# The luminosity monitor and It's mechanical integration into PANDA

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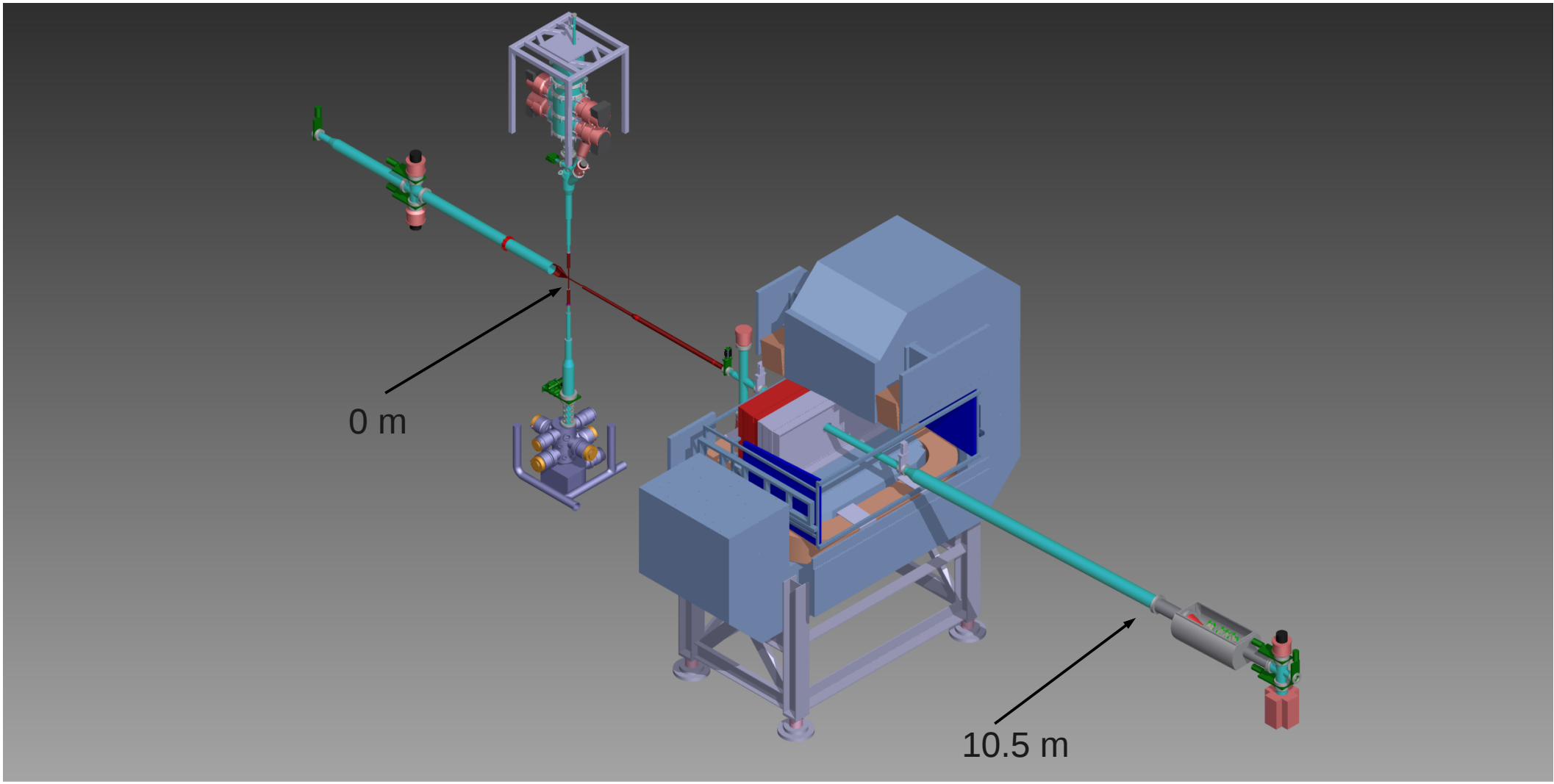
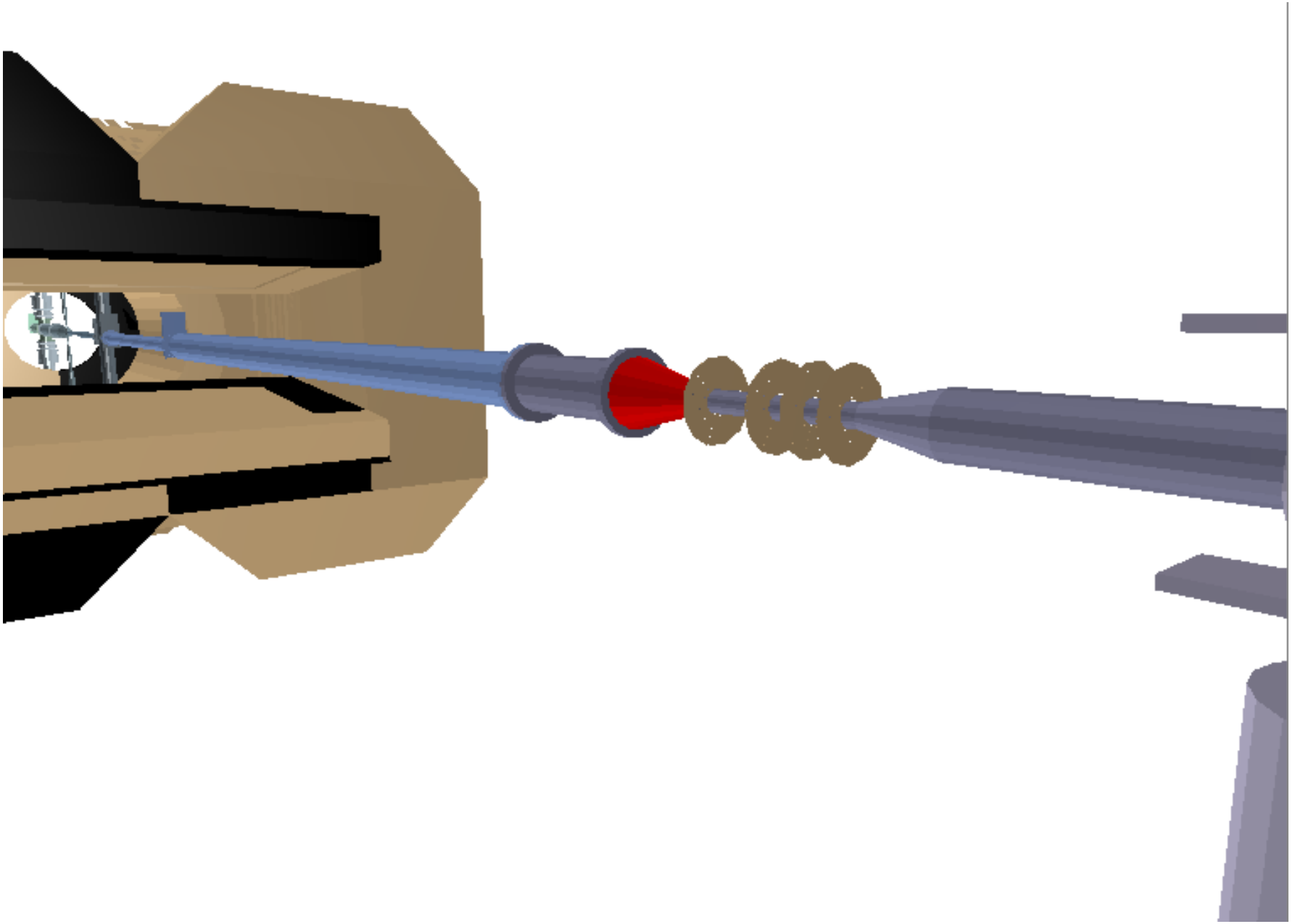
PANDA Collaboration meeting

