

TAXN Open Issues

14th HL-LHC PLC Meeting

Update from recent discussions on TAXN design and layout @ IR1/5 & IR8

thanks to : V. Baglin, F. Sanchez-Galan, R. deMaria, S. Redaelli, F. Cerutti, L. Esposito, P. Fessia, for input

....and stealing their slides!

▶ The TCLX collimator :

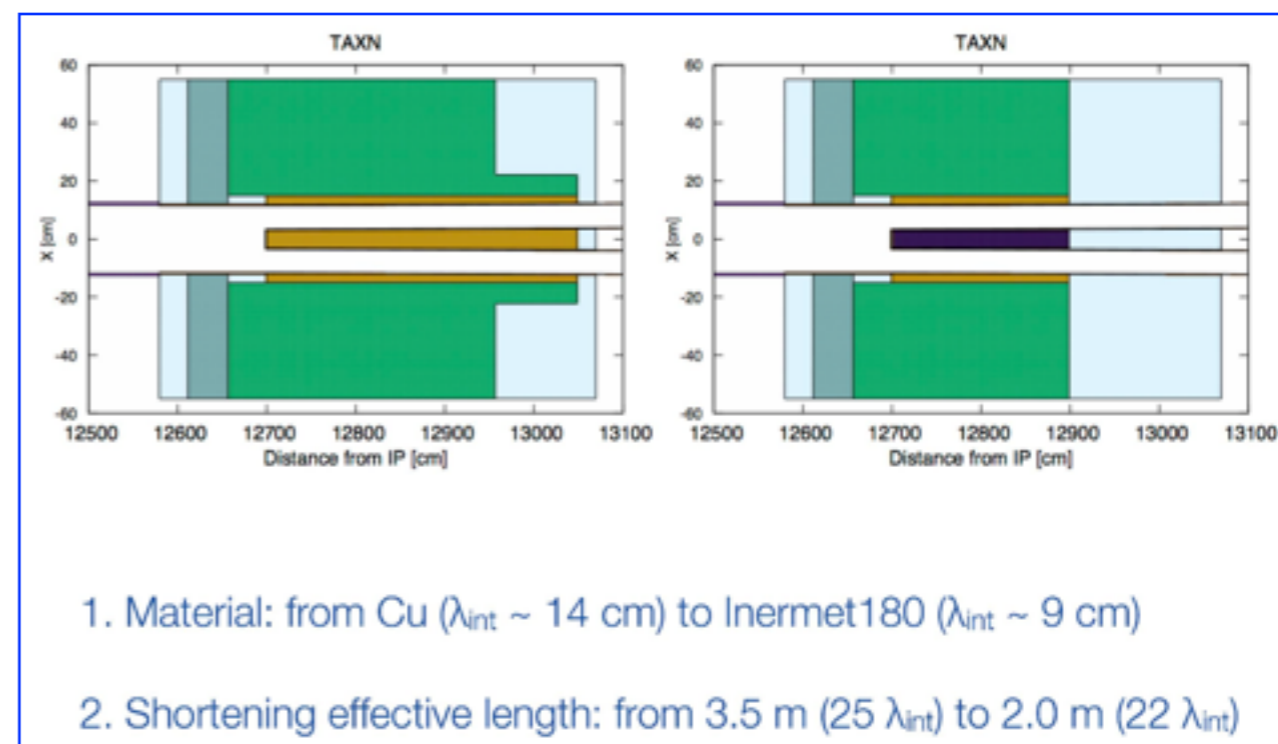
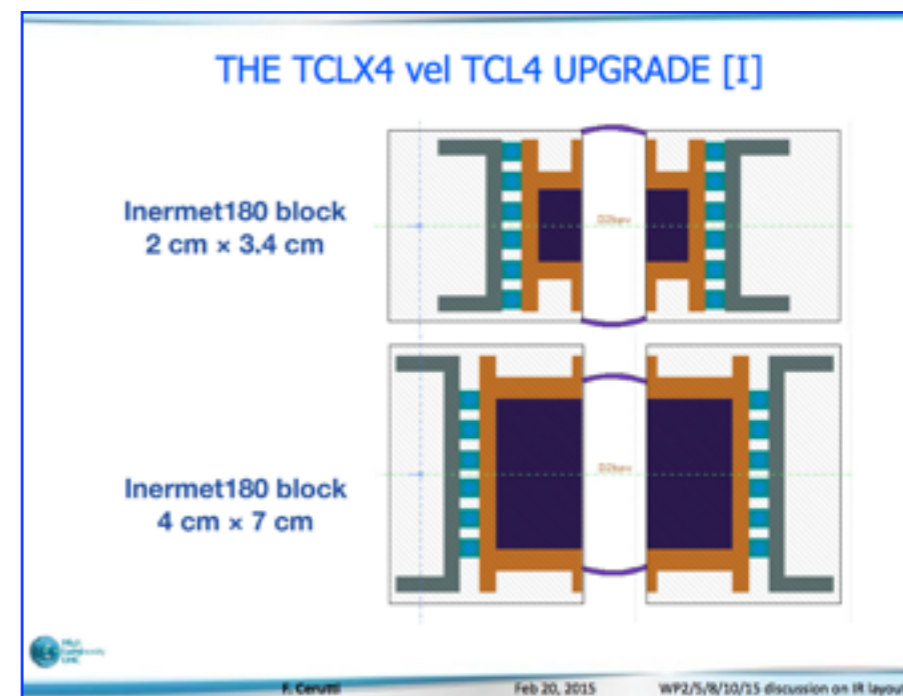
- new design (derivative of existing collimator design)
- would replace the mask in-front of D2
 - gain of ~500mm
- issue: transverse dimensions ?

