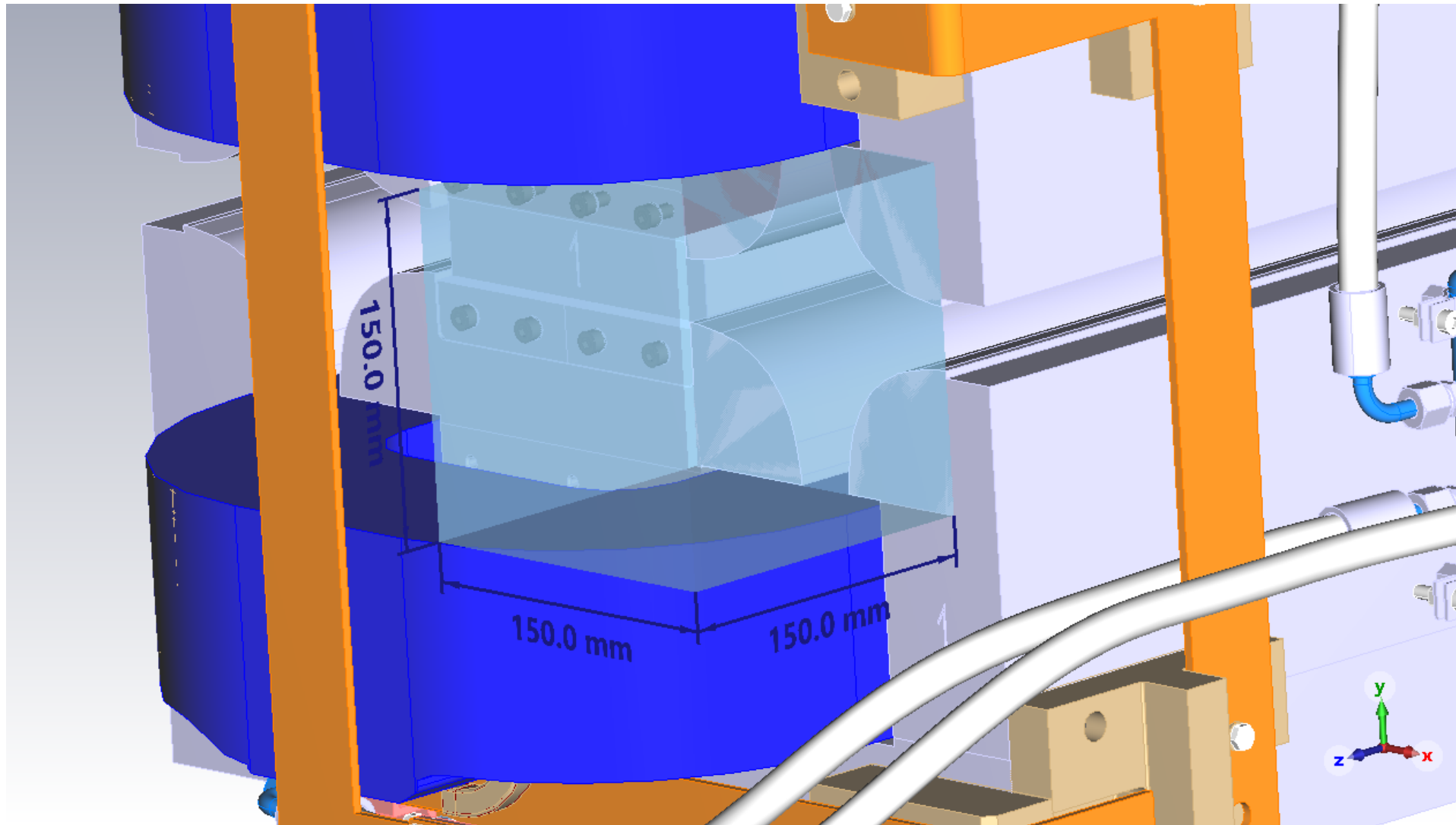


# FCC-ee Main Ring BPM Real Estate



# Some thoughts...

## ➤ BPM design activities have not yet started in the CERN BI group

- Seems some ideas are already in the minds...
  - *Need to align R&D activates among various teams*
- 150mm<sup>3</sup> real estate within the quad looks tight, but reasonable to fit a button-style BPM pickup with feedthrough and cables in the “shadow” of the quadrupole magnet.
  - *No extra space for the BPM required*
  - *Flanges, bellows, etc. to be discussed*
  - *Preferable: align and fix BPM housing on the magnet surface*



## ➤ FCC-ee BPM pickup design activities

- Dedicated PhD activity in collaboration with University of Oxford (starting early 2023)
- Cover all design aspects of the BPM pickup
  - *BPM requirements, beam parameters*
  - *Wakefield / impedance, RF heating, trapped eigenmodes, etc.*
  - *Integration, mechanics, tolerances, UHV feedthroughs, radiation aspects, position non-linearities*
  - *Calibration, mass production, costs, ...*
  - *Prototyping, laboratory measurements, beam studies, ...*