# The beam pipe

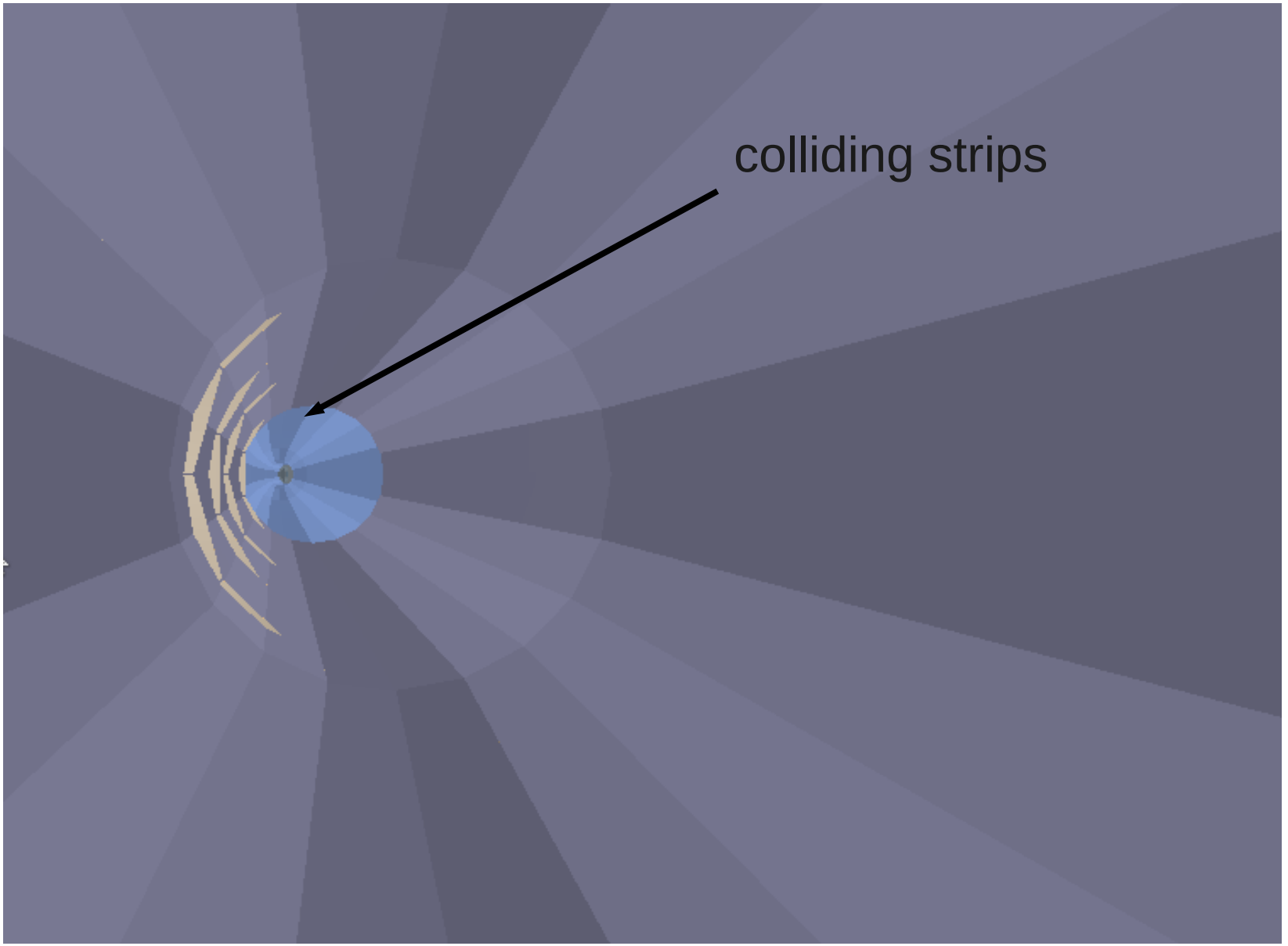



Thank you, Alexander Gruber and Paul Bühler, for the implementation in CAD and ROOT

