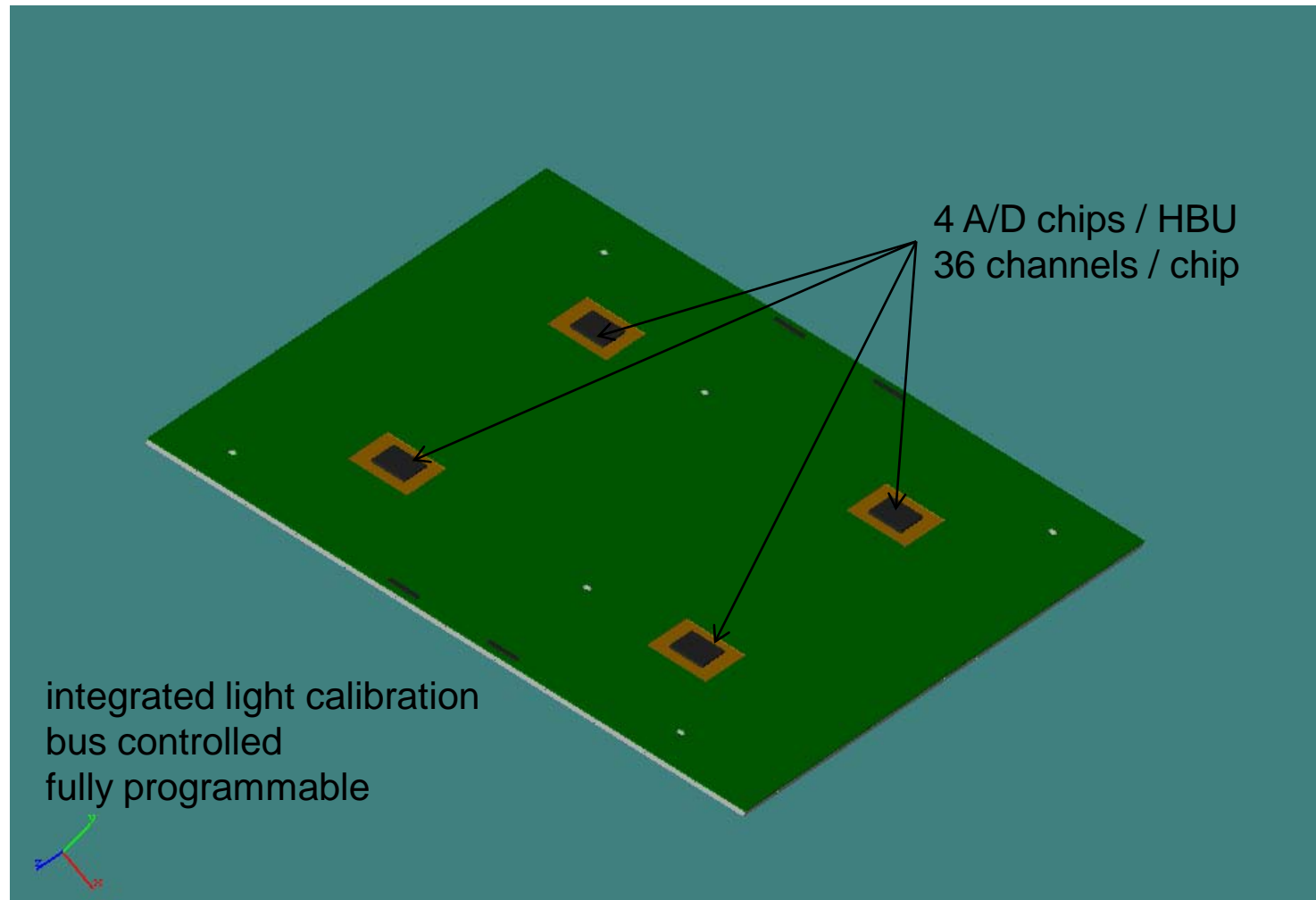
LAL, 01.-02.02.2012

AHCAL Base Unit (HBU) scintillator

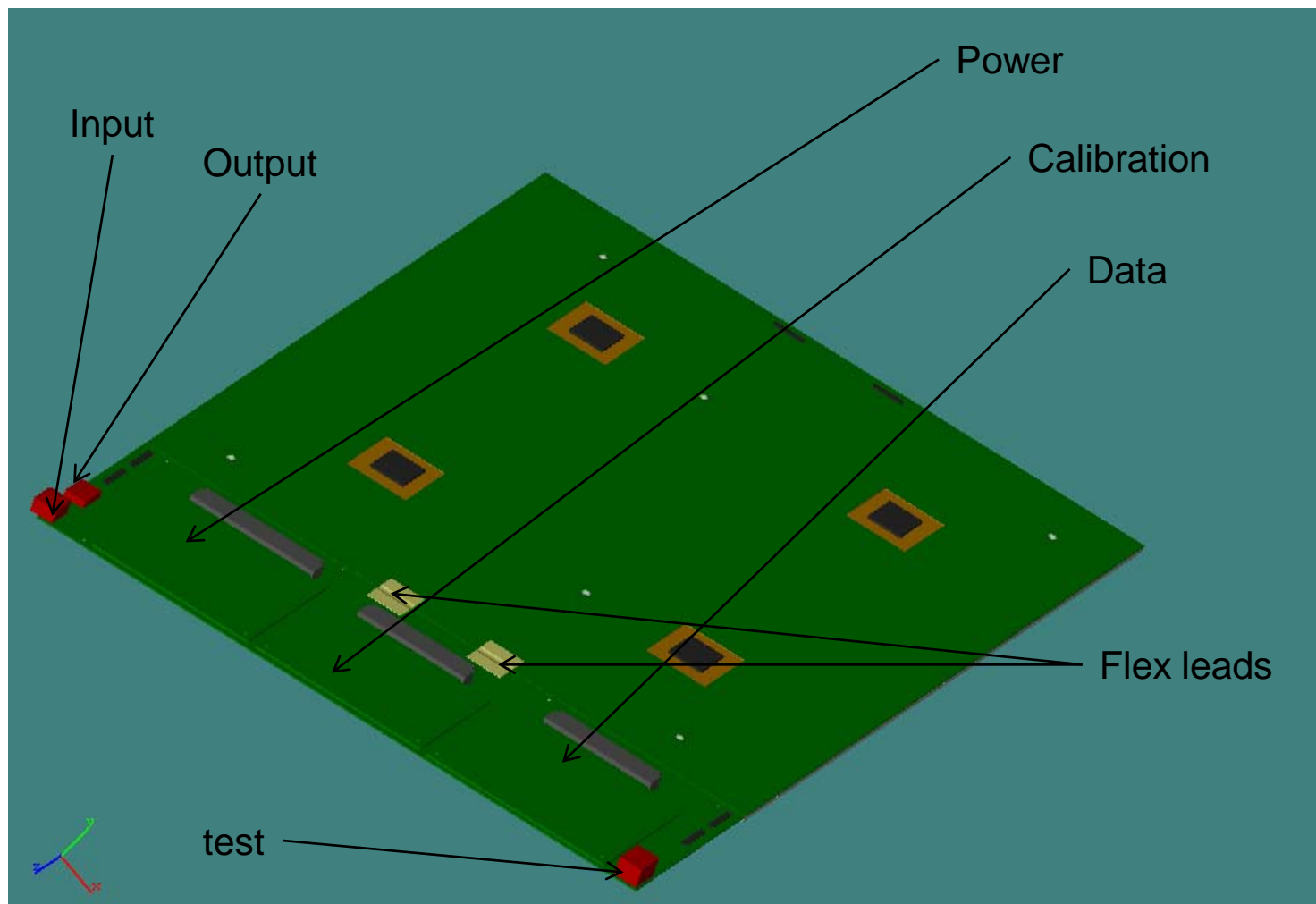
HBU dimension : $360 \times 360 \text{ mm}^2$
12 x 12 tiles = 144 tiles/channels
tile dimension $30 \times 30 \text{ mm}^2$