▶ To further reduce the layout constraints in the TAXN-D2 region the option for a shorter TAXN with a W-core is proposed

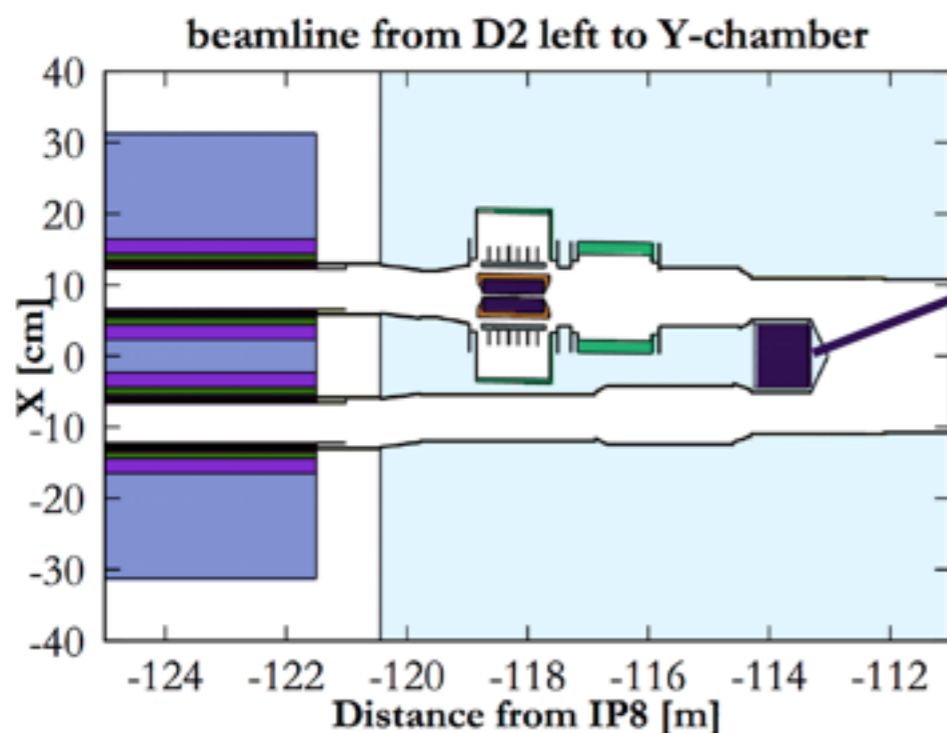
- more challenging design but possible
- the use of a BRAN or other detector (if required) should be reduced to minimum length to avoid additional leakage

▶ Next steps :

- decide on sTAXN/TCLx configuration (physics) - **today - tomorrow?**
- verify if there is a transverse issue with the TCLX collimator (collimator + vacuum)
- finalise integration and update technical specs



- ▶ The installation of a mini-TAXN during LS2 considered so far



absorber block
tungsten (INERMET 180)
9 cm × 12 cm × ~~95~~ cm
5 mm clearance with
each beam pipe

L=60cm only
(space limitations)

