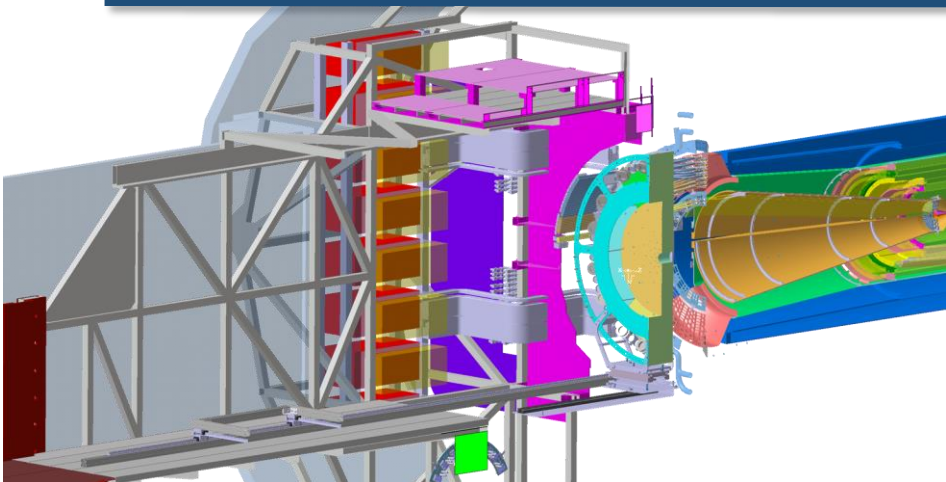


ALICE ITS Upgrade

Services

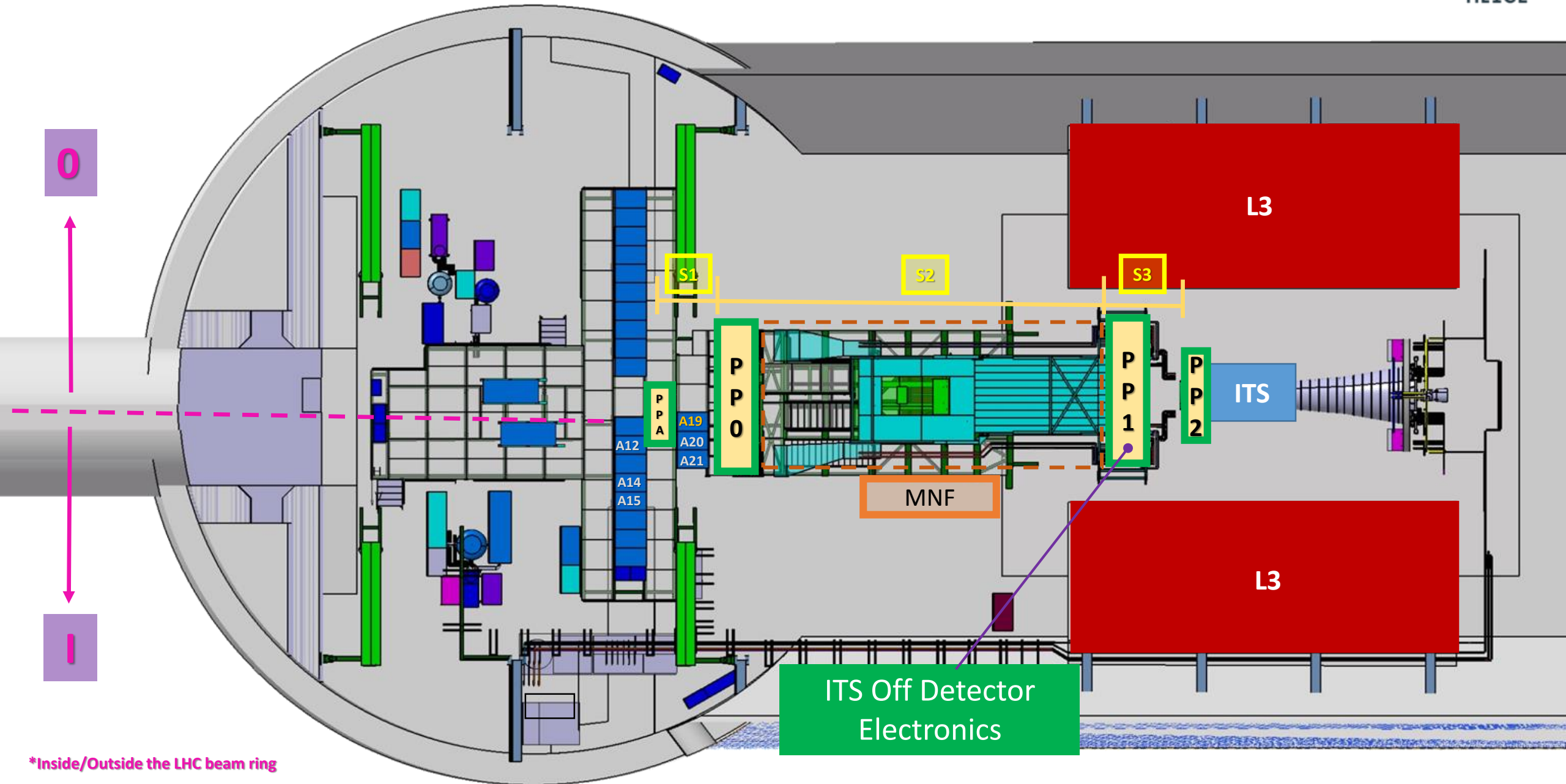
E. Anderssen, M. Angeletti, M. Benettoni, A. Benato, T. Caudron, H.H.Cho, M. Franceschi, C. Gargiulo, S. Igolkin, P. Ijzermans, G. Lahu, G. Ledey, Y. Lesenechal, E. Laudi, D. Mazzaro, A.G. Perez, M. Turcato, J. Van Beelen

ITS Plenary Meeting, 28 February 2018



- ⦿ Off detector electronics in the MNF :
 - ⦿ Integration constraints
 - ⦿ New ITS cable tray routing
 - ⦿ Accessibility