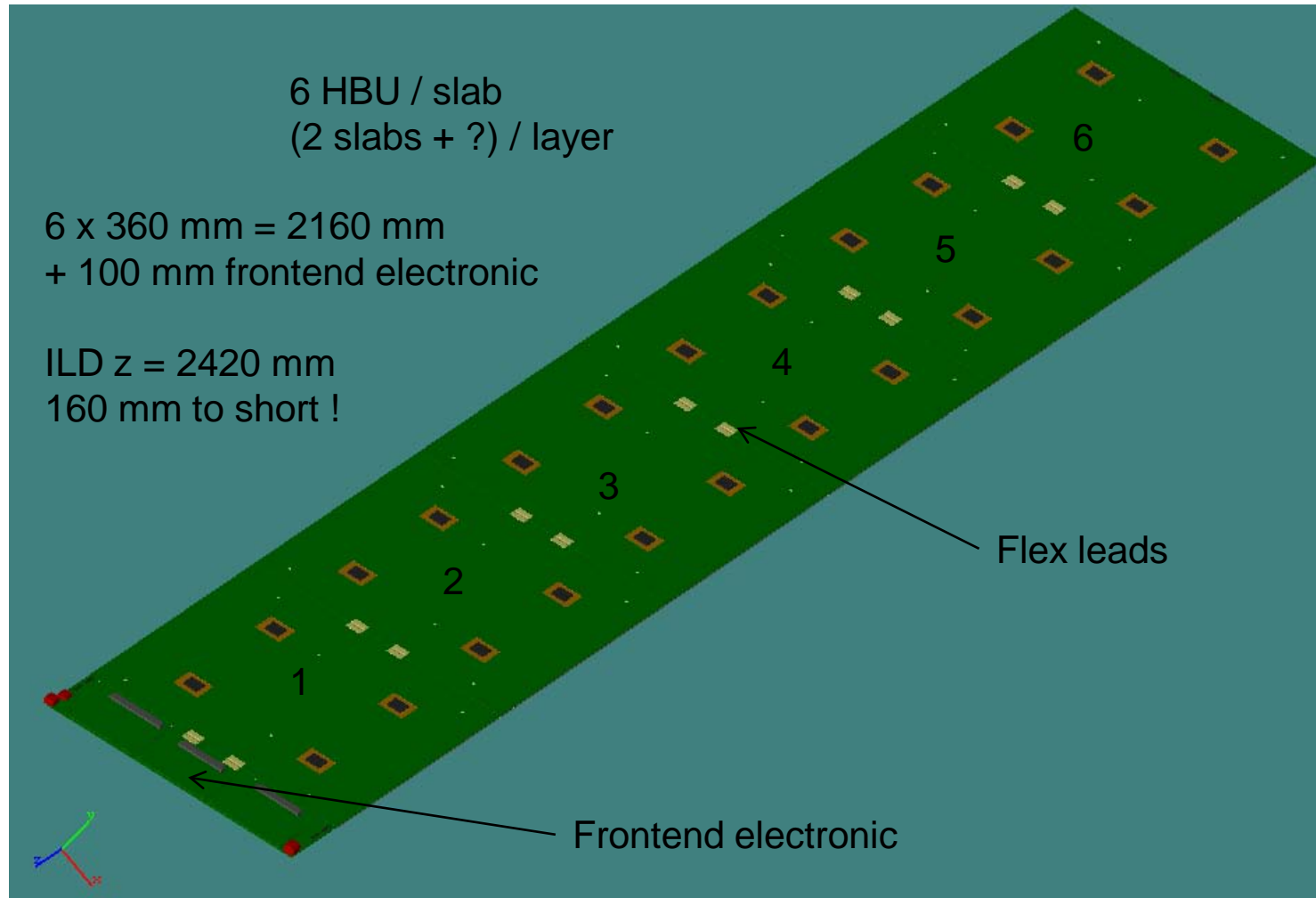
AHCAL Base Unit (HBU) electronic board



AHCAL layer frontend electronic



AHCAL layer slab



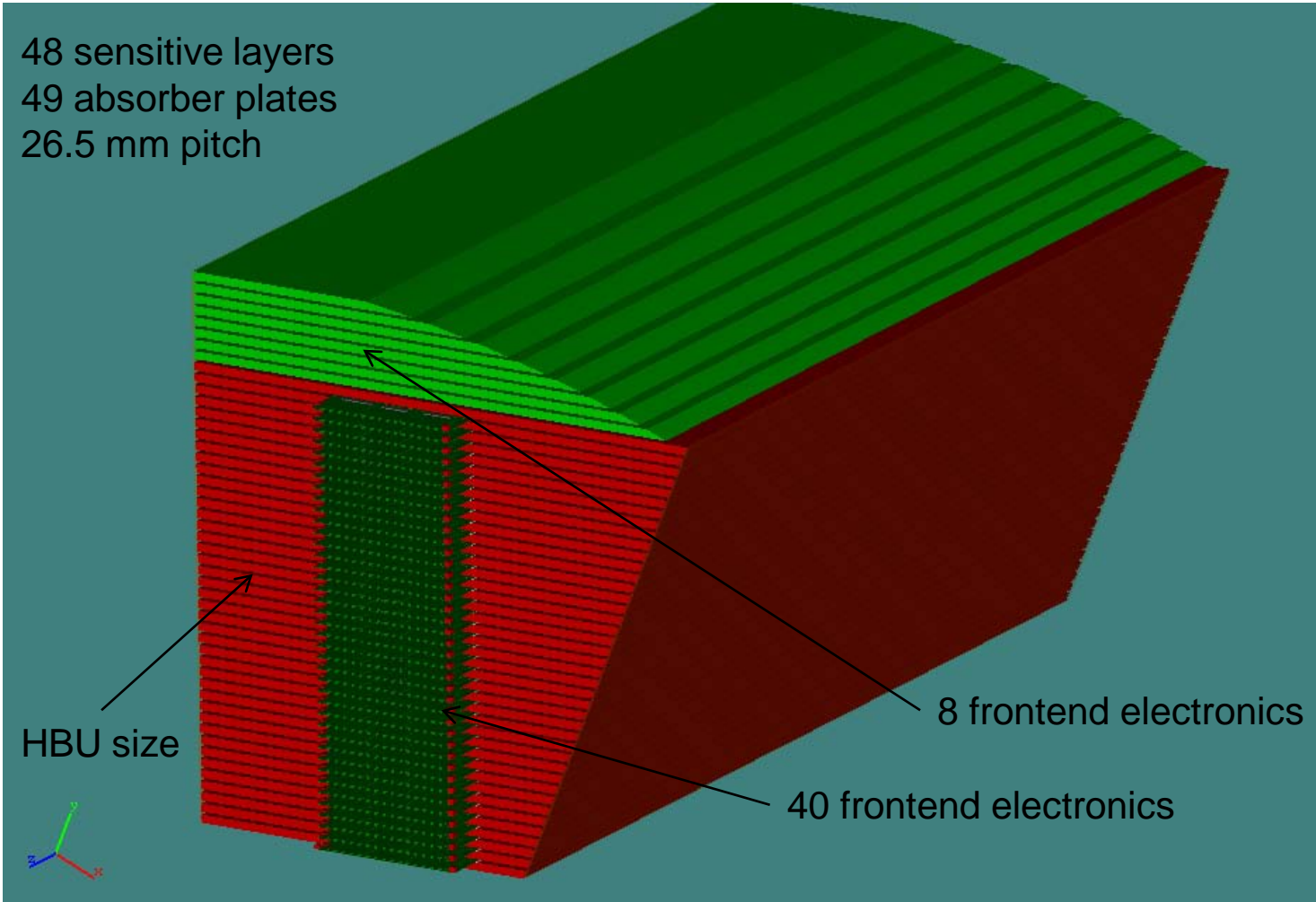
AHCAL barrel stack

48 sensitive layers
49 absorber plates
26.5 mm pitch

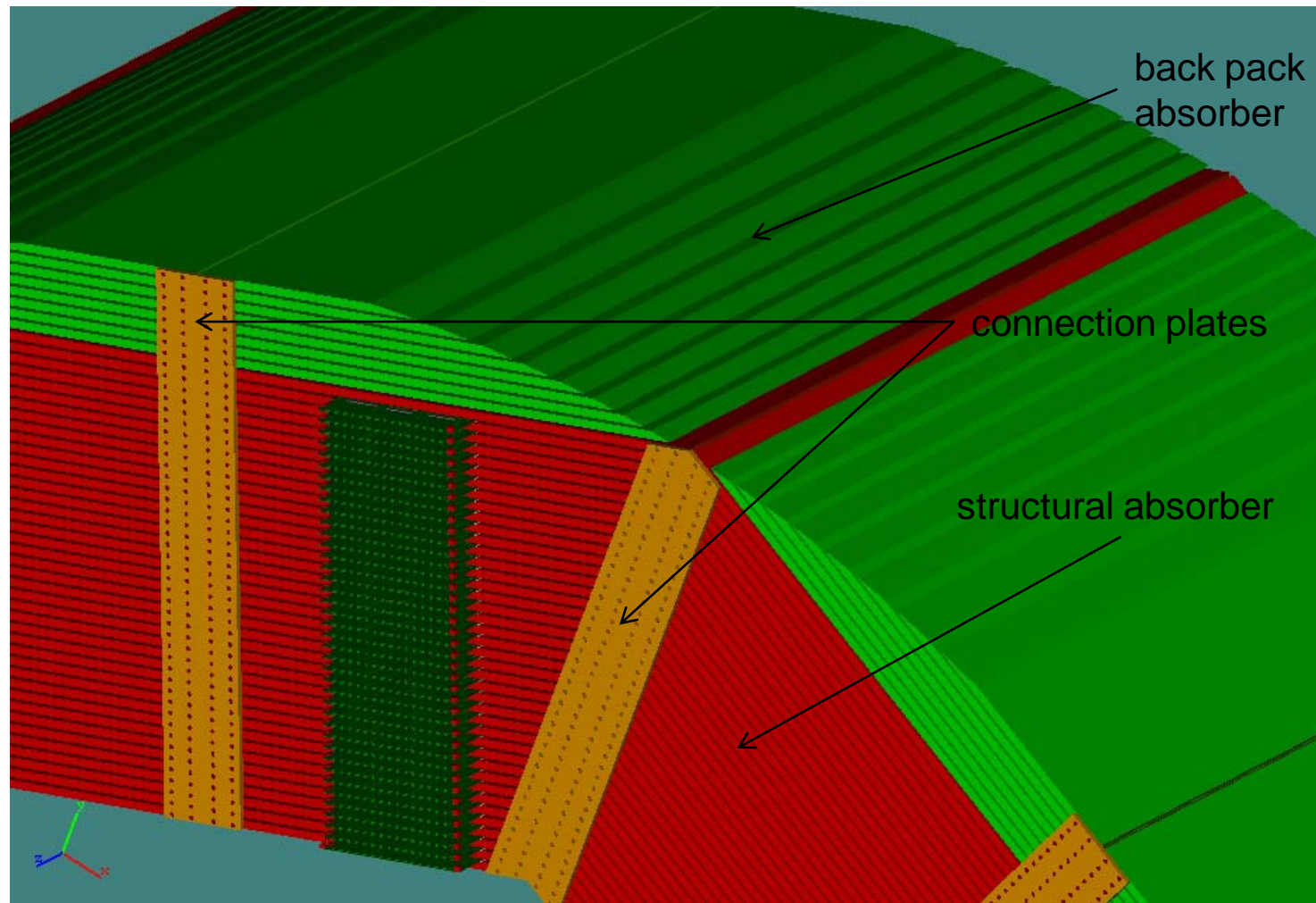
HBU size

8 frontend electronics