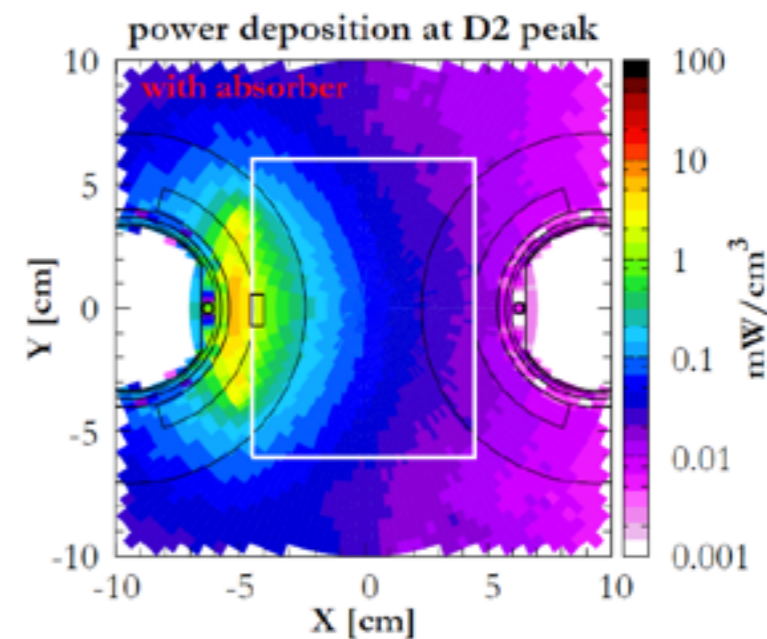
presently in this location
is installed the BRAN

- ▶ still a mask in-front of D2 would be needed
 - cover the coil region, from **80mm - 100mm**
 - material **Inermet IT180**, length : at least **50cm**

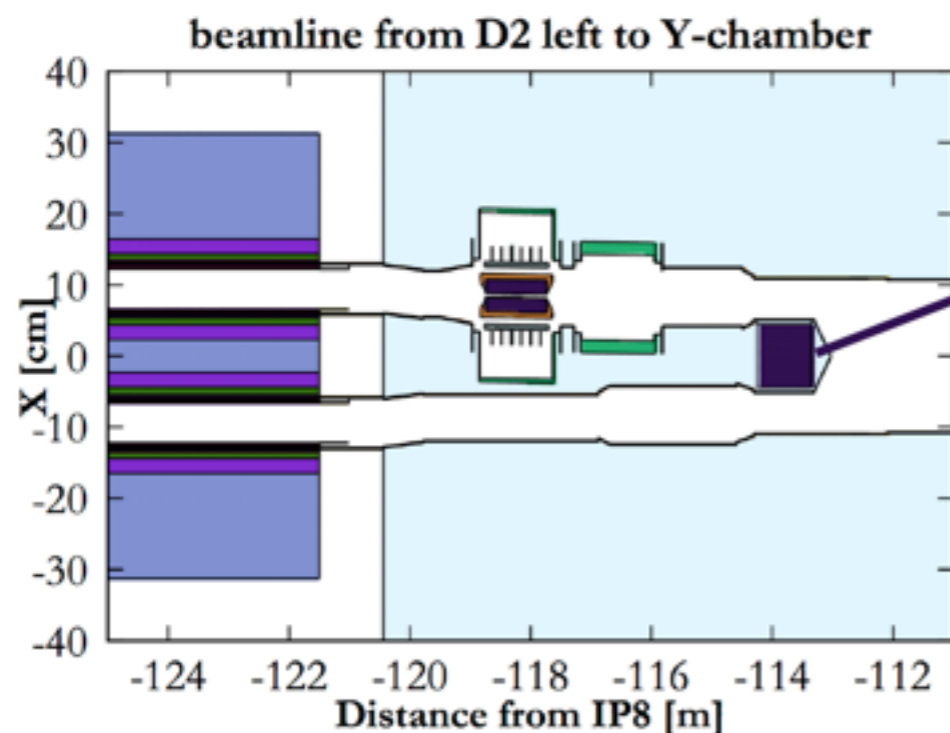
- ▶ options under consideration:

1. mini-TAXN + mask on outgoing beam in-front of D2
2. mask only for both beams in-front of D2

- would expose the collimators to the beam debris ⇒ less favourable option, on top of layout issue