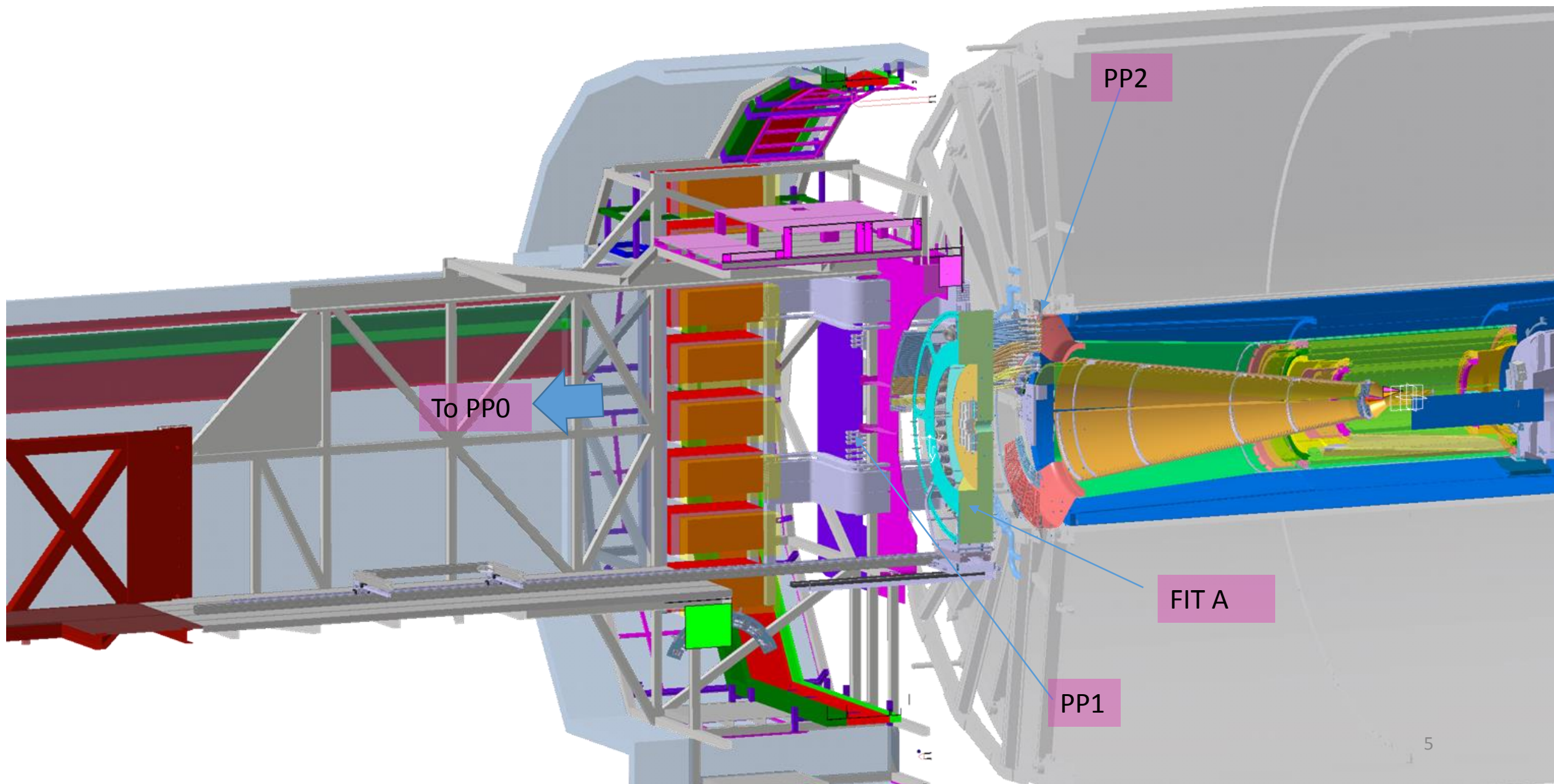
Overview: Layout



*Inside/Outside the LHC beam ring

- ⦿ Off detector electronics in the MNF :
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Off