# The beam pipe in PANDAROOT

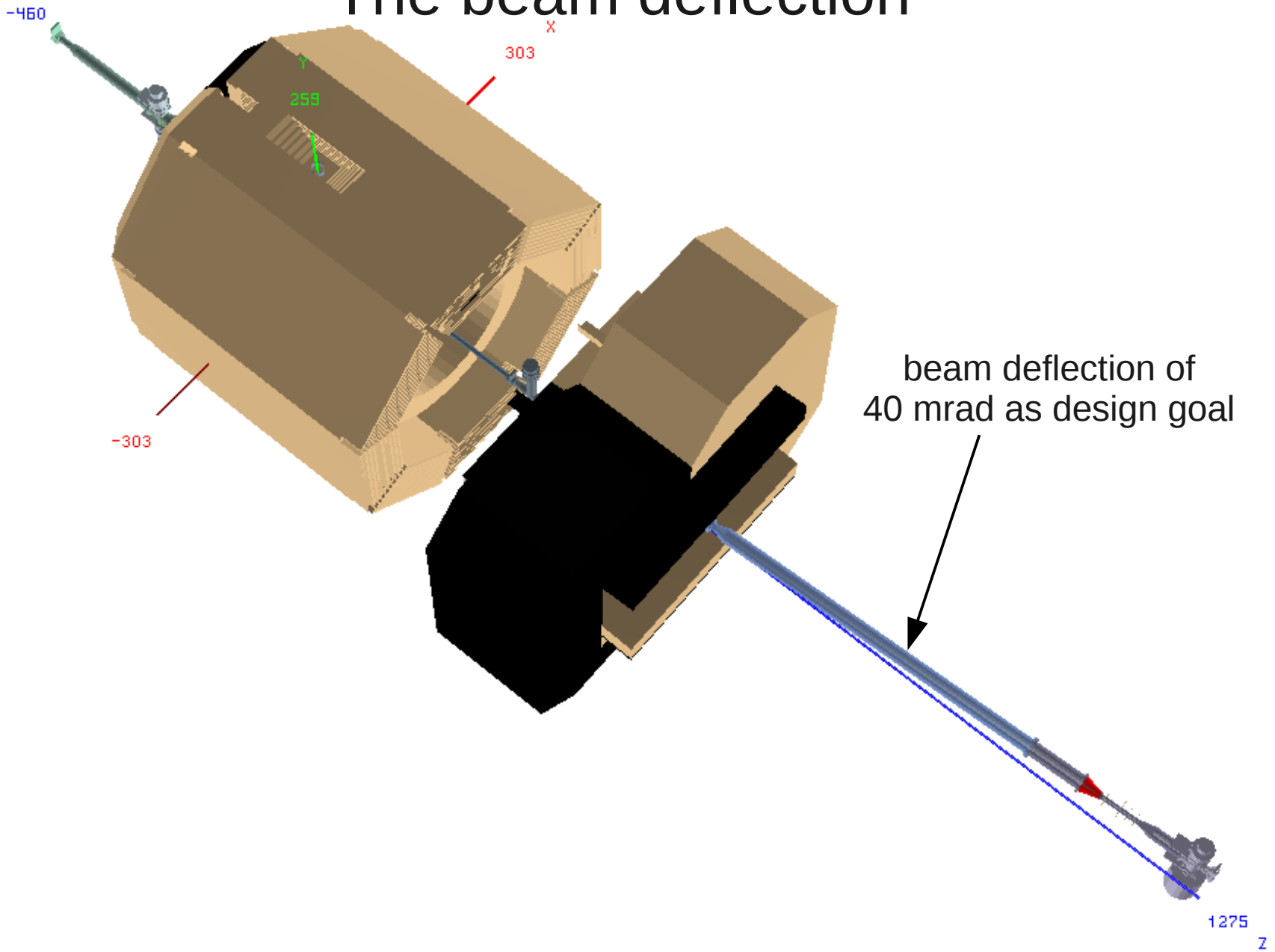


# Problem: Collision




Collision vanishes when dipole beam pipe bending radius is set to 55 m

# The beam deflection



# Issue of the correct beam pipe shape

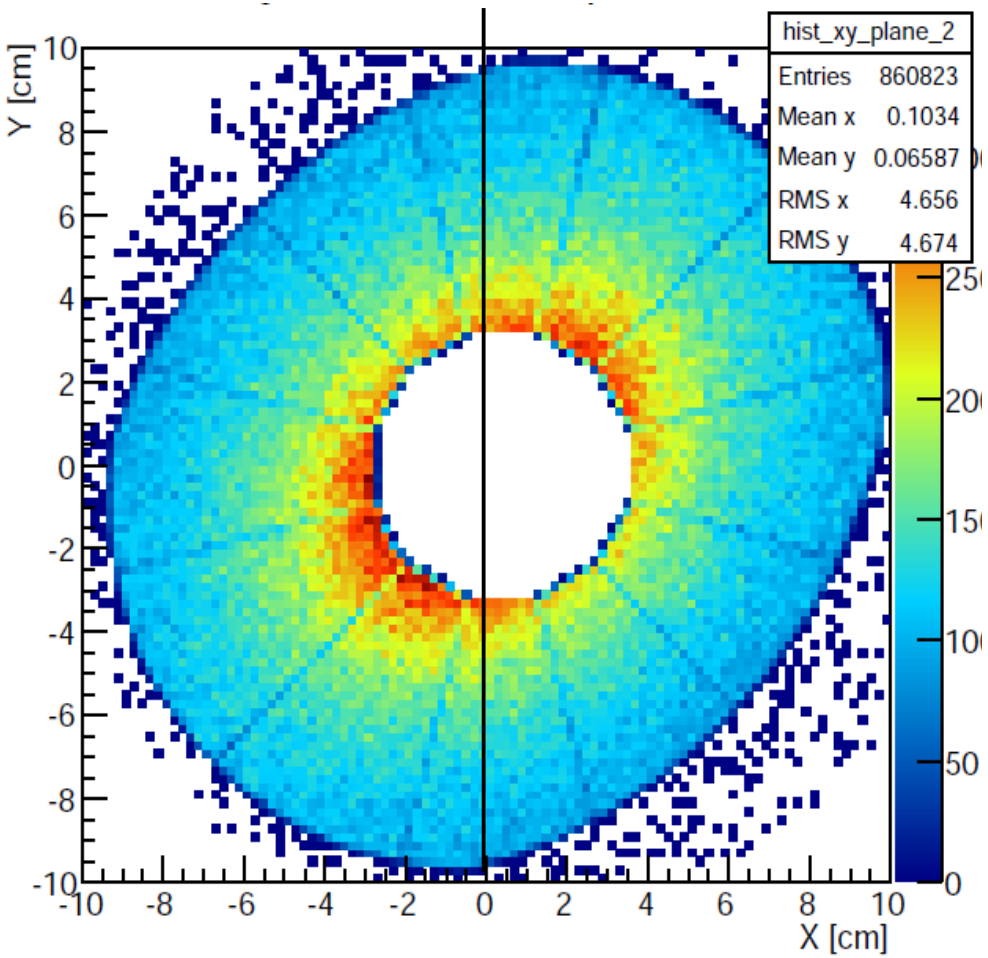
3 different studies: 3 different results.

| Example | final beam deflection | |
|---|---|---|
| Design goal | 40 | mrad |
| Mathias Michel | 40.6 | mrad |
| Jost Luehning | 40.25 | mrad |
| Donghee Khang | 40.1 | mrad |