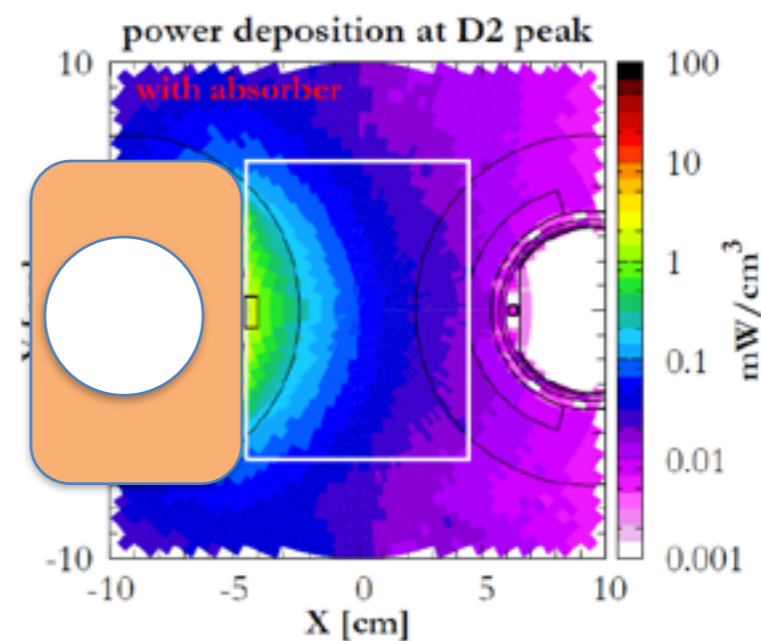


- ▶ The installation of a mini-TAXN during LS2 considered so far



absorber block
tungsten (INERMET 180)
9 cm × 12 cm × ~~9~~ cm
5 mm clearance with
each beam pipe