Detector electronics on the MNF : Layout

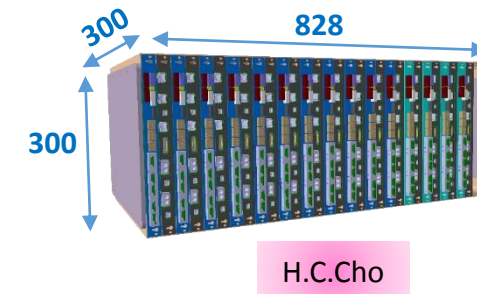
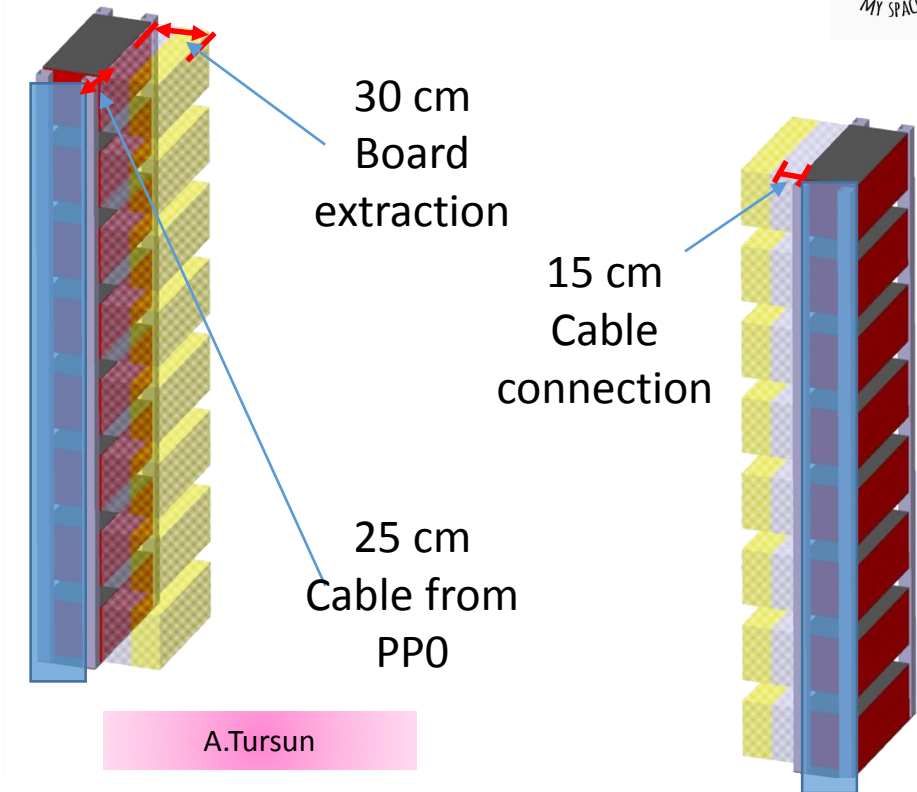
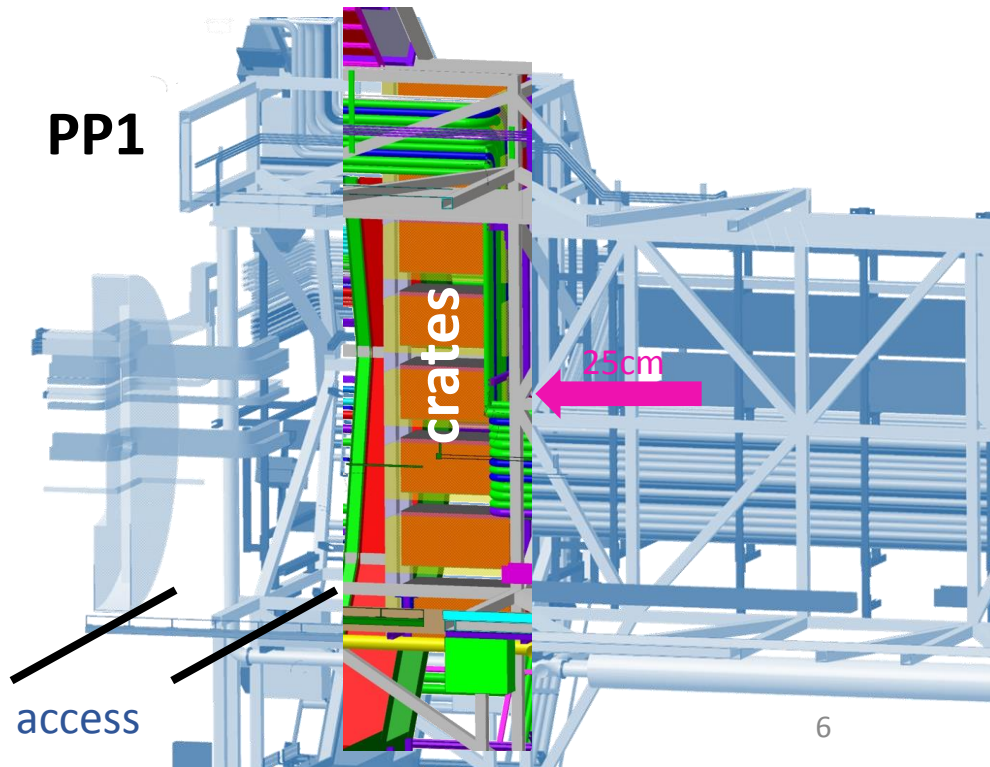