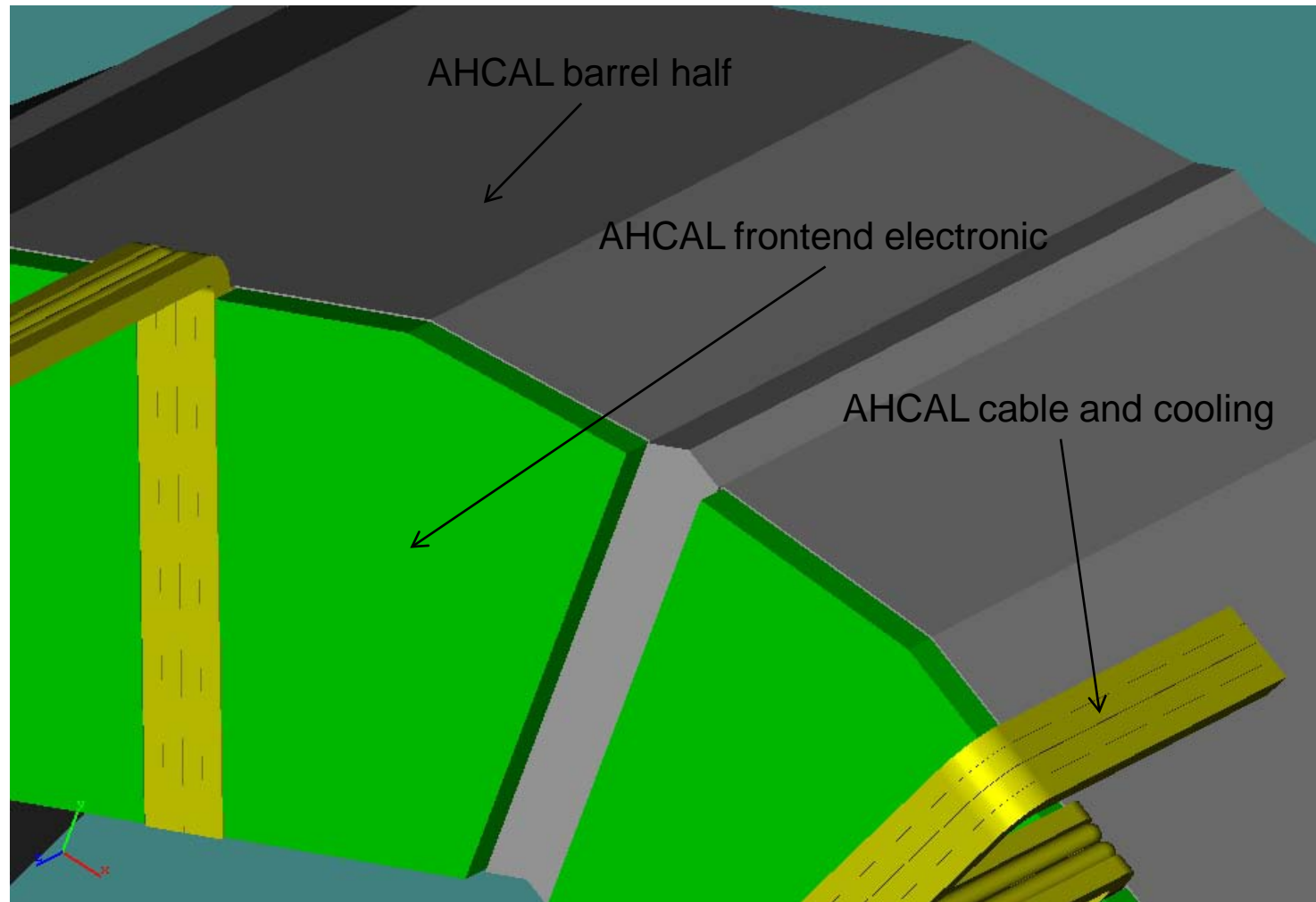
40 frontend electronics



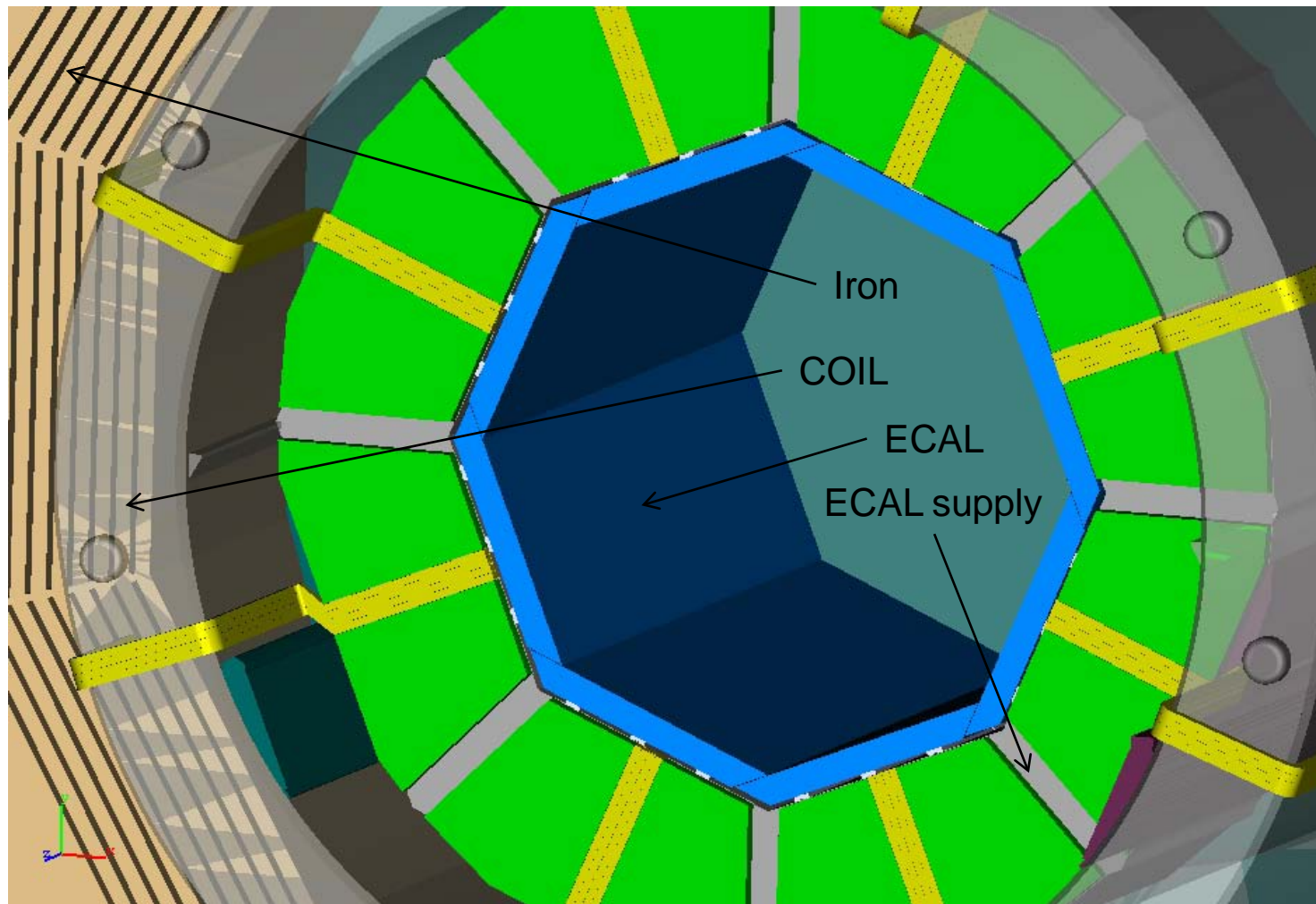
AHCAL barrel absorber structure



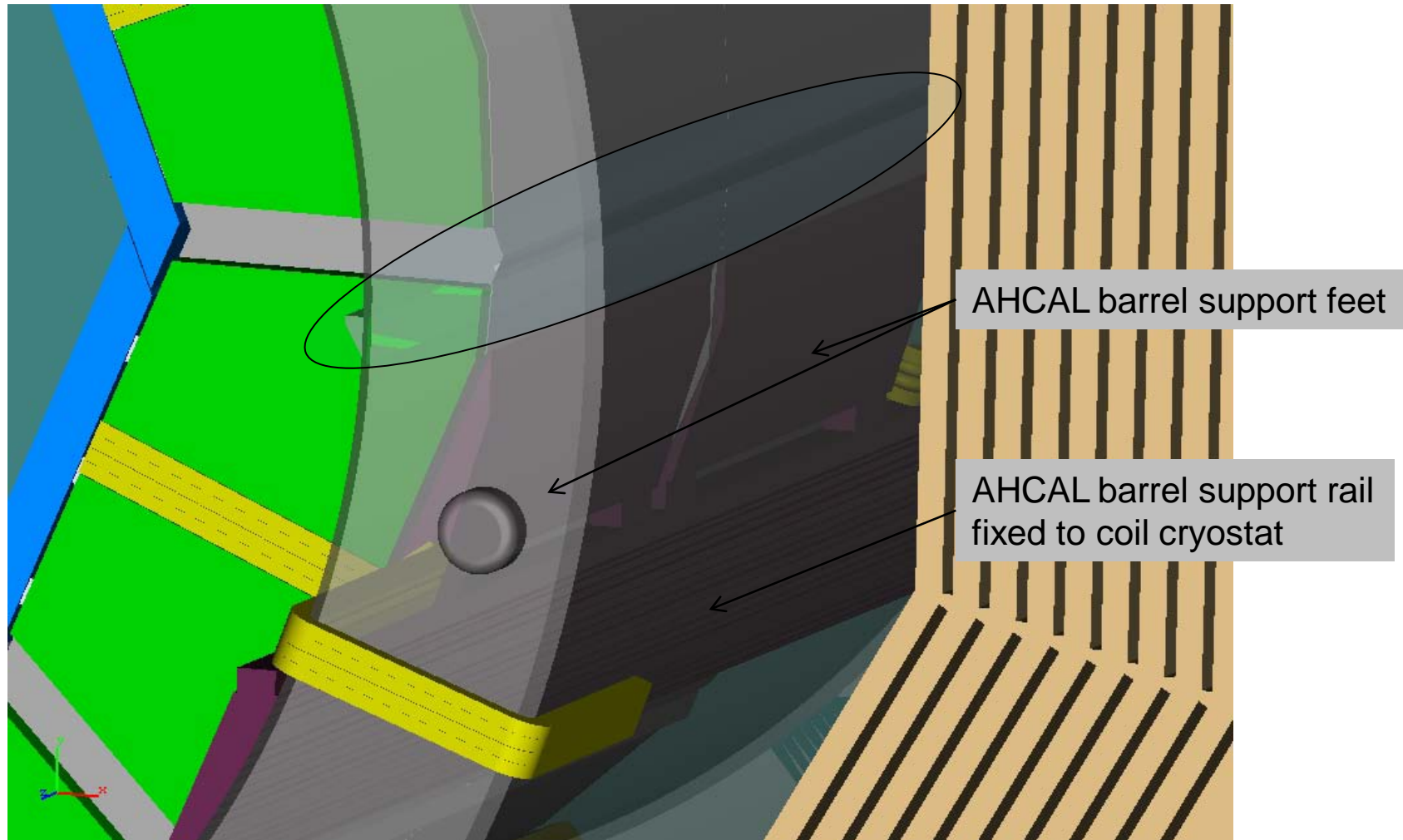
AHCAL barrel placeholder volume



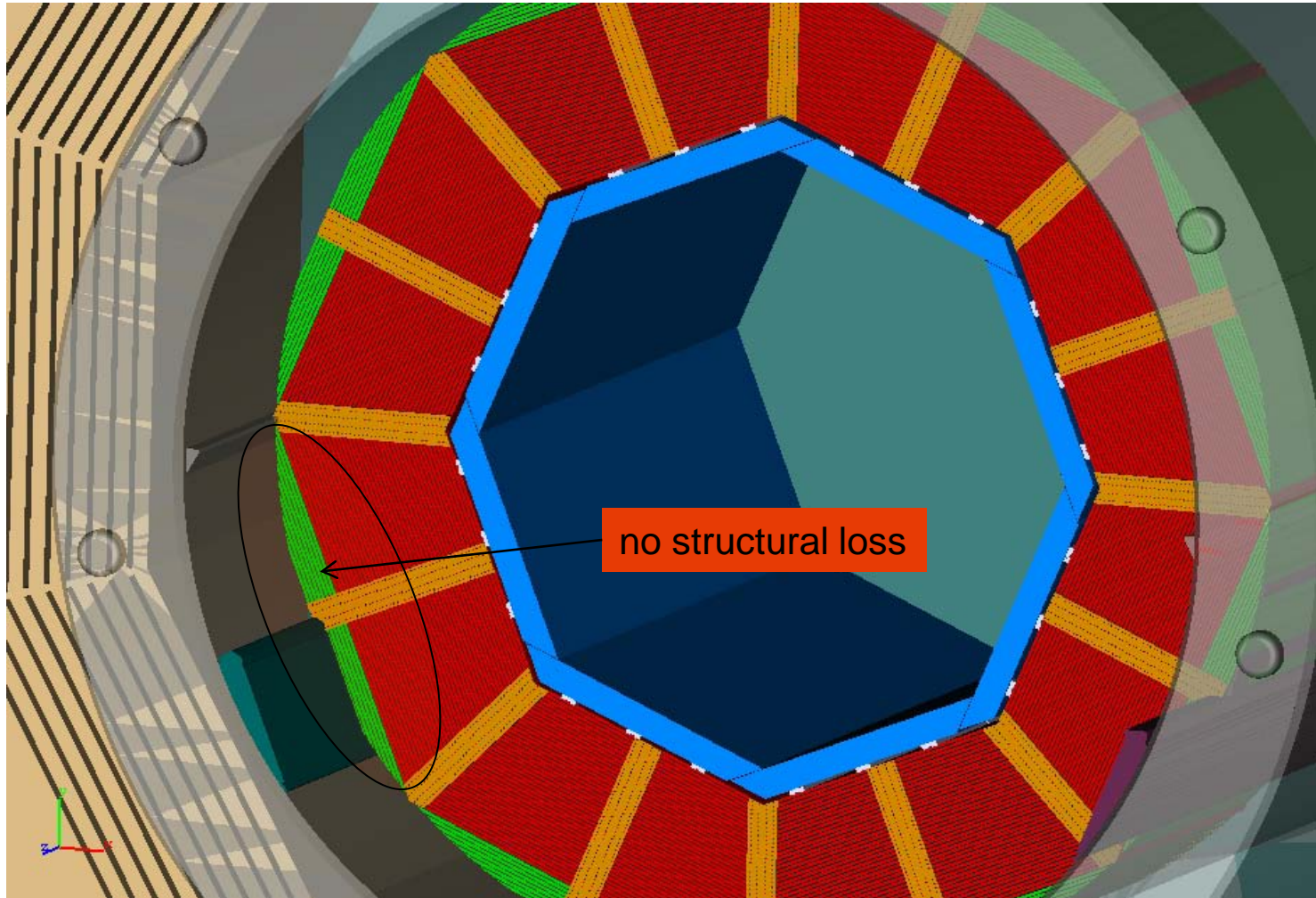
AHCAL barrel with ECAL barrel inside ILD



