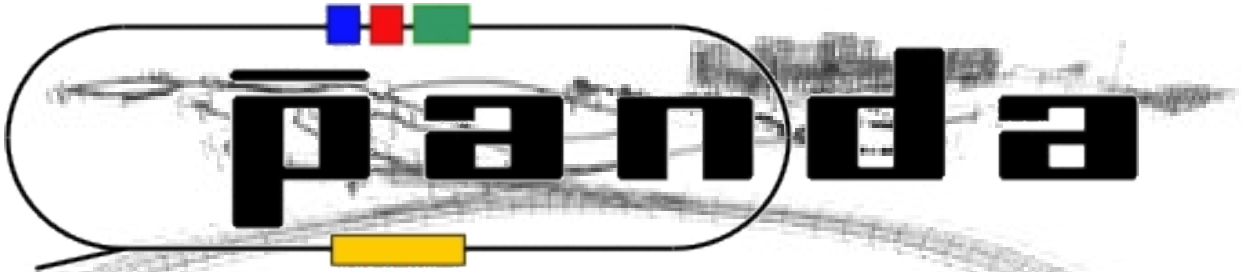
Space Constraints



Lars Schmitt, GSI

PANDA Magnet Meeting, Jan 24th 2008

Dimension 12/2007

Tolerances in Endcap

Wishes from Detectors

Conclusions

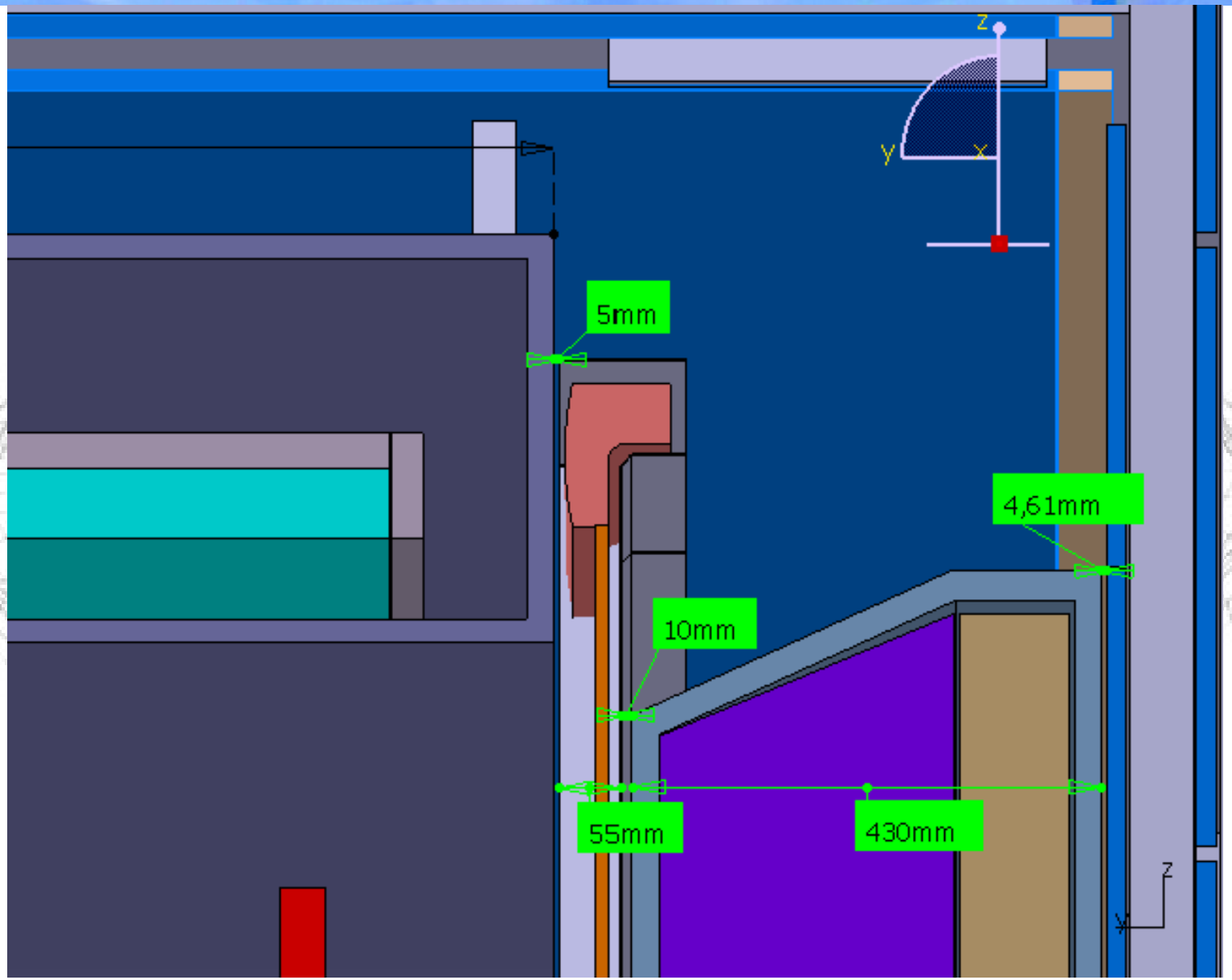
Dimensions 12/2007

Compilation of new dimensions:

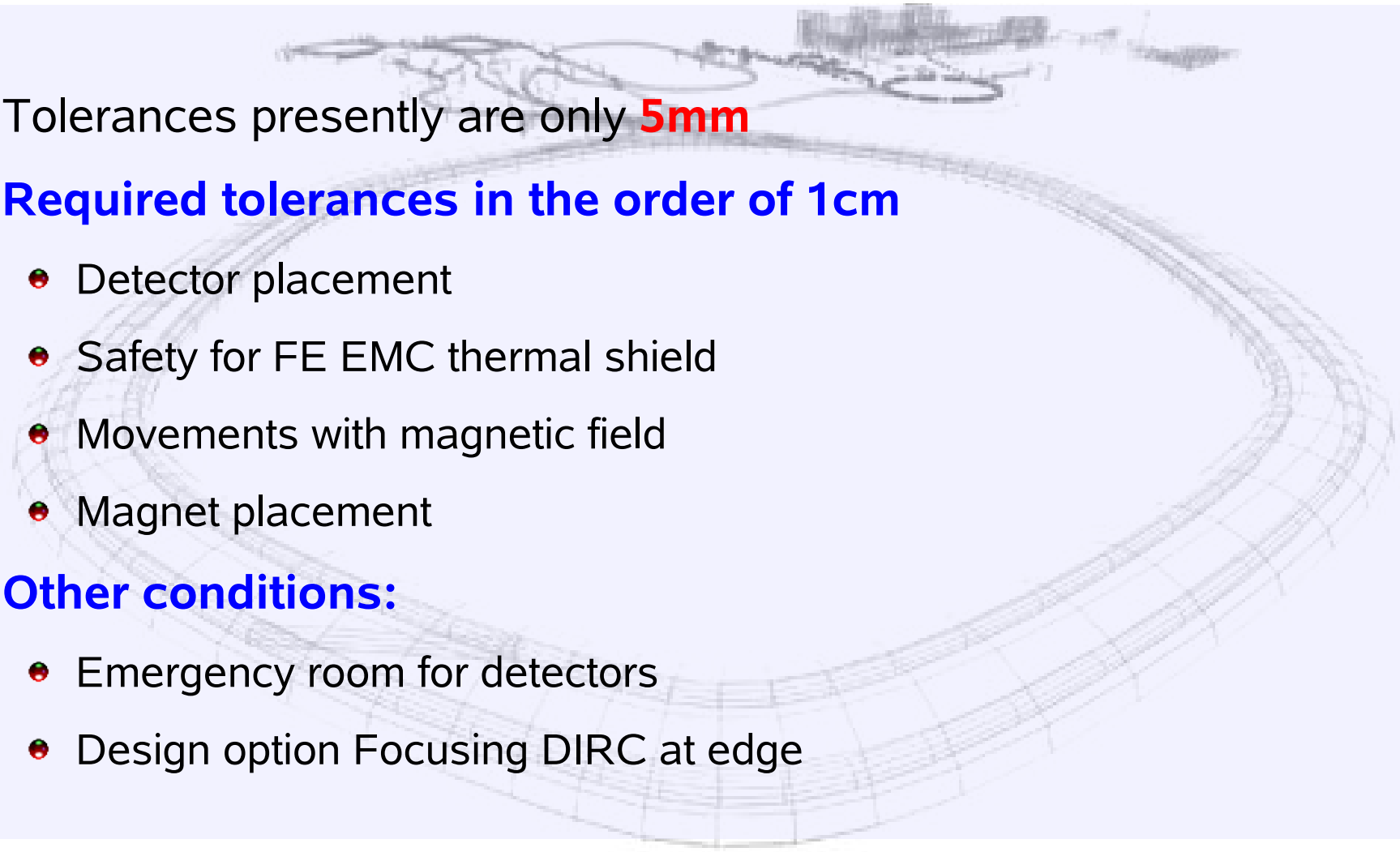
Dimensions	radius/mm	length/mm	z_{min}/mm	z_{max}/mm
Cryostat inner	950	3130	-1180	**1950**
Cryostat outer	1340			
Yoke inner	1490	4050	-1585	2475
Yoke outer	2240	4875	-1970	**2915**
Proximity RICH	910	240	1770	2010
ToP Disc DIRC	910	60	1890	1950
Focusing DIRC	1100	60	1955	2015
FE EMC		430	2020	2450

Note: The downstream end of 2915 mm was a compromise to account for the last minute increase in length of the FE EMC

Tolerances in Endcap



Tolerances in Endcap



- Tolerances presently are only **5mm**
- **Required tolerances in the order of 1cm**
  - Detector placement
  - Safety for FE EMC thermal shield
  - Movements with magnetic field
  - Magnet placement
- **Other conditions:**
  - Emergency room for detectors
  - Design option Focusing DIRC at edge

Requirements from Detectors

- A shortening of the cryostat is very helpful
  - ➔ Get to realistic tolerances
  - ➔ Safety distances
  - ➔ Potential growth of detectors
- A 5% decrease in bending power is acceptable
- Homogeneity should stay within ±2%
- Field integral $|\int B_r/B\, dz| < 2mm$
  - ➔ Final verification with fieldmap by TPC group
- Return to original end at 2905 mm desirable
- Field at DIRC readout below 1 T (or else r/o outside)
- Mountings, cables, supplies
- Access to electronics

Conclusions

- Request shortening of cryostat to z_{max}=1900mm
- Request return to z_{max}=2905 mm
- Next tasks:
  - Details of upstream door
  - Detector mountings
  - Feedthroughs of cables and supplies