Off Detector electronics on the MNF : integration constraints



- Integration Boundary conditions:

- 15 cm to be considered in front of the crate for the connections of the cables
- 30cm total to be considered in front of the crates in case of board extraction
- 25cm to be considered in the lateral side for taking into account the cables distribution from PP0



- ⦿ Off detector electronics in the MNF :

- ⦿ Integration constraints

- ⦿ New ITS cable tray routing

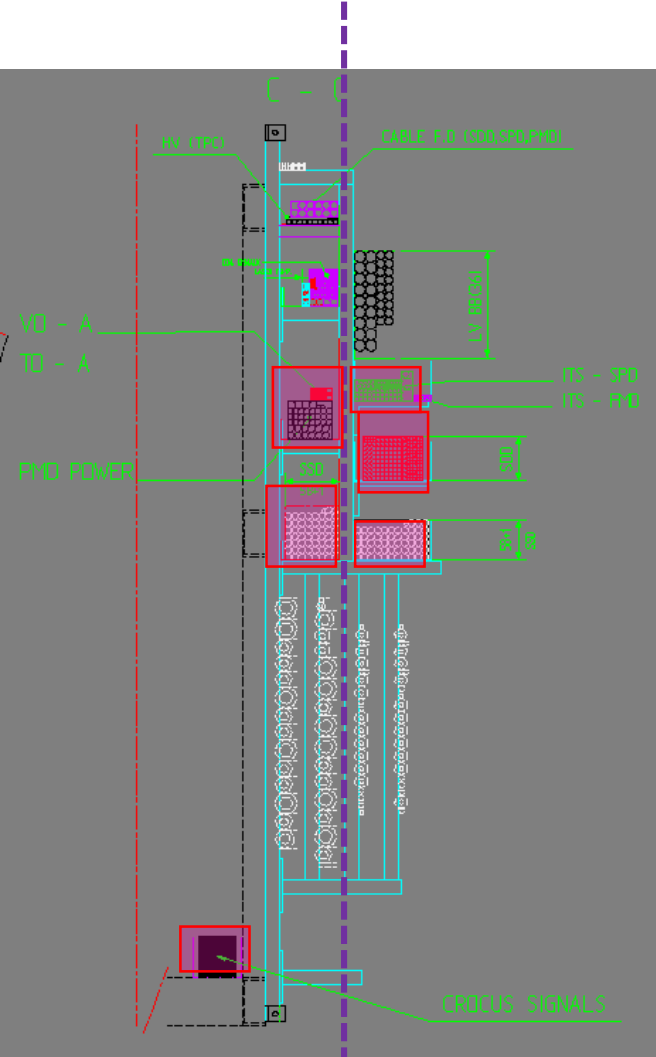
- ⦿ Accessibility

Off Detector electronics on the MNF : New ITS cable tray routing



Present configuration of cables and cooling lines
on the Miniframe

Internal part of
the MNF



External part
of the MNF

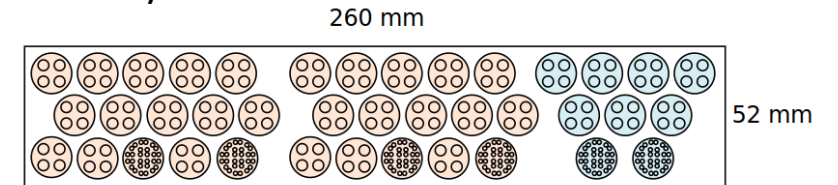


 Free cable tray

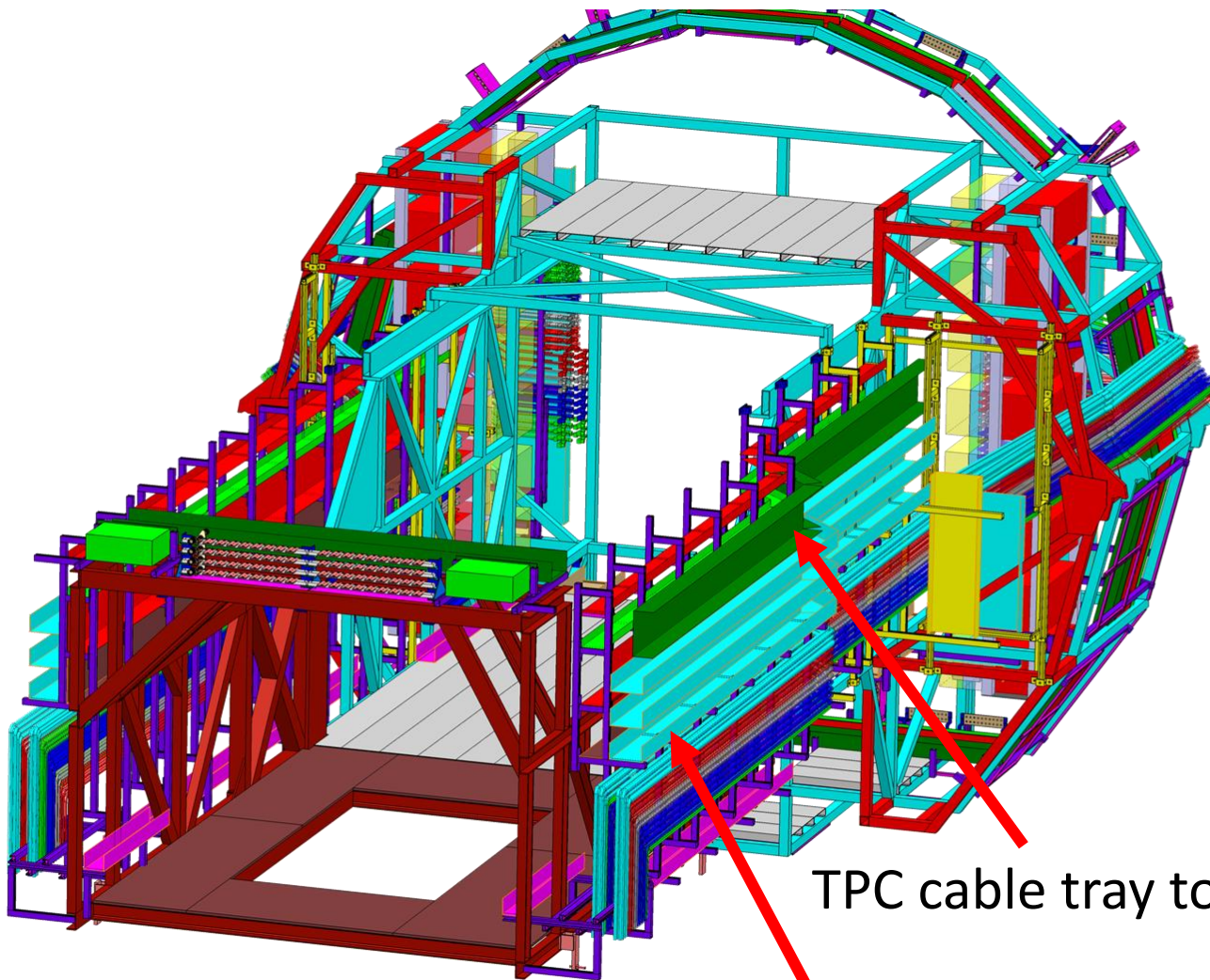
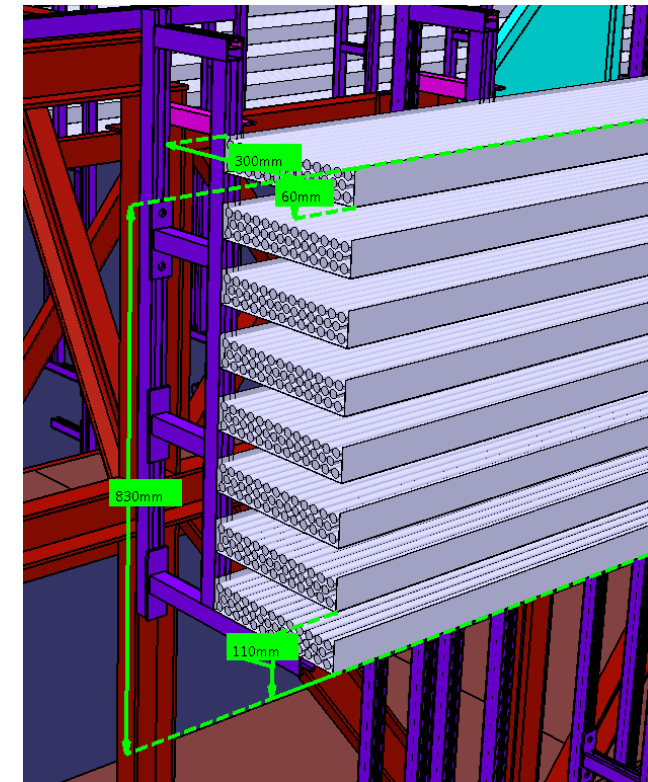
Off Detector electronics on the MNF : New ITS cable tray routing



- Draft power and sense cables for one single crate (one row of boards). It is not final. Back bias, canbus and fibers are not included yet.
- Request to allocate 30cm * 6 cm or equivalent cross section for the tray



- min bending radius for cables with jackets:
 $BR \geq 6 \cdot D \geq 100\text{mm}$