presently in this location
is installed the BRAN



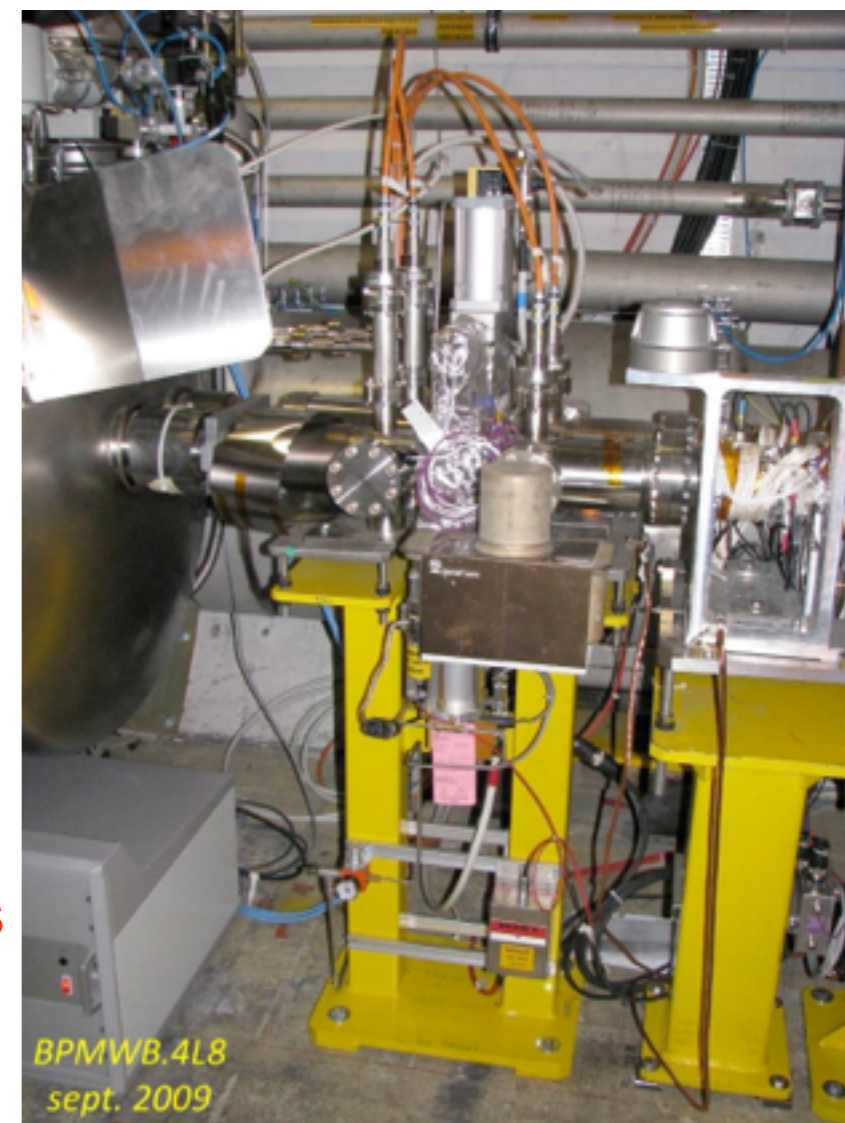
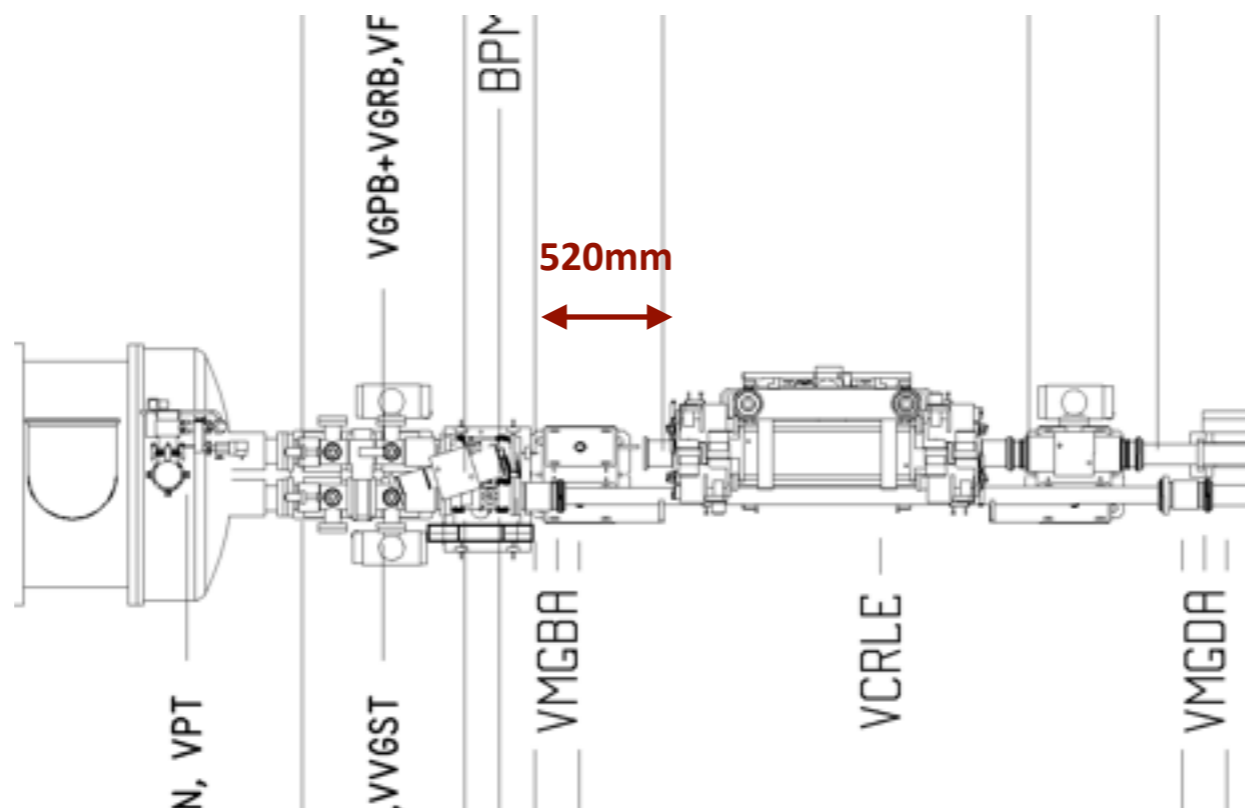
- ▶ still a mask in-front of D2 would be needed
 - cover the coil region, from **80mm - 100mm**
 - material **Inermet IT180**, length : at least **50cm**
- ▶ options under consideration:
 1. mini-TAXN + mask on outgoing beam in-front of D2
 2. mask only for both beams in-front of D2

- would expose the collimators to the beam debris ⇒ less favourable option, on top of layout issue

HL-LHC TAXN @ IR8

- ▶ The integration of the TAXN and mask would be challenging
- ▶ The mask to be efficient must be close to D2
- ▶ Solutions?- next steps
 1. move towards the IP the two collimators and the BPM
 - also the TAXN? ;
 2. use the space next to VMGBA with small displacement of the collimators

follow up in WP8 and integration meetings



HL-LHC TAXN @ IR8

- ▶ The integration of the TAXN and mask would be challenging
- ▶ The mask to be efficient must be close to D2
- ▶ Solutions?- next steps
 1. move towards the IP the two collimators and the BPM
 - also the TAXN? ;
 2. use the space next to VMGBA with small displacement of the collimators

follow up in WP8 and integration meetings