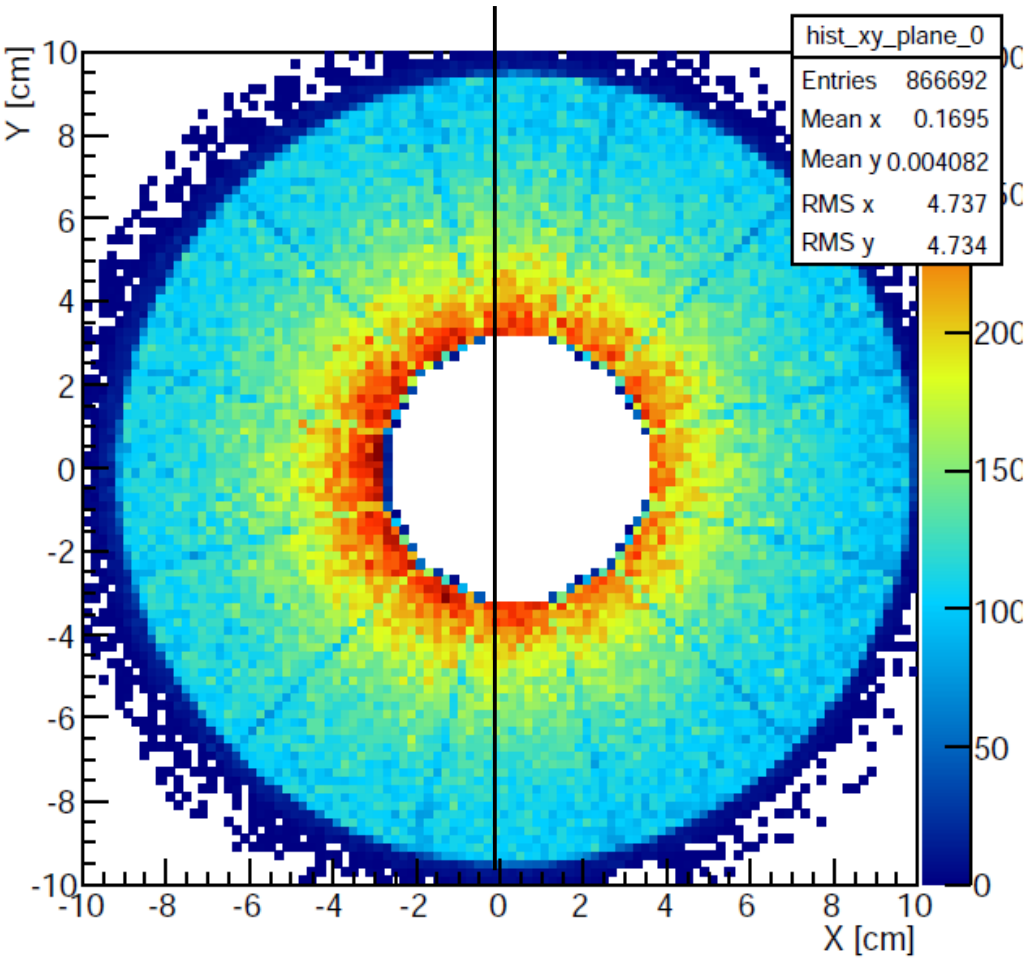
Unfortunately momentum dependent

# The beam pipe acceptance

1.5 GeV

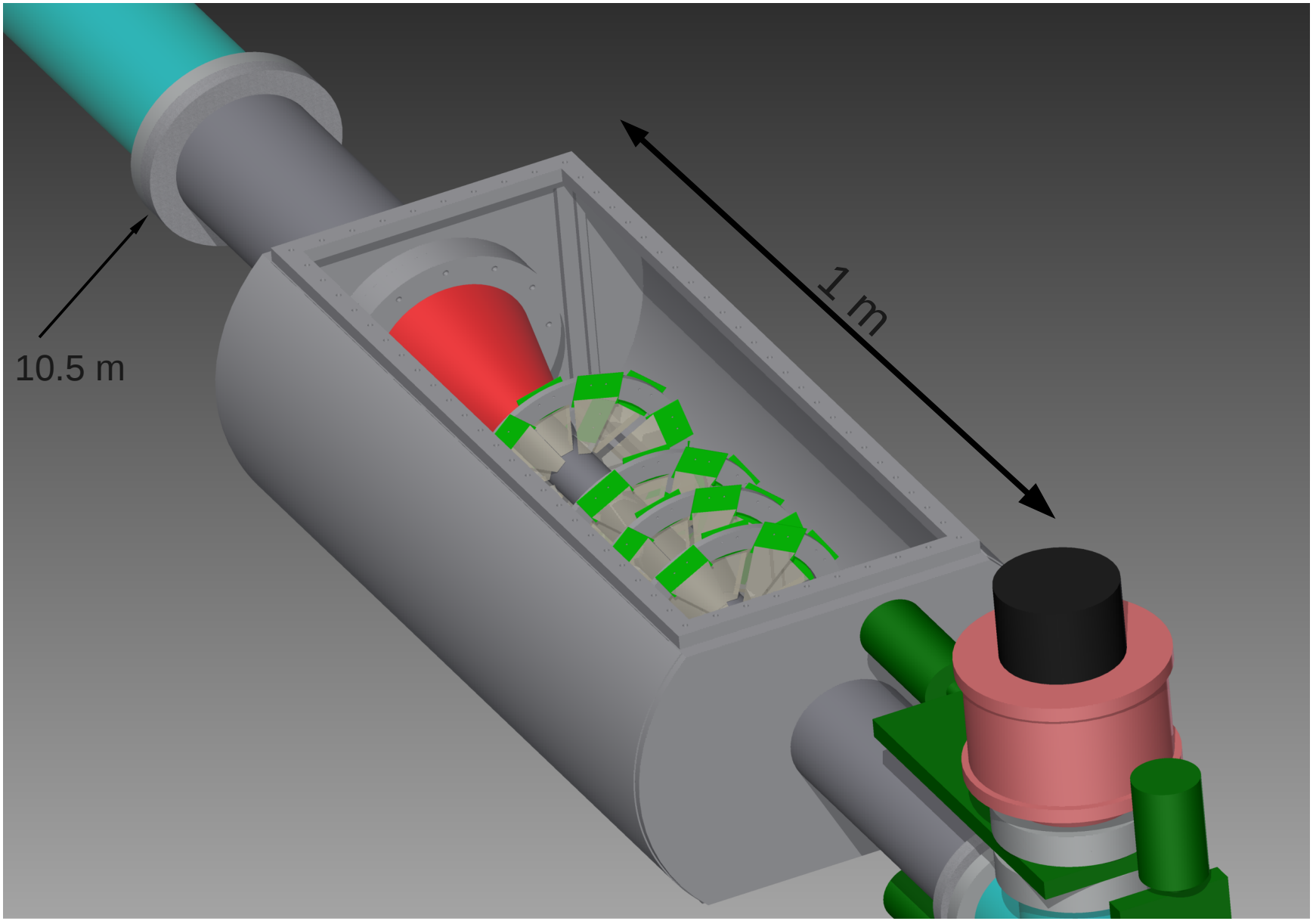



15 GeV

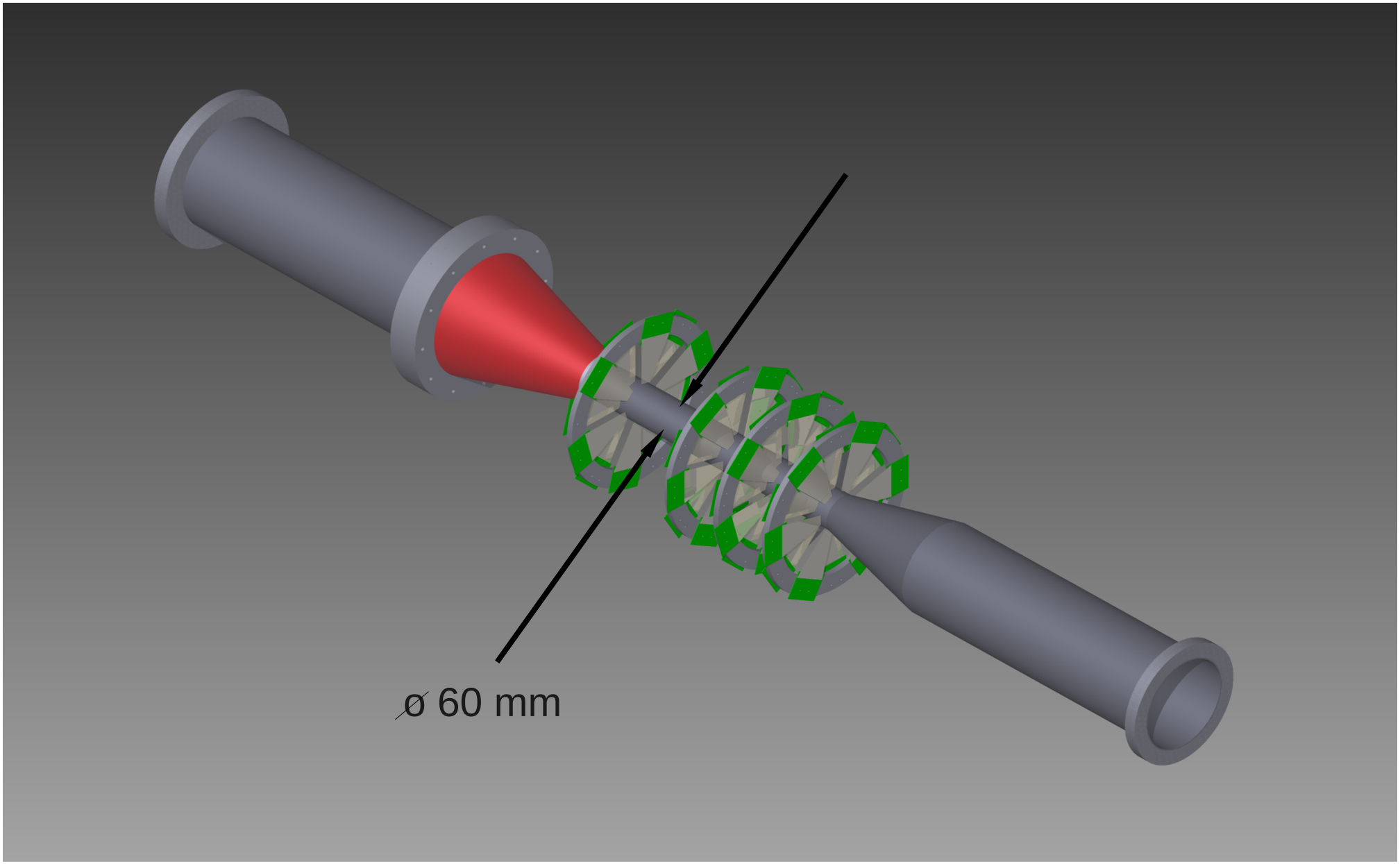