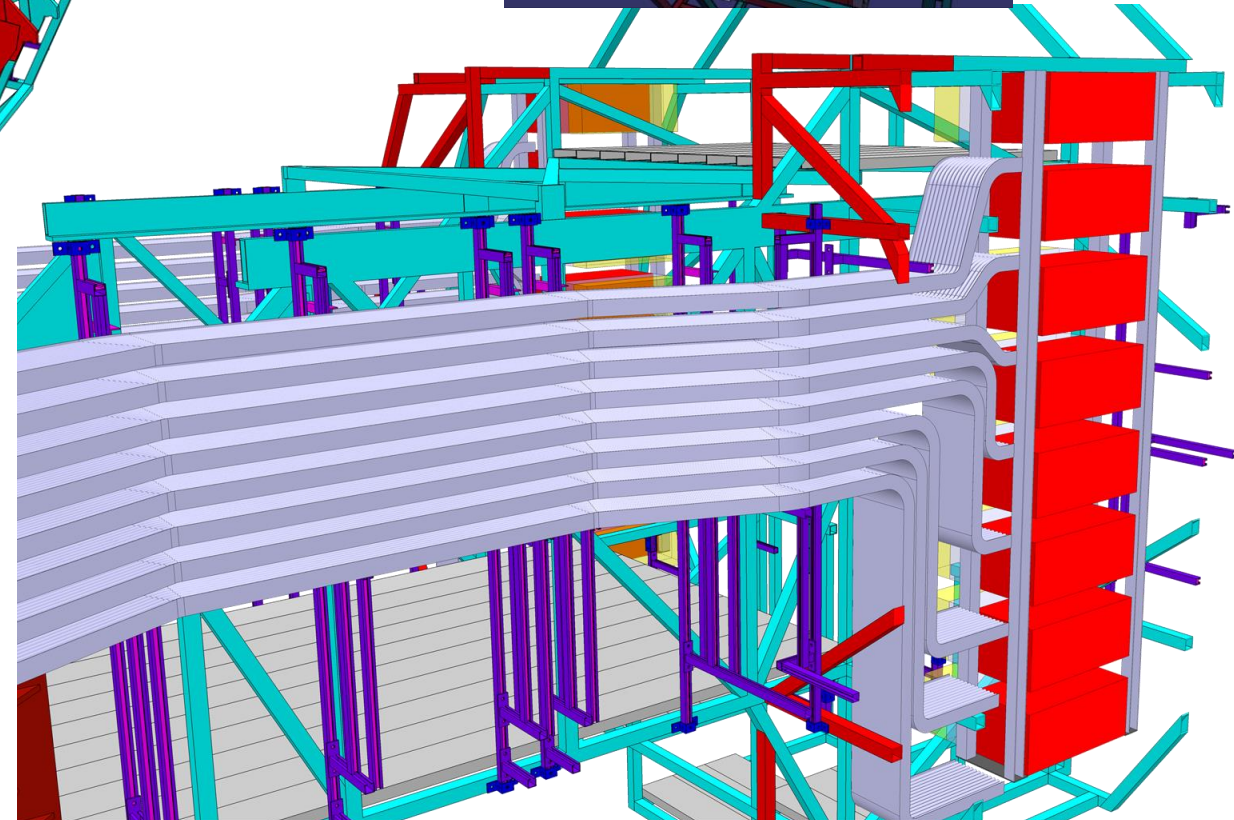
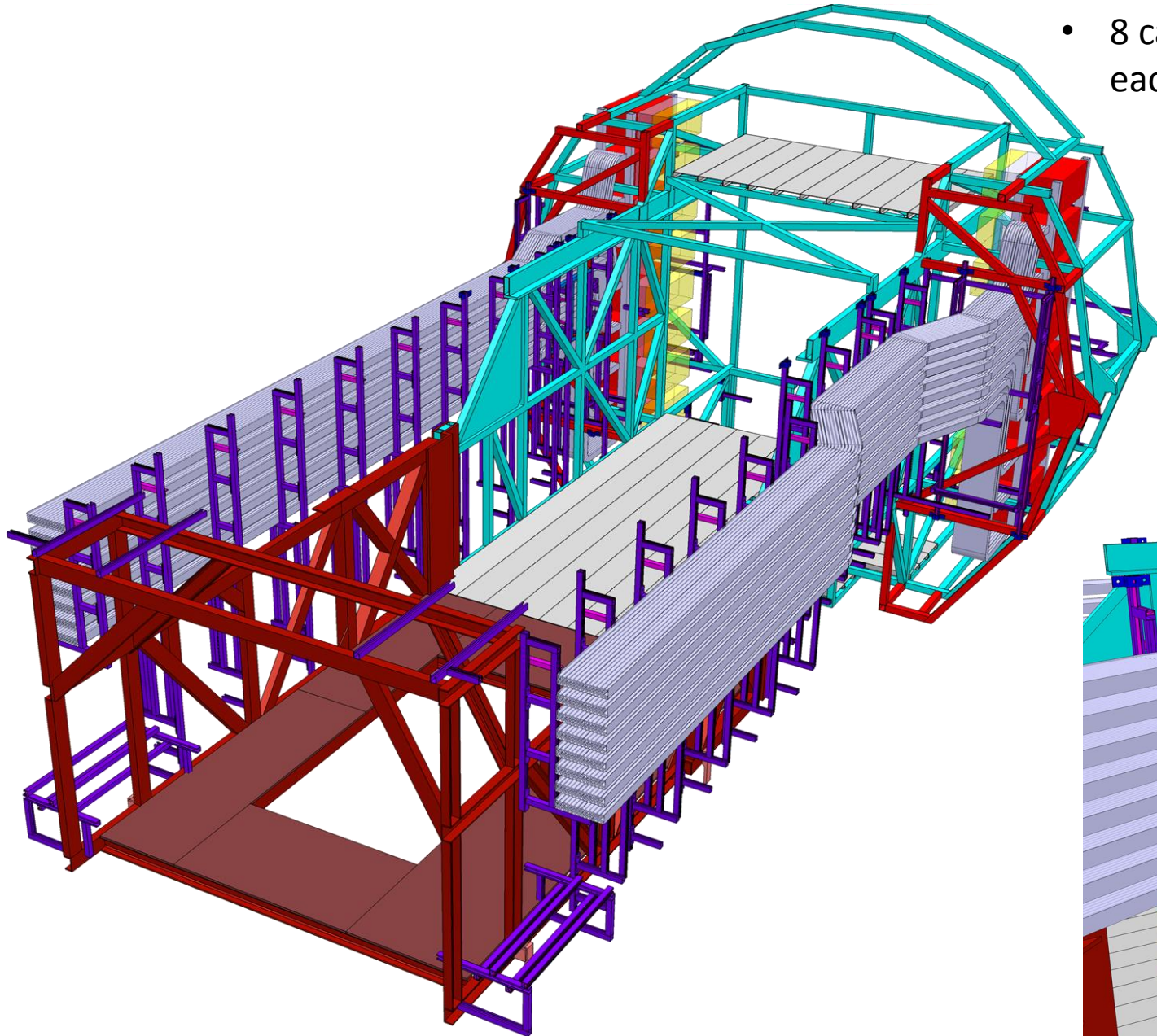
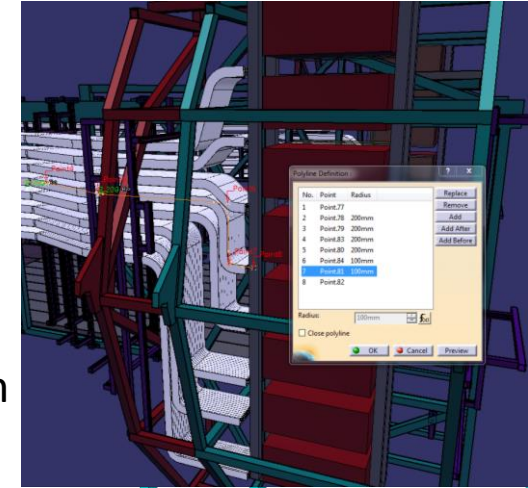
TPC cable tray to be modified