AHCAL barrel supports



AHCAL barrel supports



AHCAL barrel in ILD summary

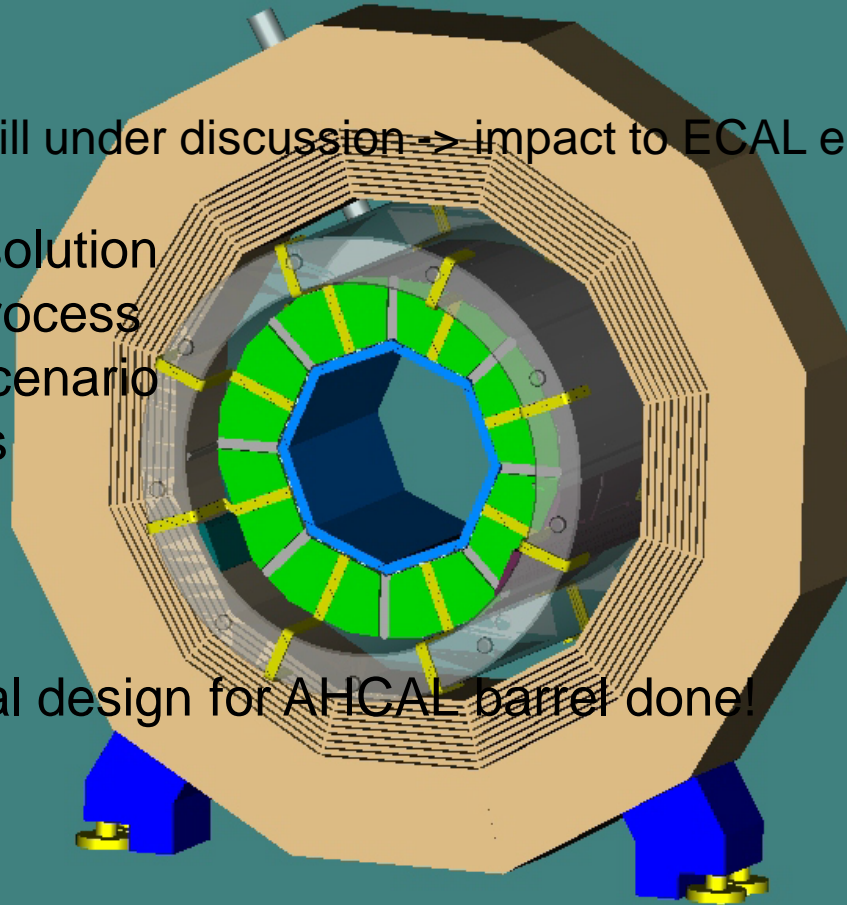
not confirmed :

- geometry
 - rotation still under discussion -> impact to ECAL end cap

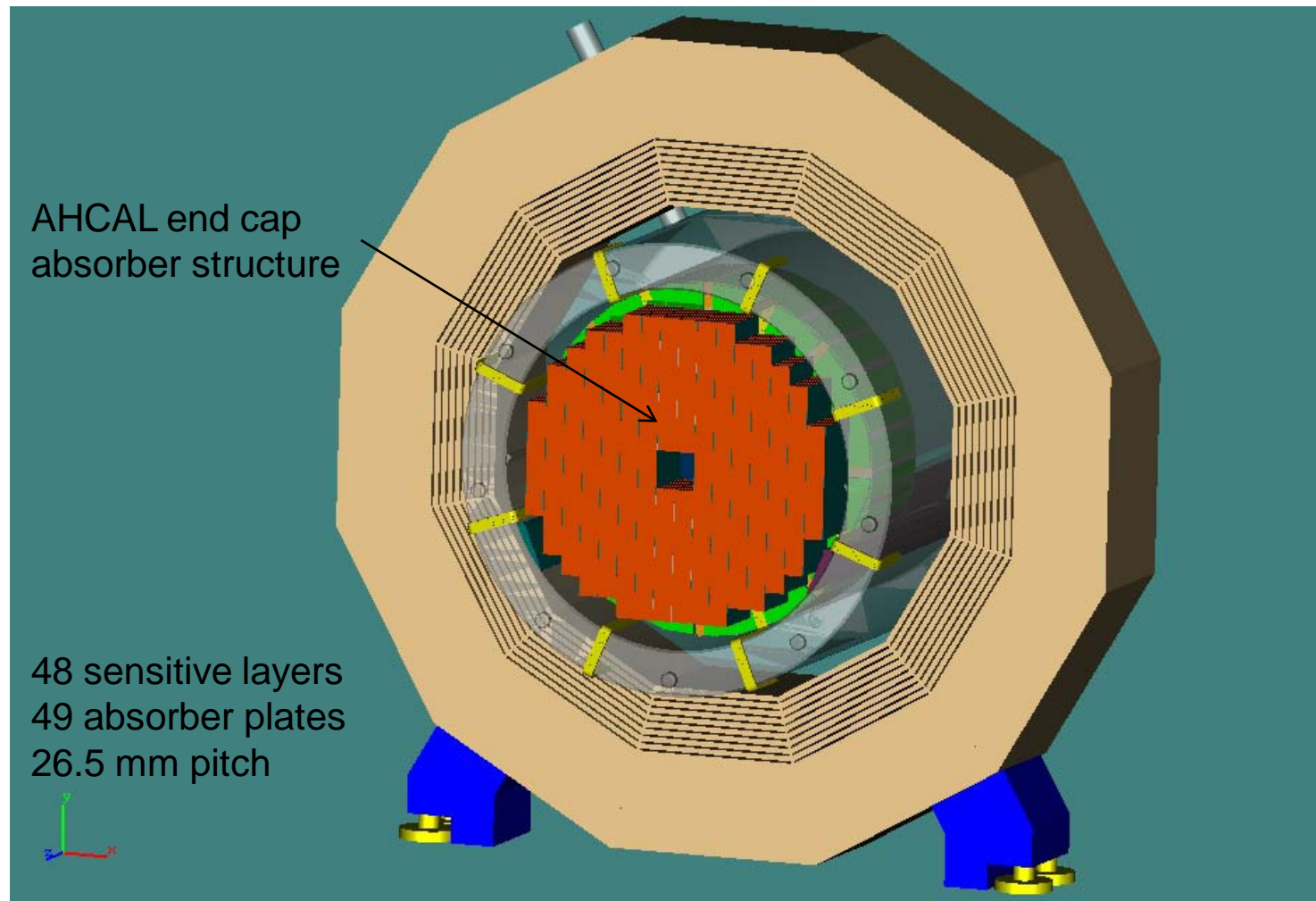
known :

- mechanical solution
- production process
- installation scenario
- supply routes
- interfaces

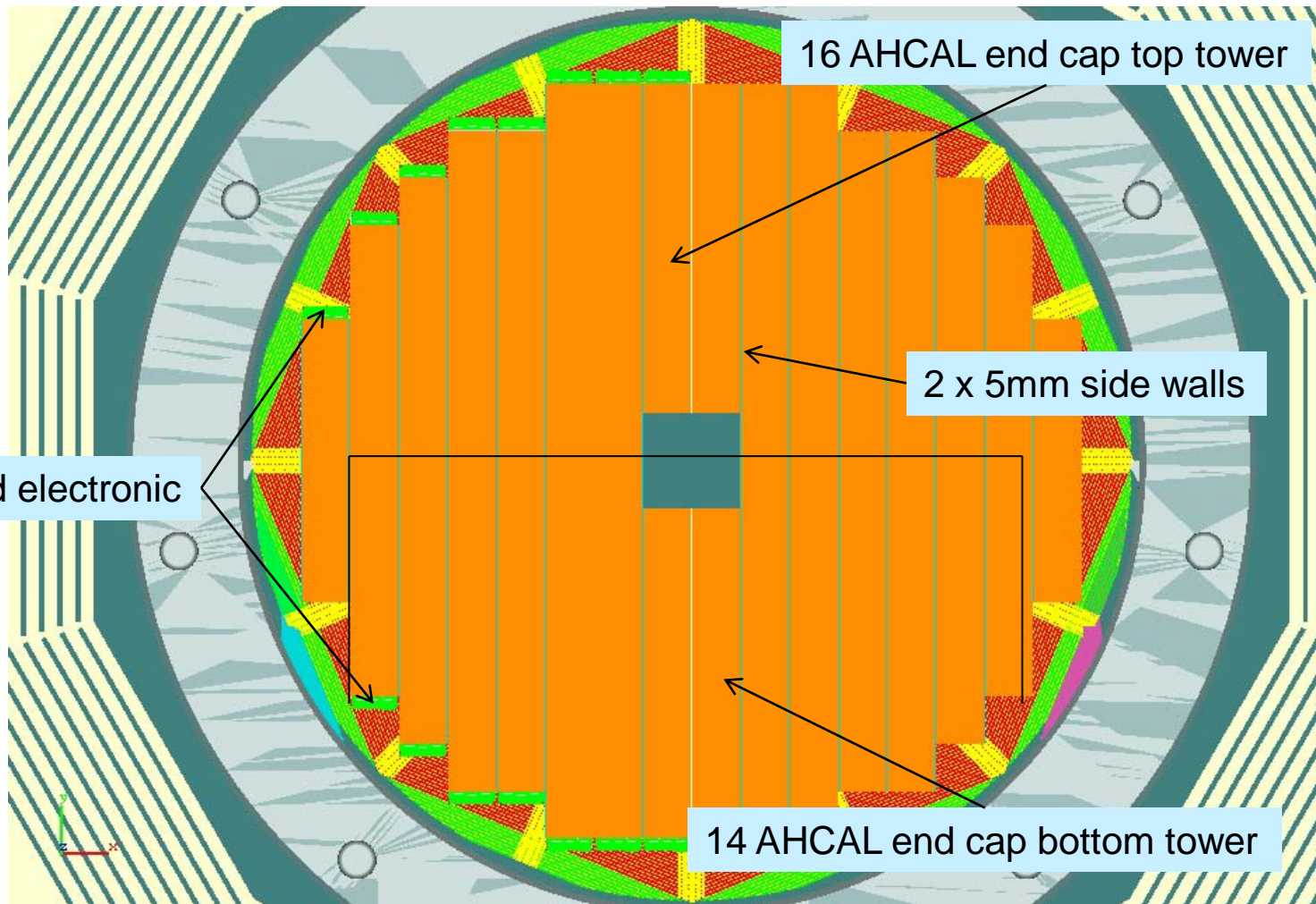
90% mechanical design for AHCAL barrel done!