What number for the bending radius should we use in simualtion ?
Should we adjust the beampipe to the fieldmaps or the fieldmaps to the beampipe ??

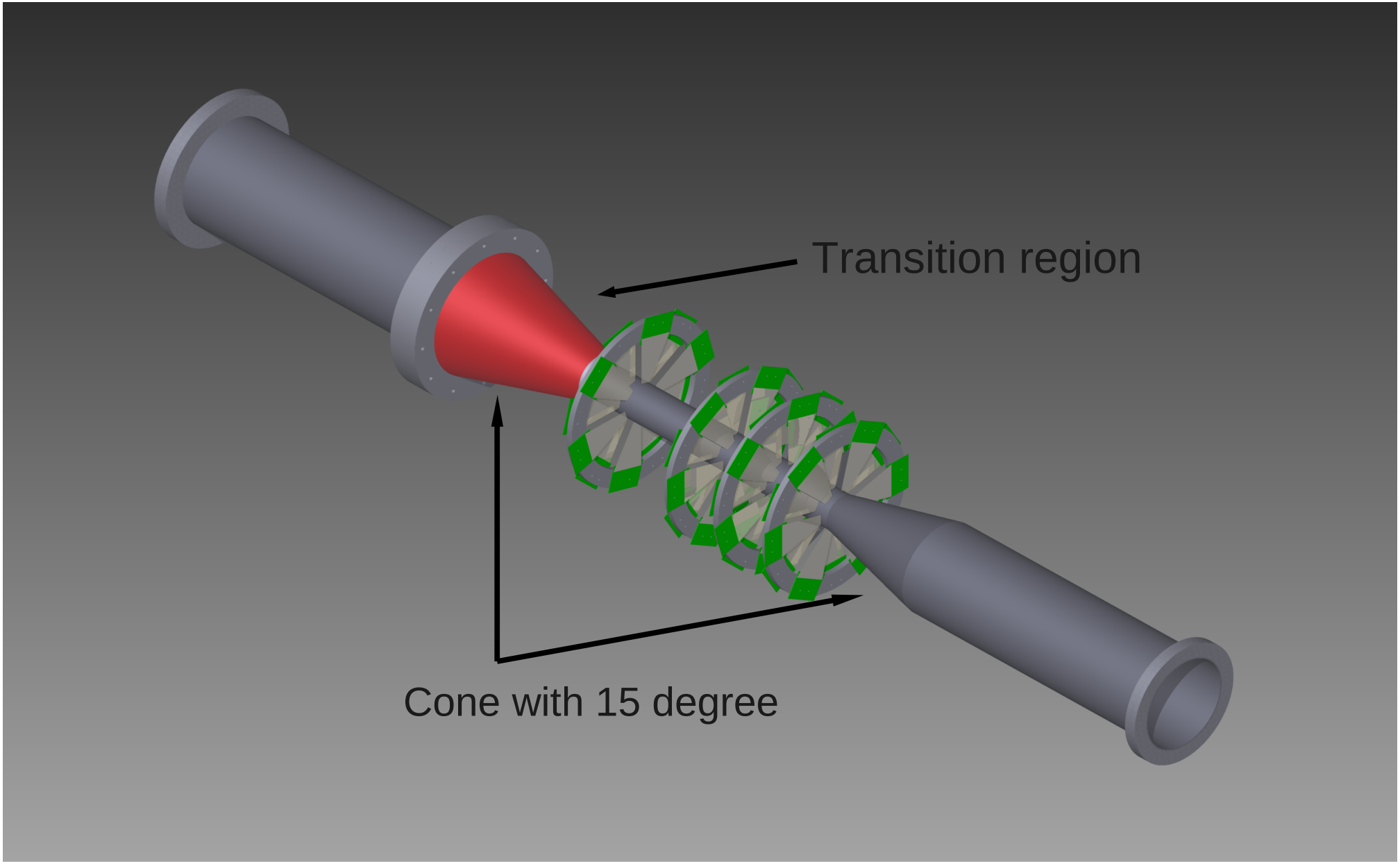
# The integration of the luminosity monitor