ITS cable tray to be removed

Off Detector electronics on the MNF : **New ITS cable tray routing**

- 8 cable trays to reach each crate

- Min bending radius 100 mm included

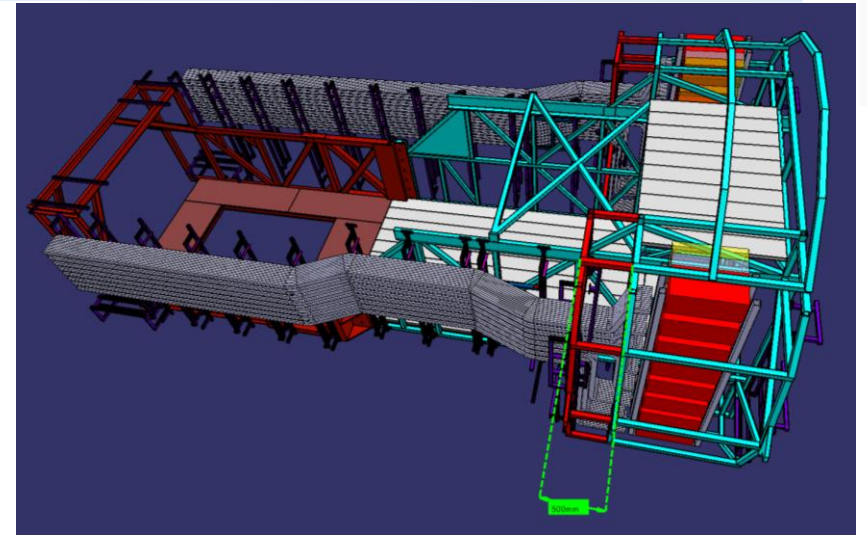
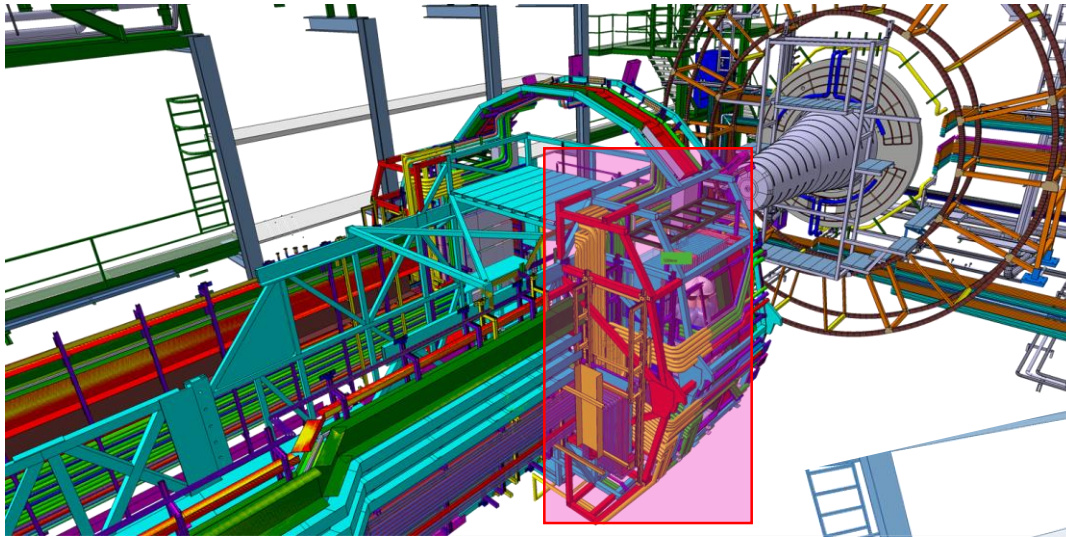


- ⦿ Off detector electronics in the MNF :
 - ⦿ Integration constraints
 - ⦿ New ITS cable tray routing
 - ⦿ Accessibility

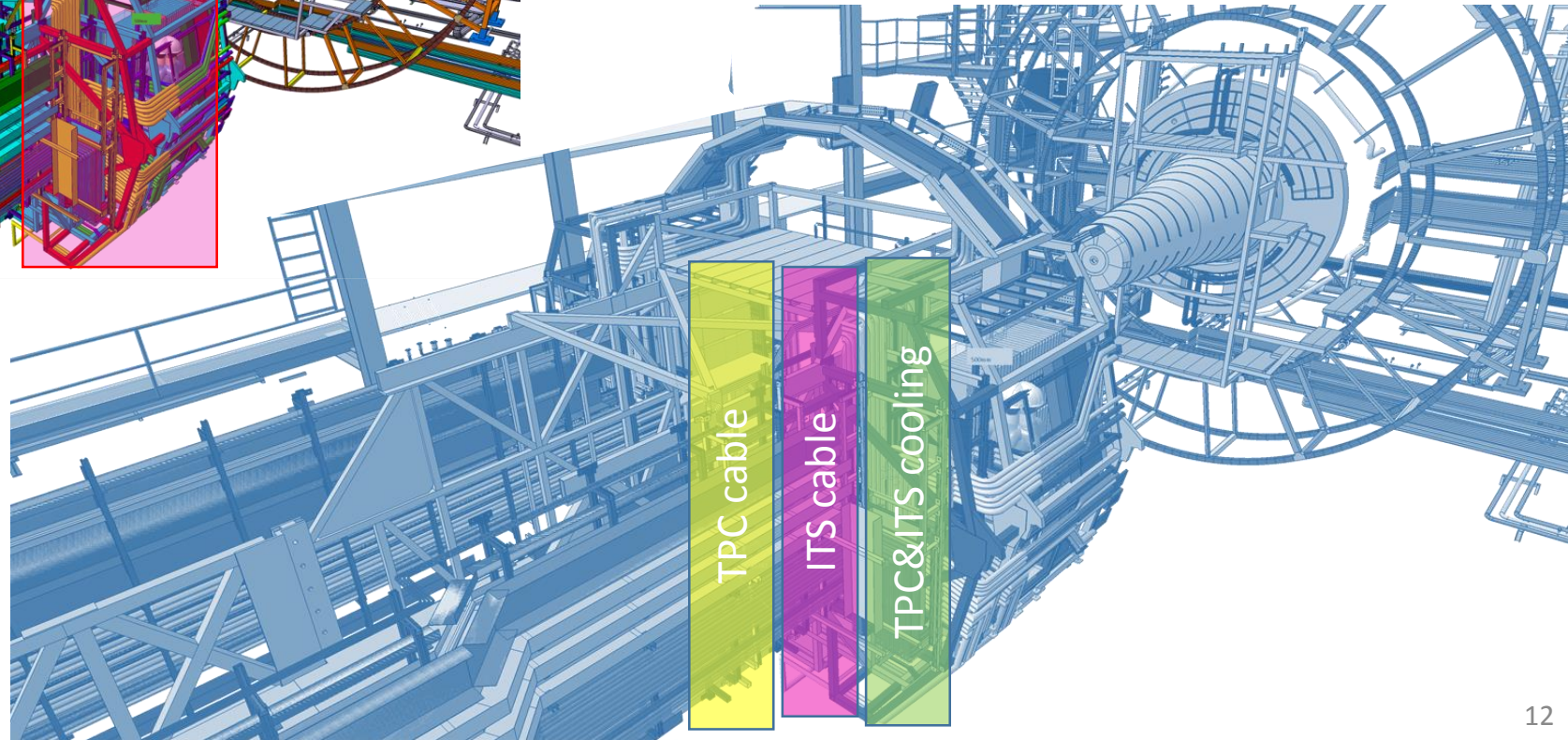
Off Detector electronics on the MNF : Accessibility