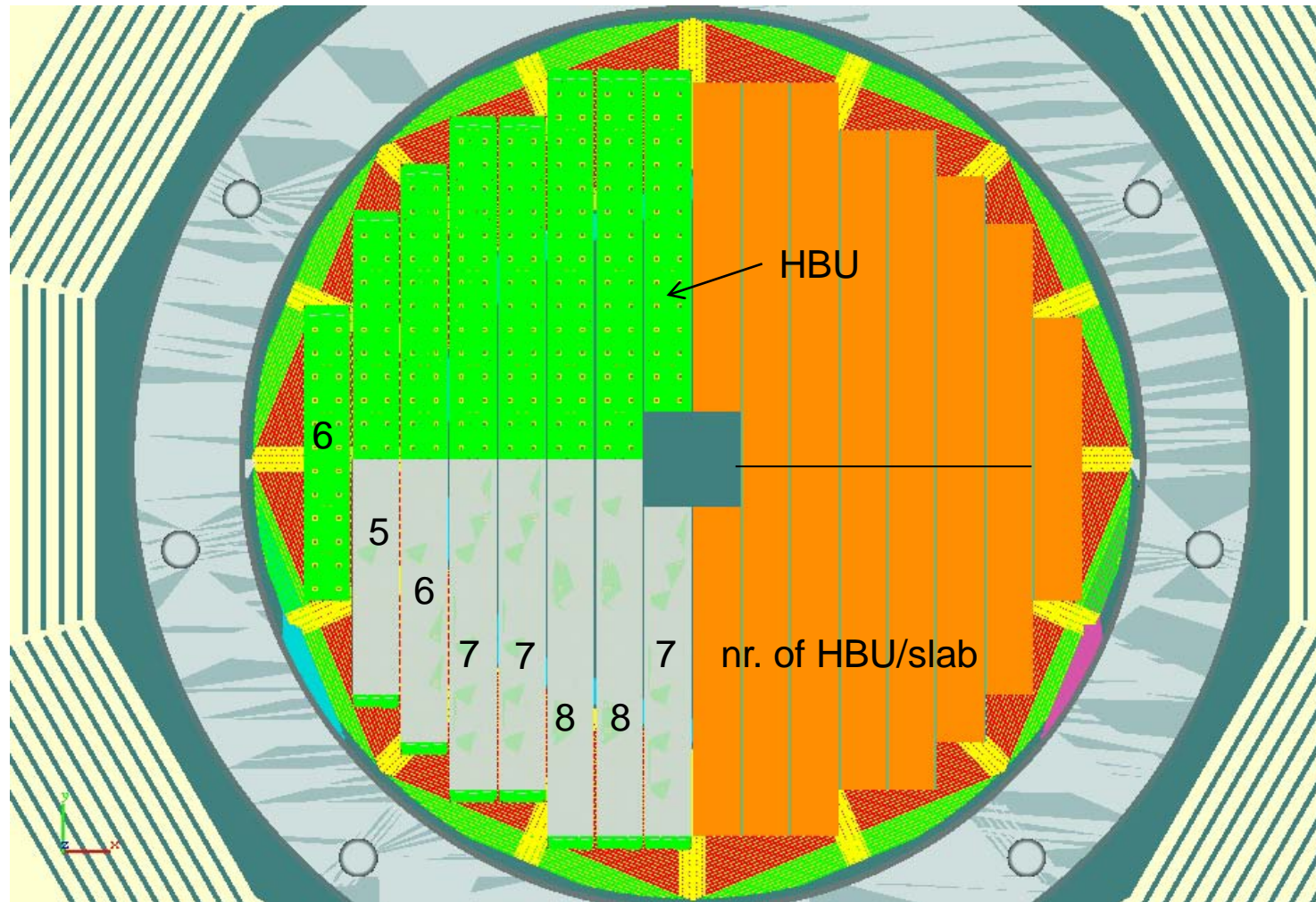
AHCAL end cap absorber structure



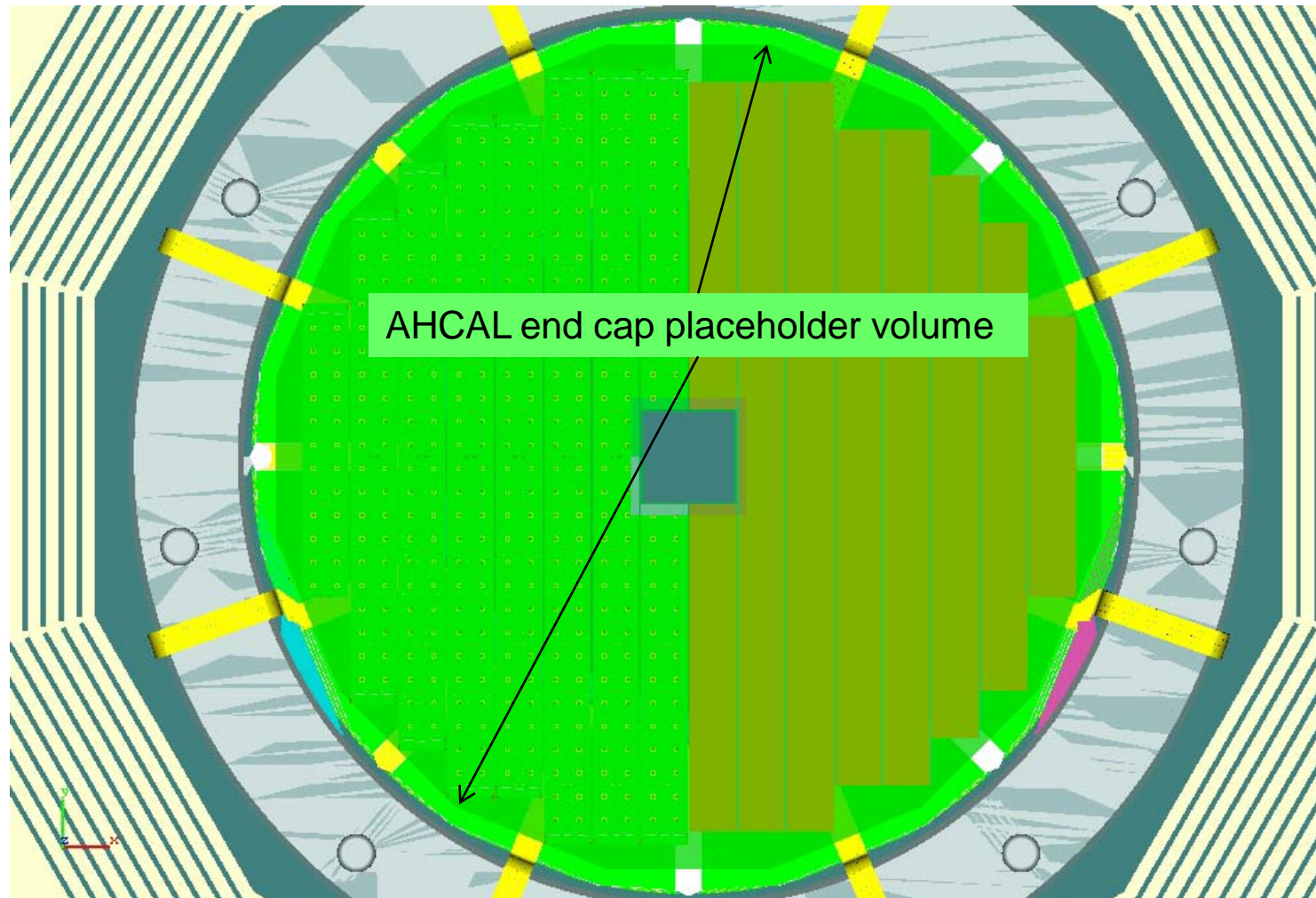
AHCAL end cap



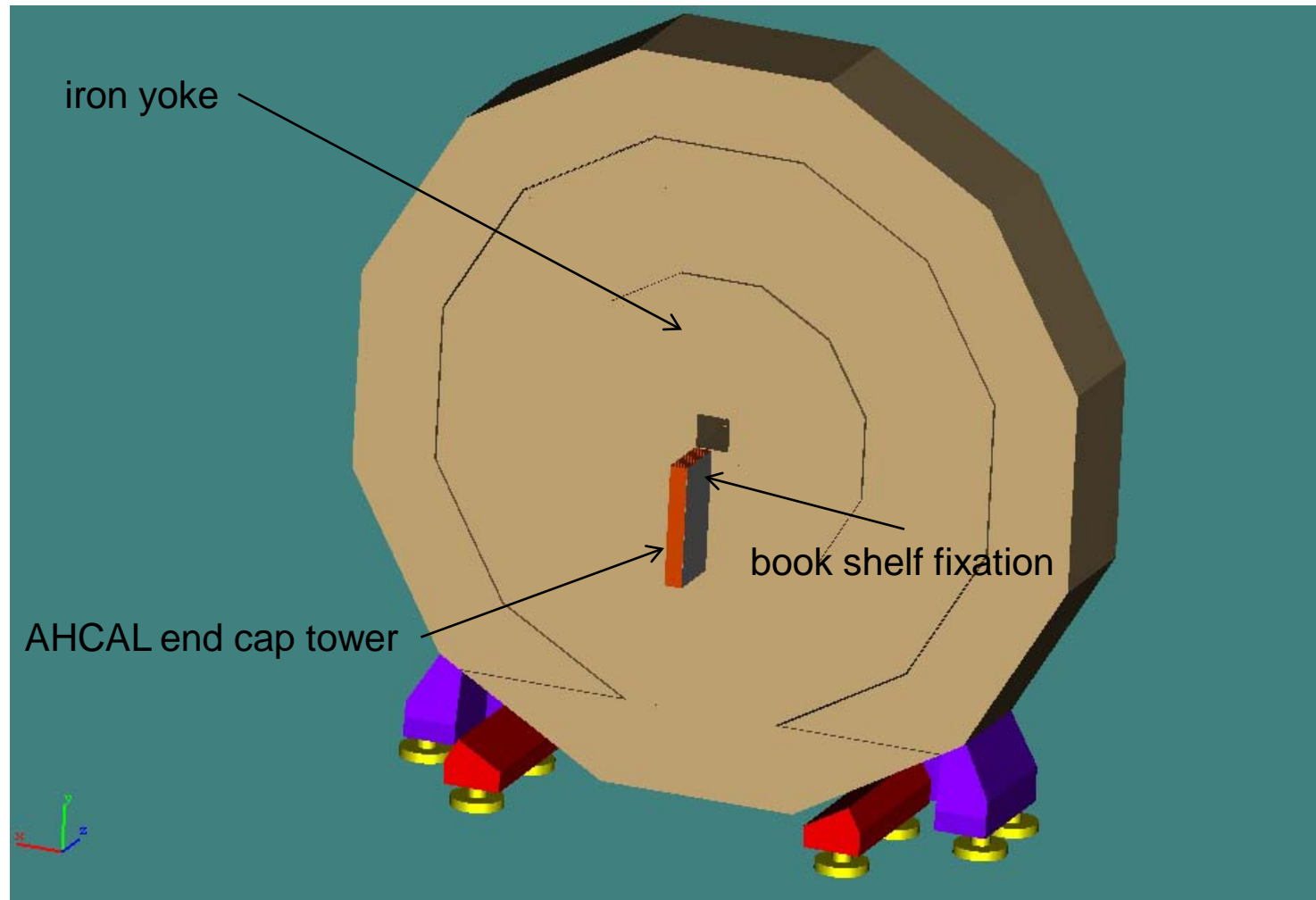
AHCAL end cap electronics



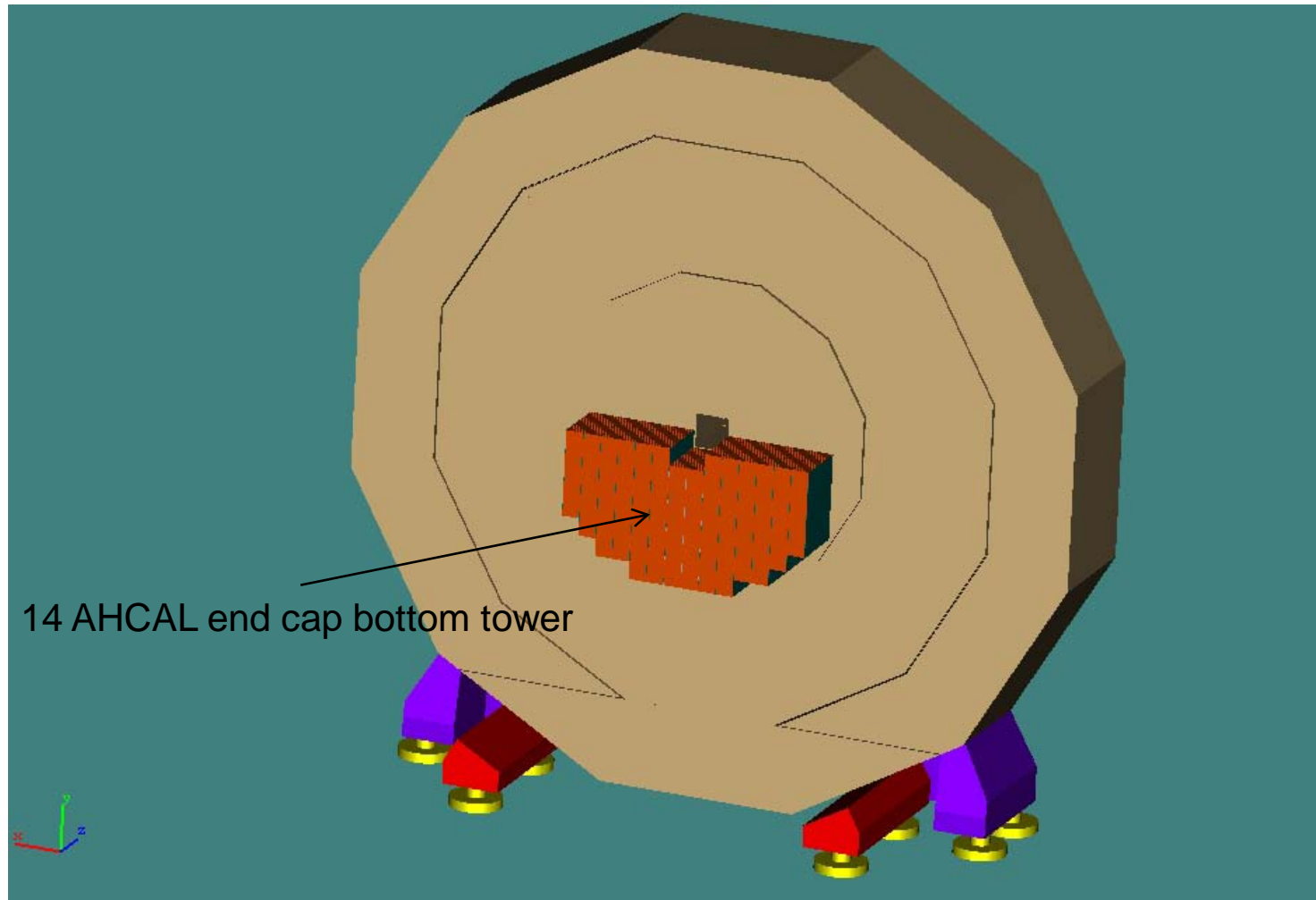
AHCAL end cap placeholder volume