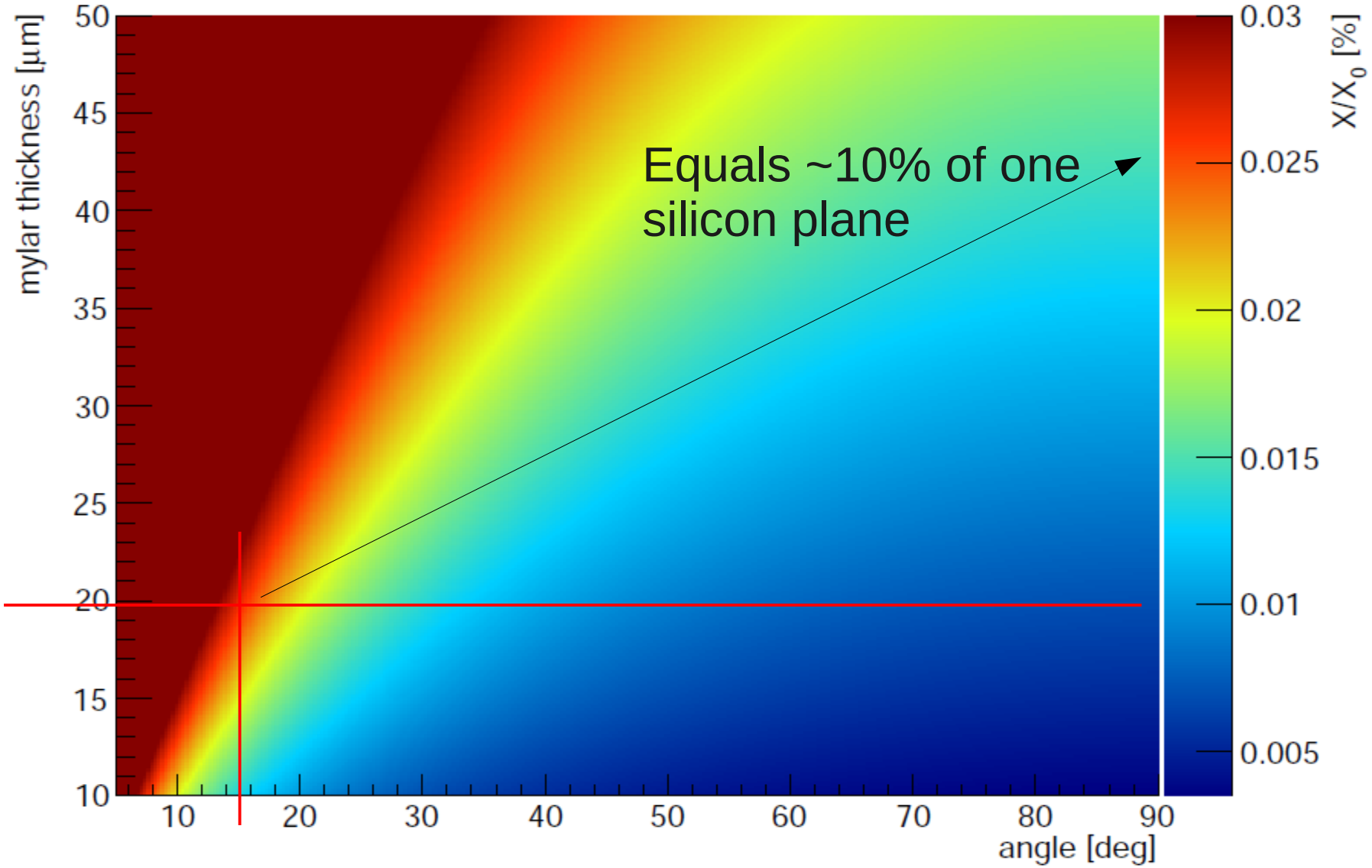
# Electrical shielding of the beam



# Electrical shielding of the beam

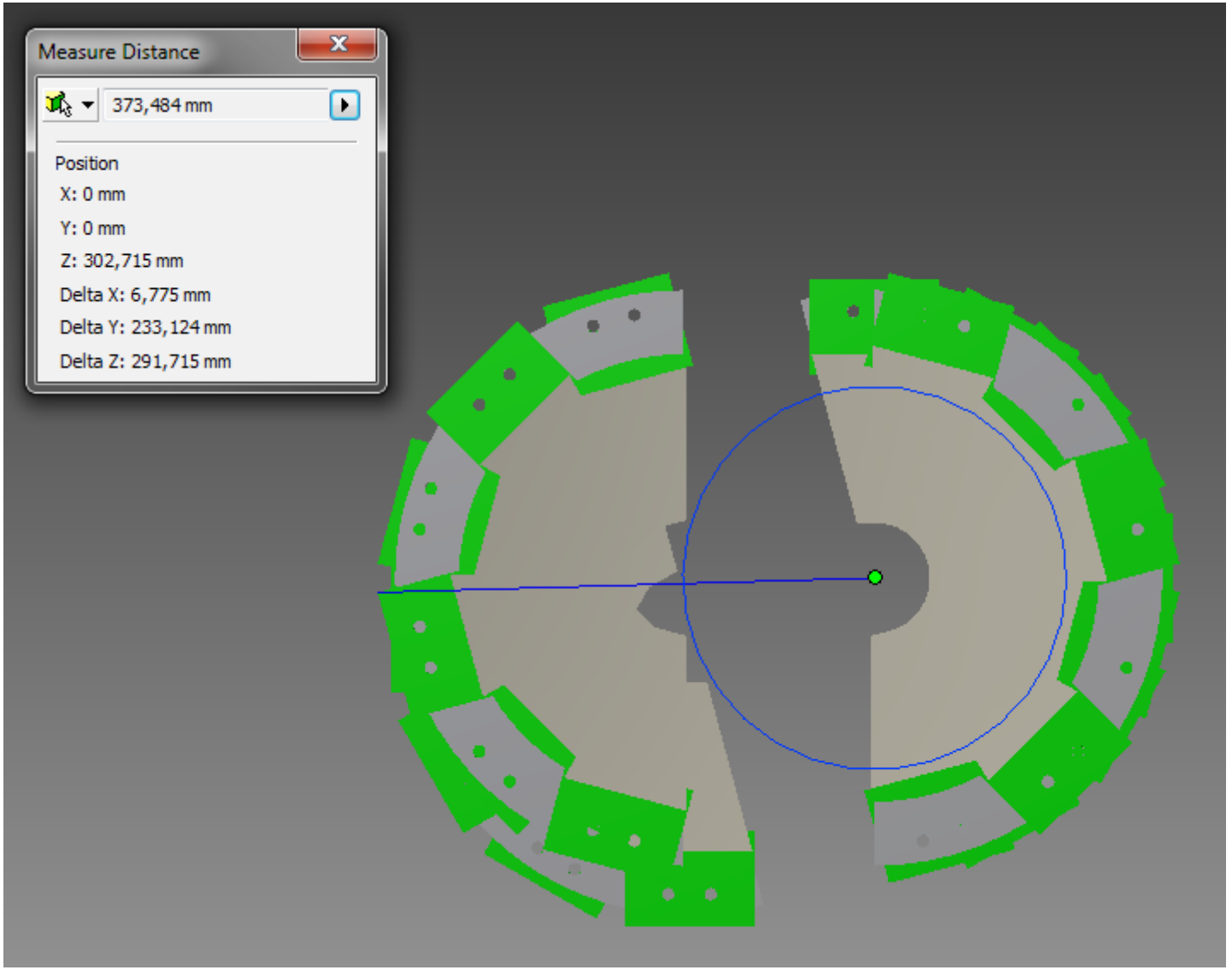