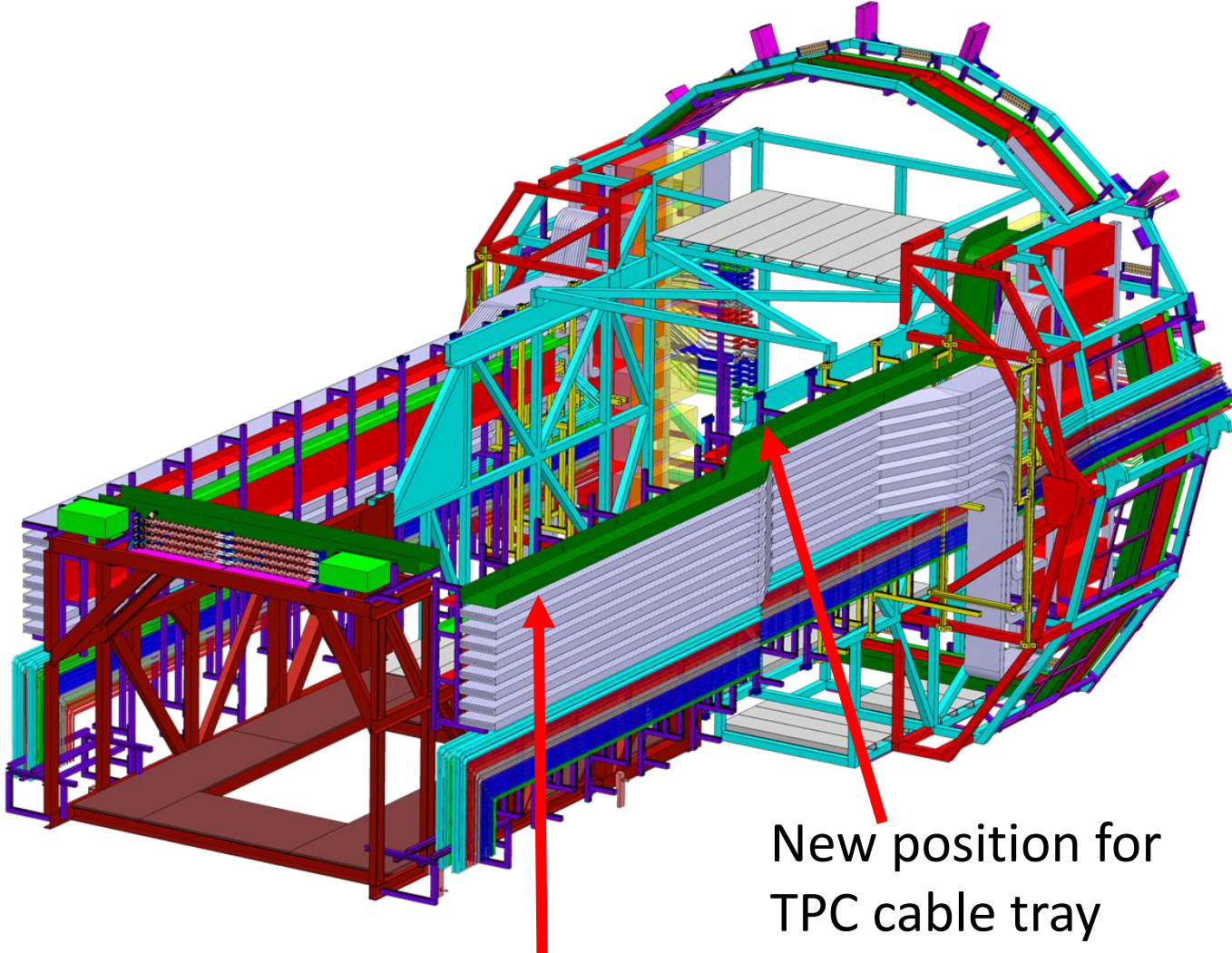
- Reconsider the Miniframe extension:
 - Gain of 50 cm for the routing of cables coming from the PP0
 - Better distribution of the several services layers, as in this area there are 4 layers of services to be allocated : TPC/ITS cooling lines and cables



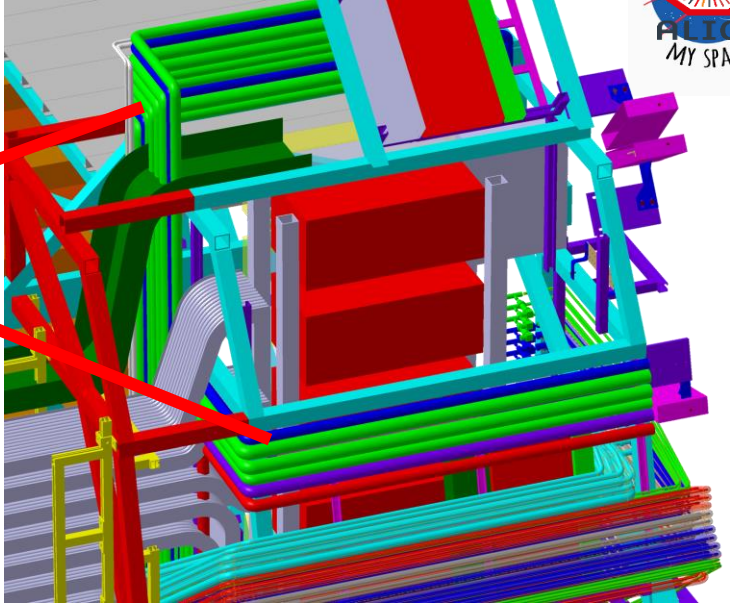
- Study to re-route the TPC and ITS cooling lines and TPC cables to give access to the ITS cables