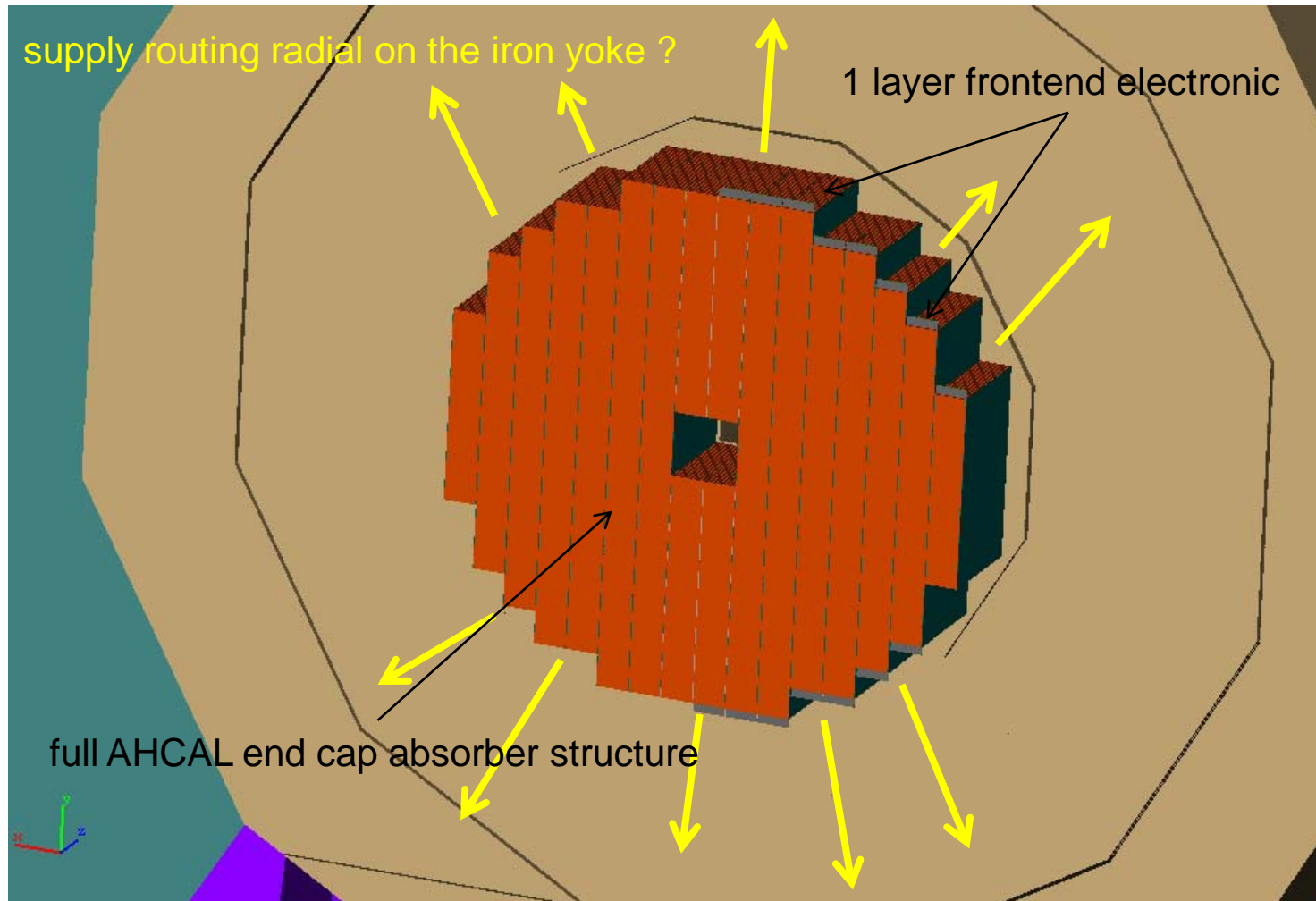
AHCAL end cap support



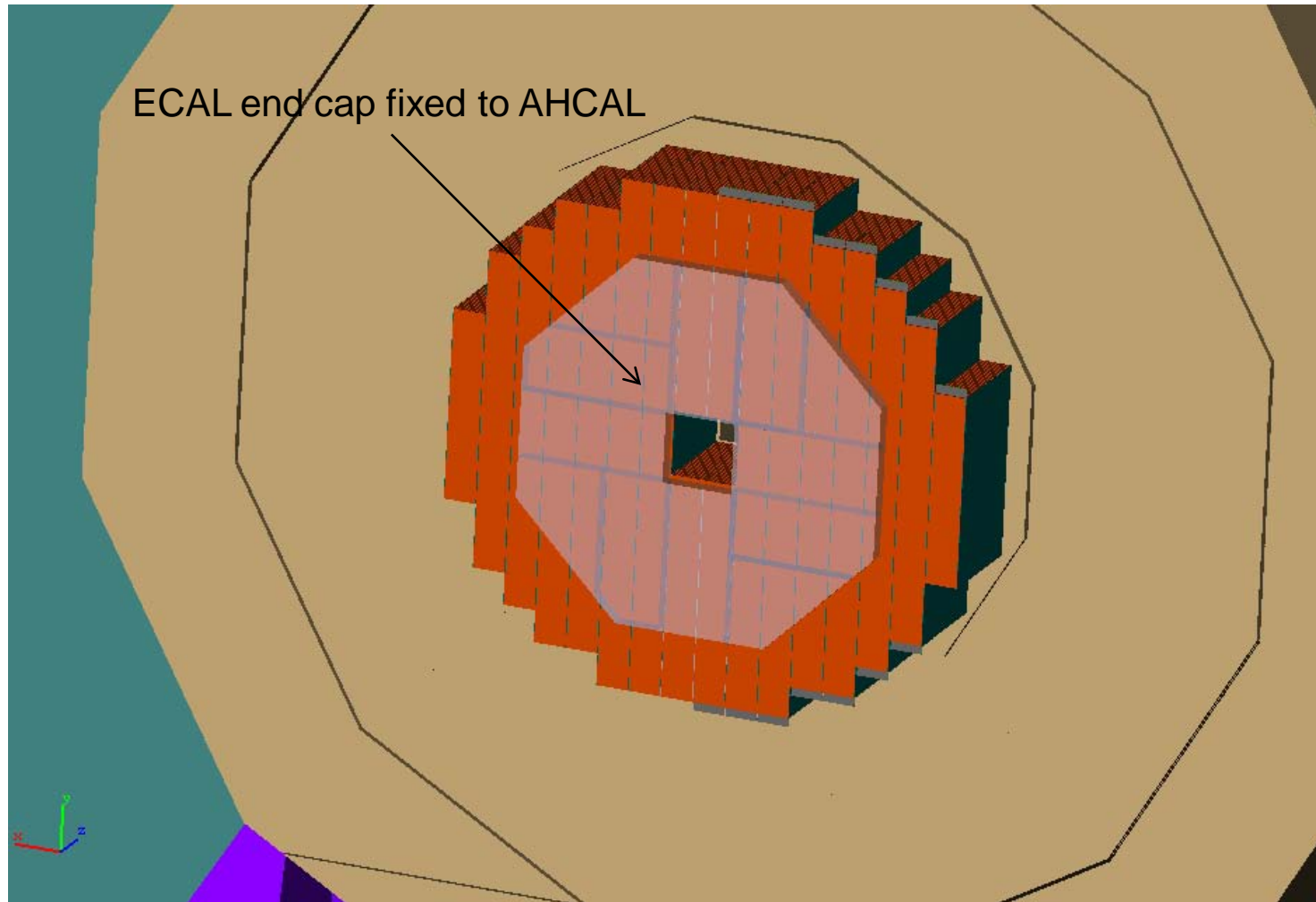
AHCAL end cap installation



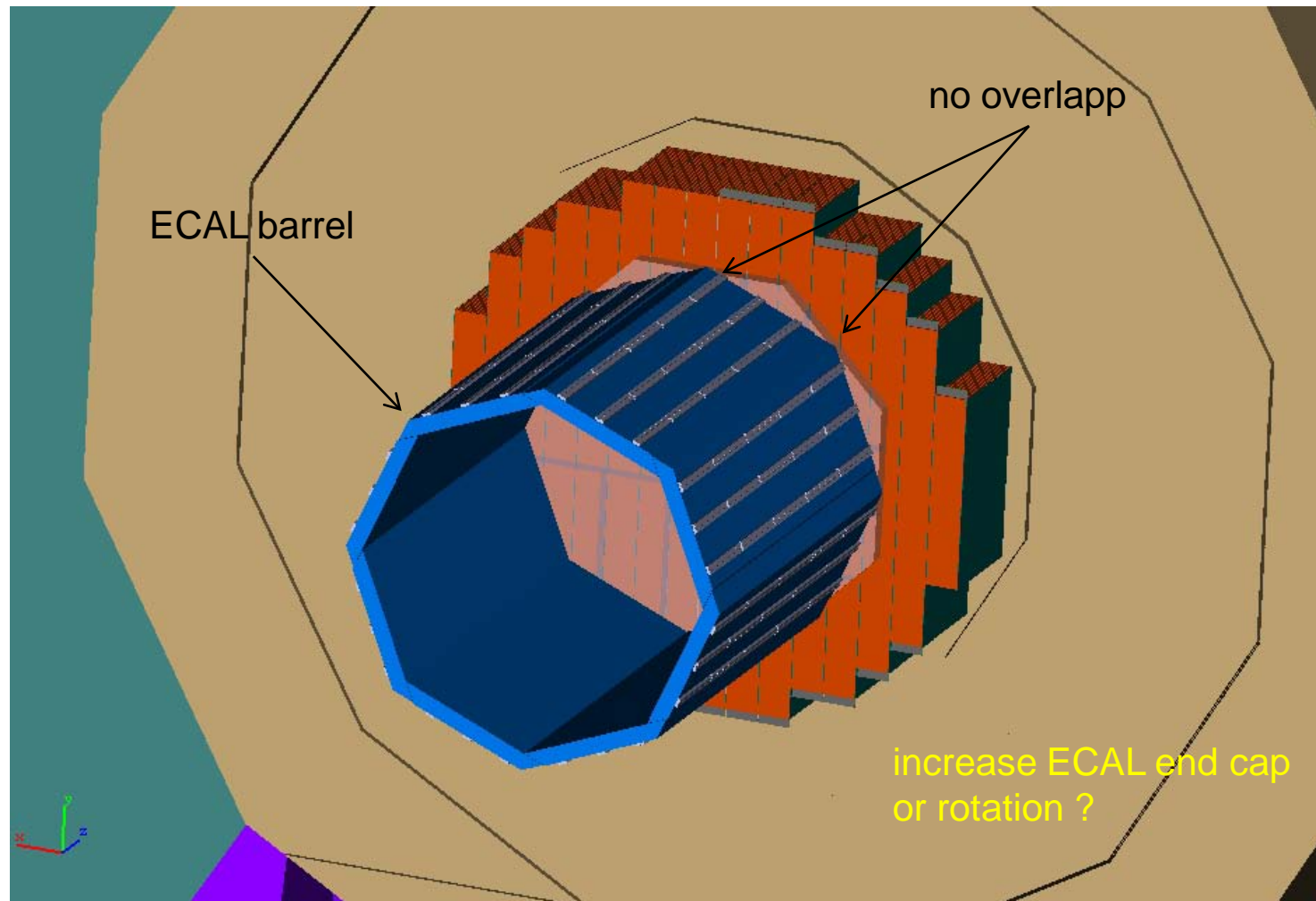
AHCAL end cap supply



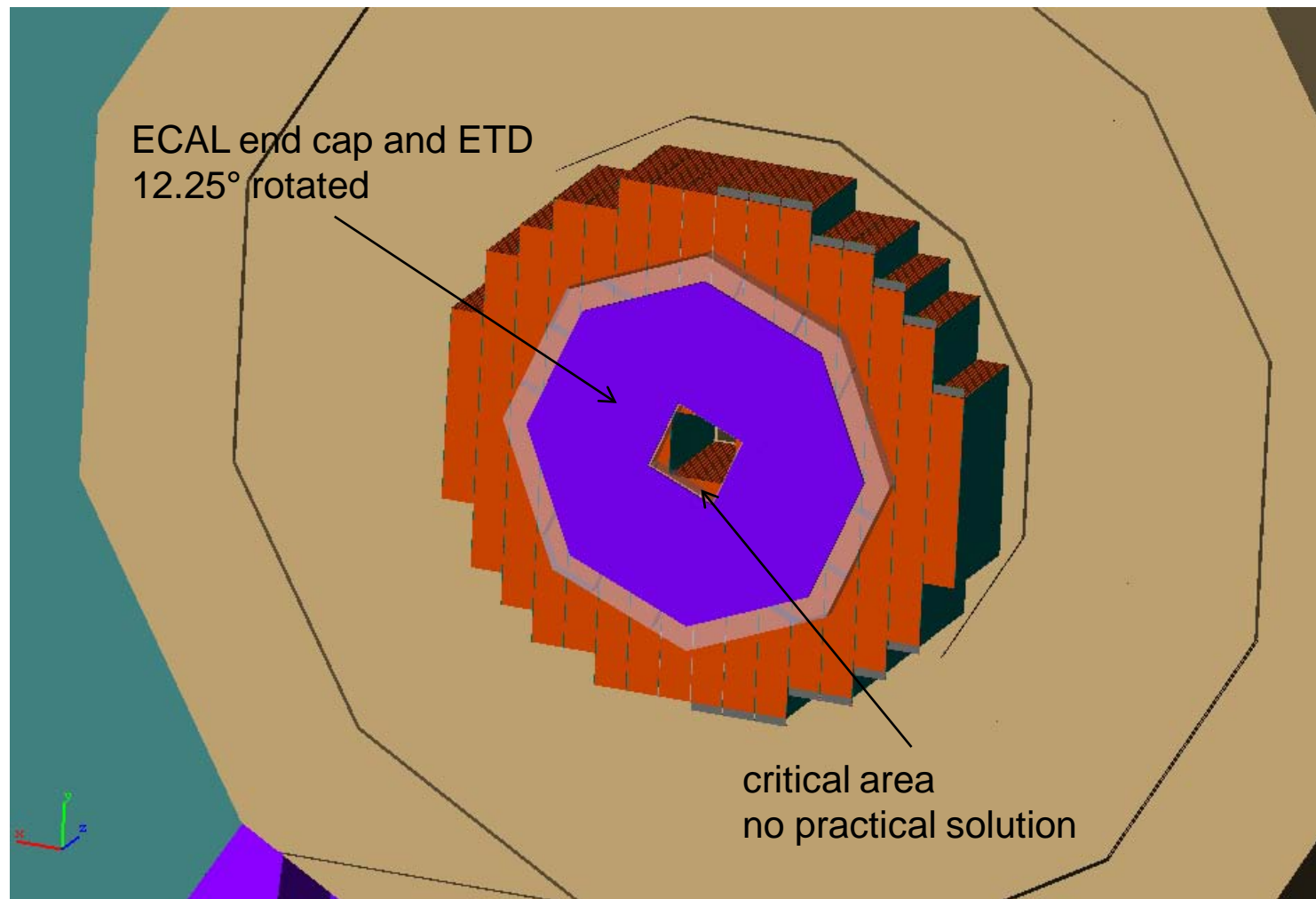
AHCAL end cap with ECAL end cap



AHCAL end cap with ECAL end cap and barrel



AHCAL end cap with ECAL end cap and ETD rotated



AHCAL end cap in ILD summary

not confirmed
- geometry
known

- mechanical solution
 - production process
 - installation scenario
- unknown
- supply routes
 - interfaces

AHCAL end cap ring

useful ?