# Transition region: shielding and multiple scattering

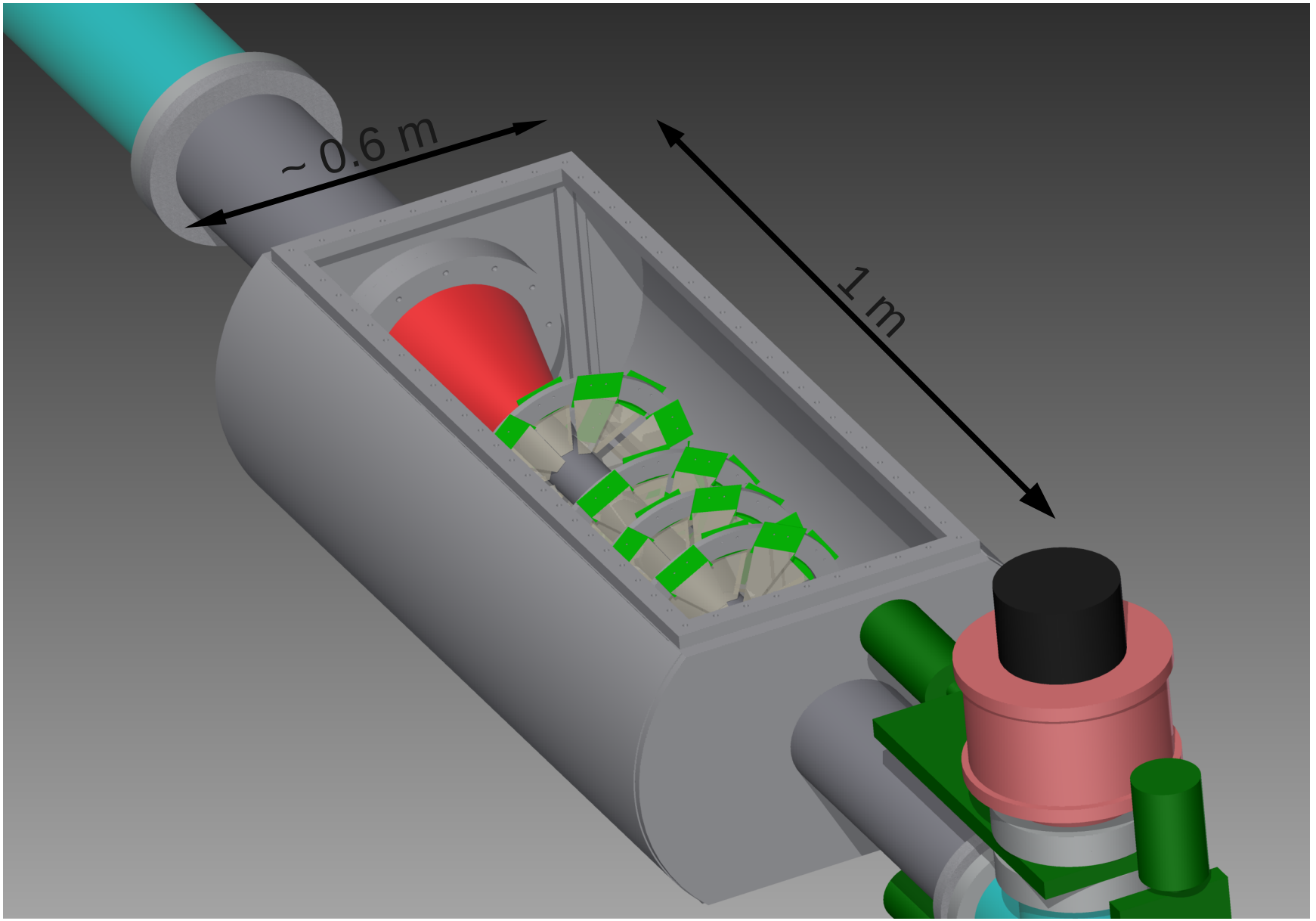



How thick has the vapour deposit metal layer to be for effective shielding?