Off Detector electronics on the MNF : Accessibility

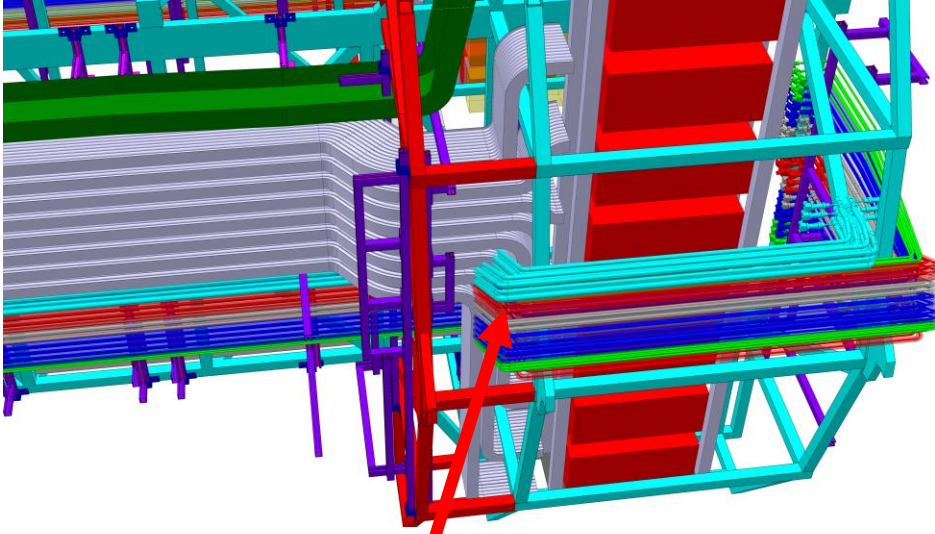


Interference with the TPC cooling lines : to be rerouted



New position for TPC cable tray

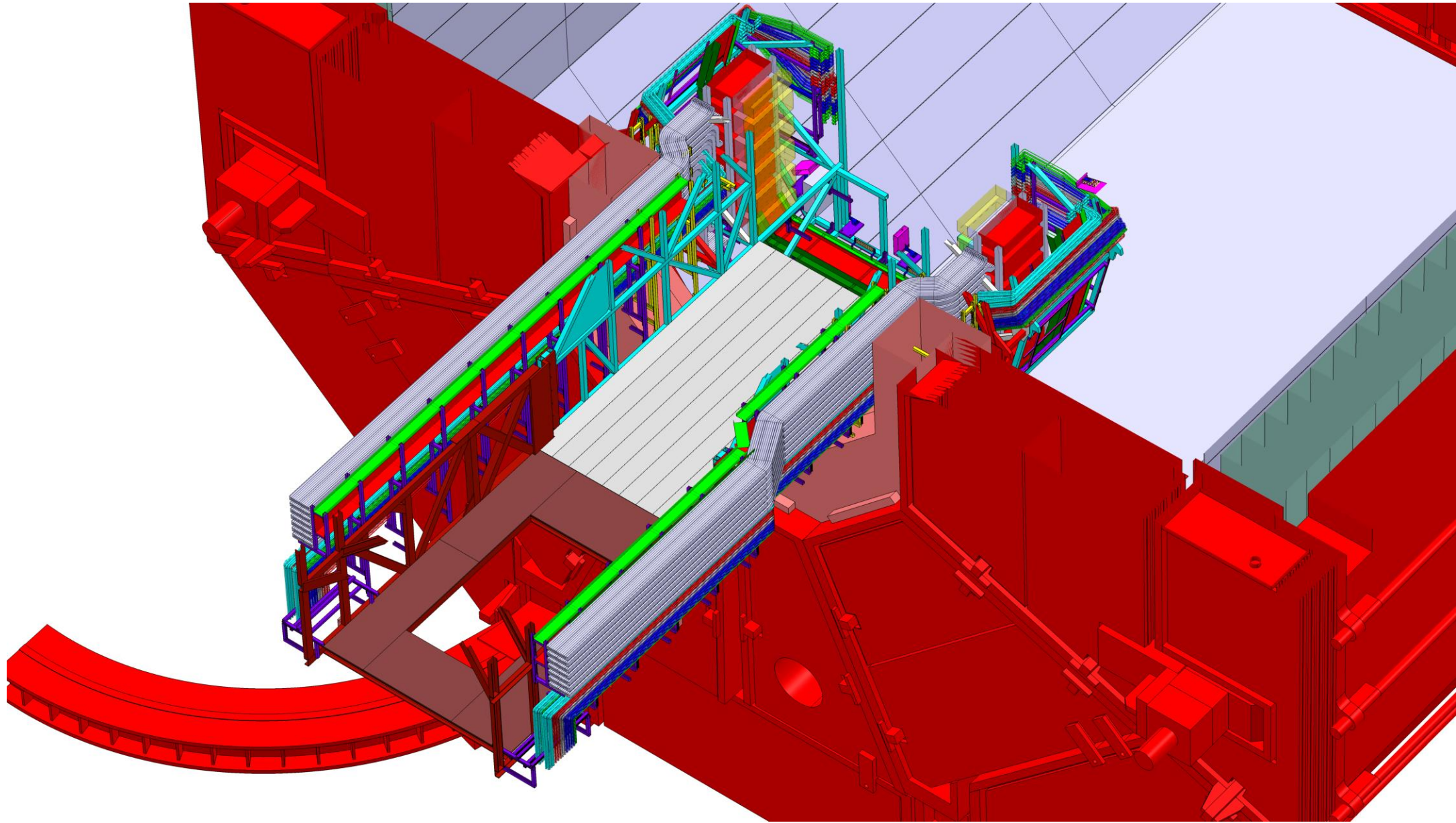
New ITS upgrade cable trays



Interference with the new ITS cooling lines : to be rerouted

Off Detector electronics on the MNF : Accessibility

Miniframe with extensions vs L3 door



Off Detector electronics on the MNF : Accessibility



Miniframe with extensions vs L3 door

New ITS cable tray

Off-detector electronics

MNF extension: 30 cm gap from the door