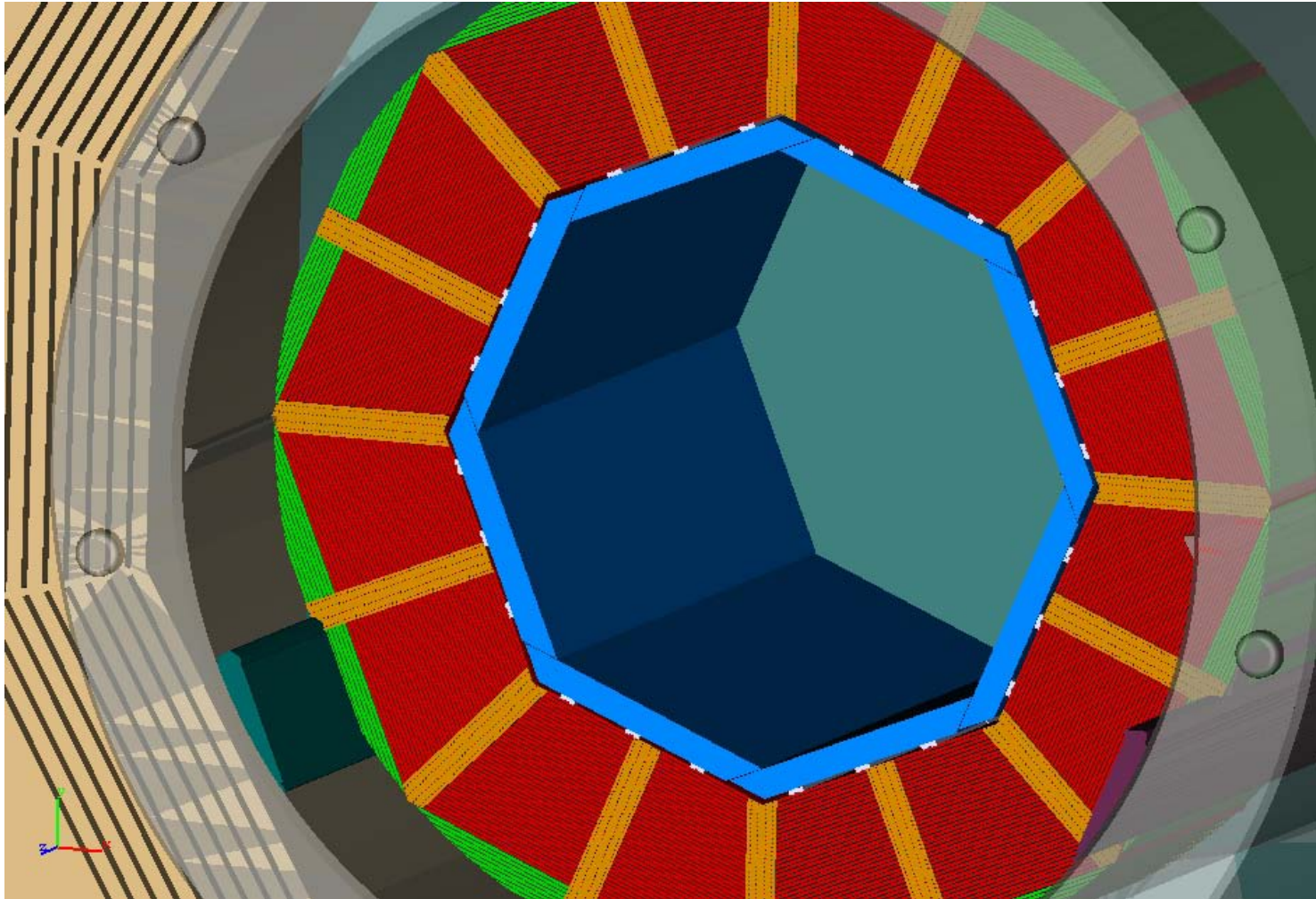
60% mechanical design for AHCAL end cap done!



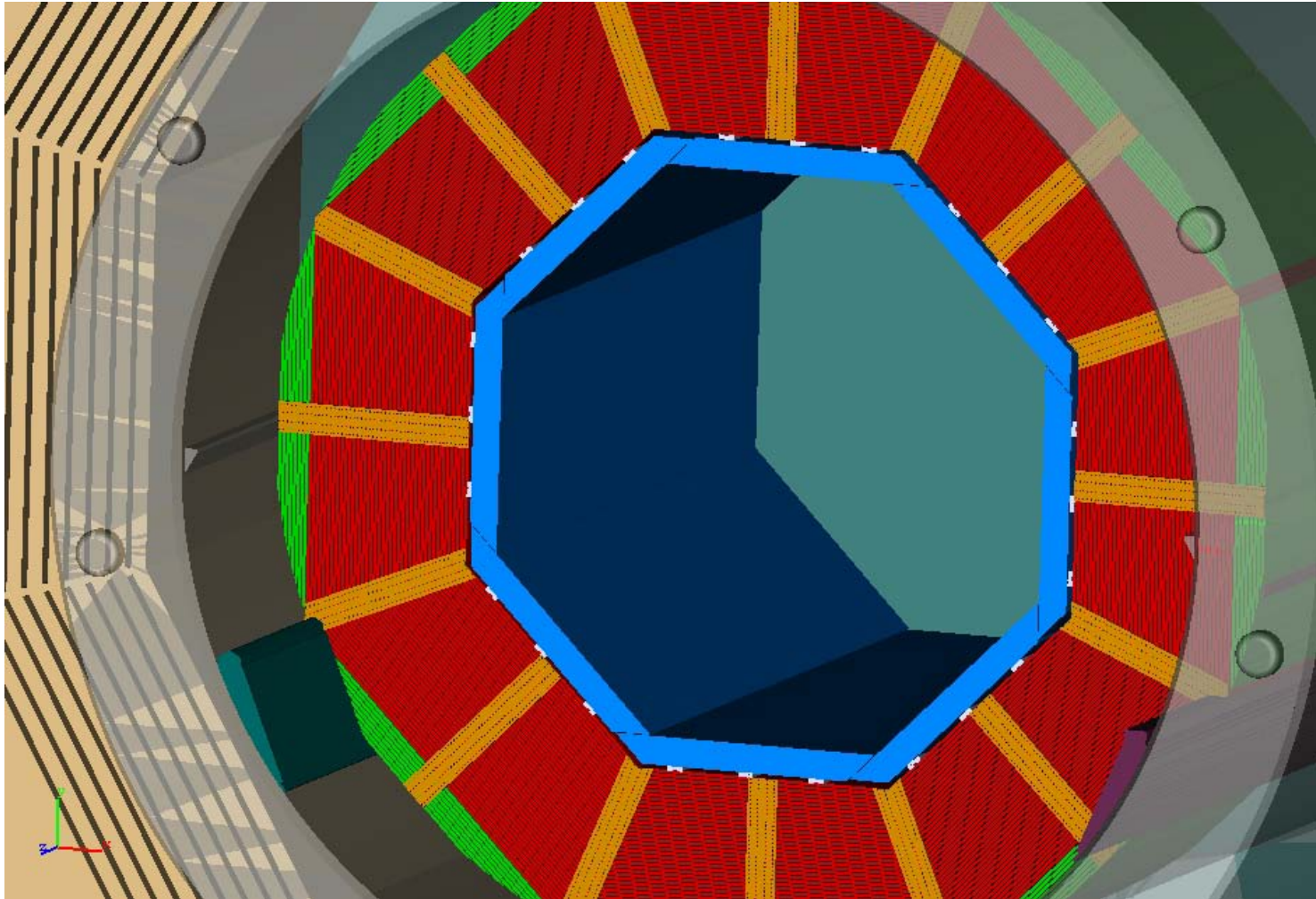
- > Rotation of AHCAL barrel ?



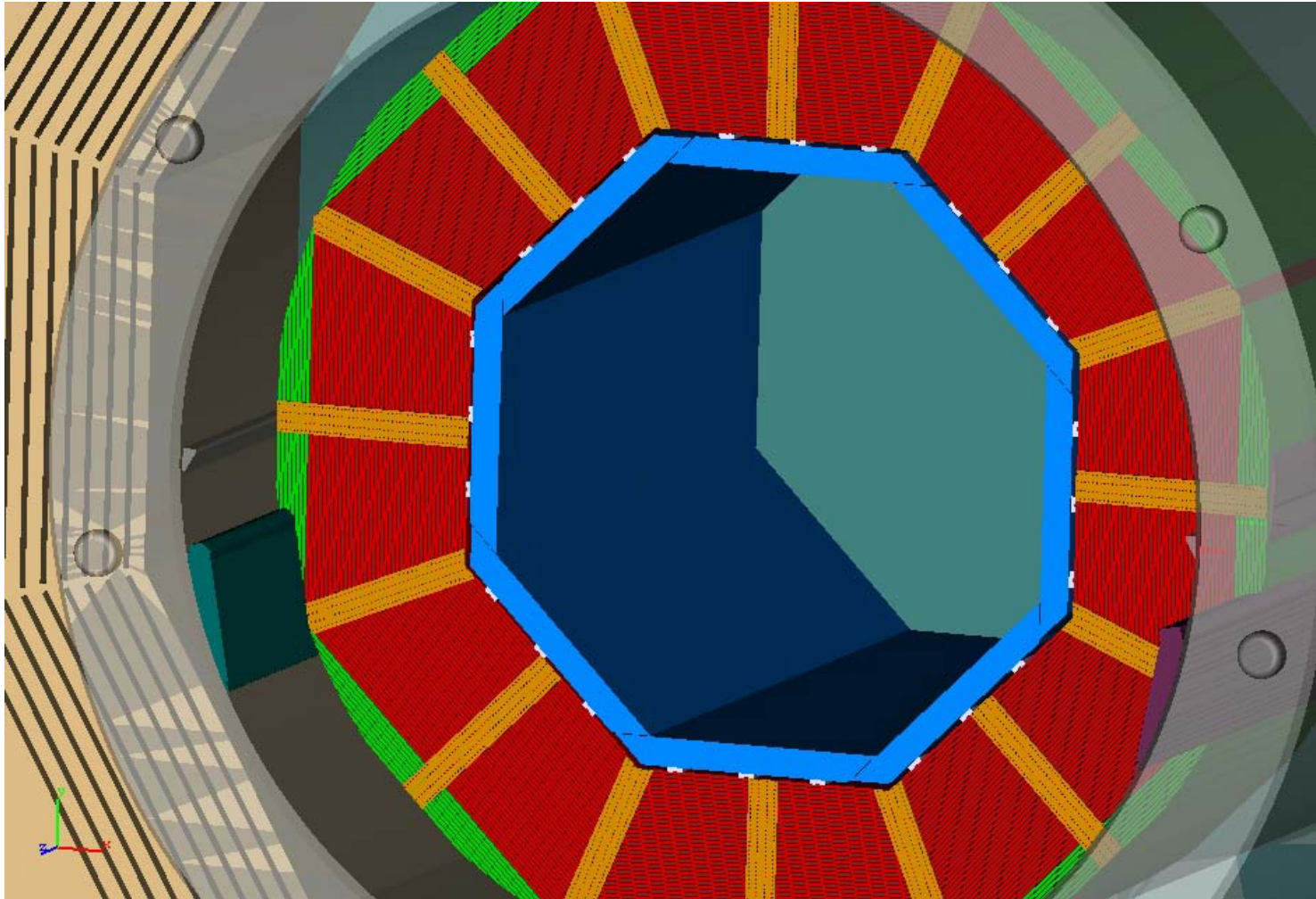
AHCAL barrel current solution



AHCAL barrel old solution with current support



AHCAL barrel old solution with modified support



AHCAL barrel old solution with front end electronic and supply