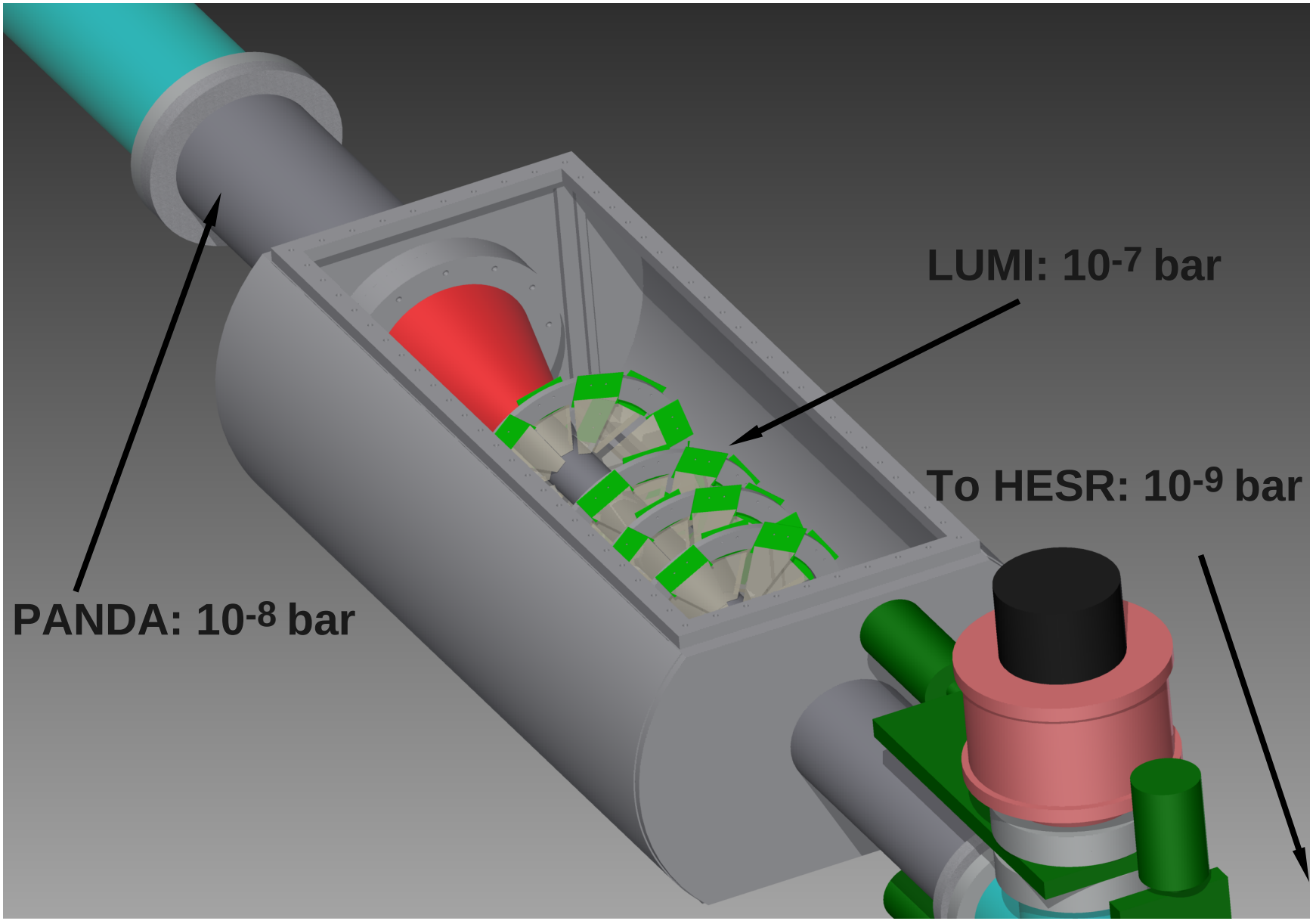
# Sensor protection during startup phase



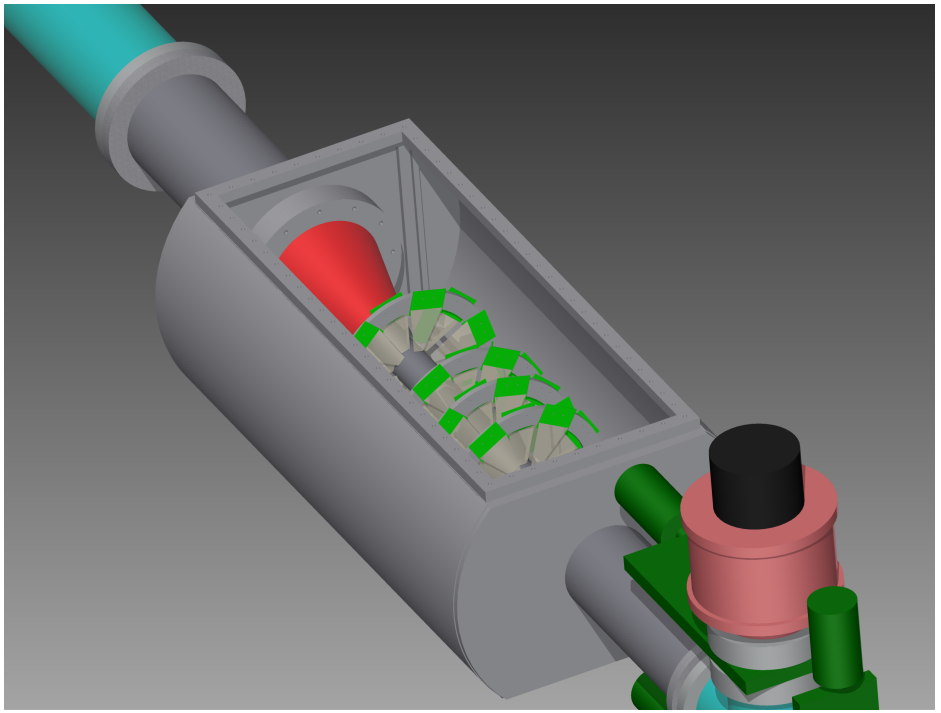
# The integration of the luminosity monitor



# Design goals: Vacuum



# Separated vacuum compartments



- Two additional pumping stations:
  - In front of the LUMI
  - For the LUMI Volume
- All three stations + Valves must communicate to keep a difference below 1mbar.
- 100% gas separation?

Thank you!