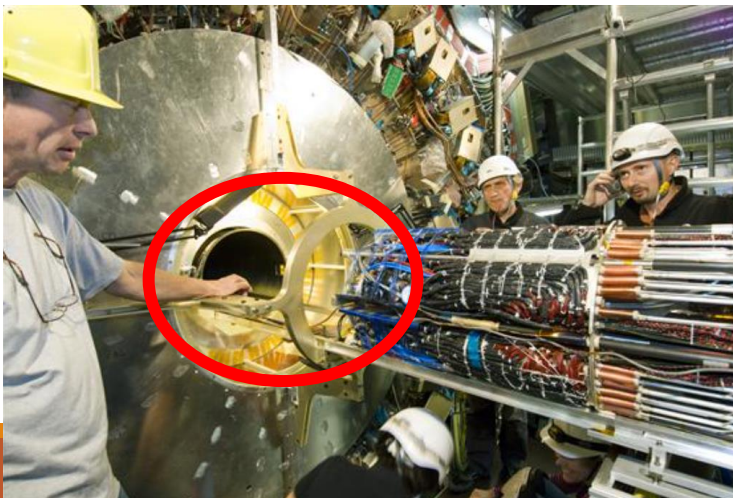# OS Detector Insertion

ERIC VIGEOLAS OEC INTEGRATION WS FRASCATI JANUARY FEB THE 1ST 2024

OS insertion

❑ A lot remain do be done, this work package belong to ITK Global mechanics

❑ The rail extension between the PST and the OS Integration tool have been discussed with Eric Anderssen but interfaces remain to be clearly defined

Overview of Integration of ITk Pixel

- **Insertion of Outer System in ITk**
  - Important **to define interfaces between Outer System insertion tool** from Common Mechanics and **Outer System integration too**l to advance design Outer System tooling.

- **Dressing of PP1**
  - **Several constraints** due to foreseen routing of services and available space. Mock-up in B180 for Outer Service Volume, PP1 mock-up and CAD are being used to develop dressing sequence.
  - **Electrical testing steps to conclude** during the dressing sequence
  - **Welding responsibilities in PP1** after dressing need to be agreed.
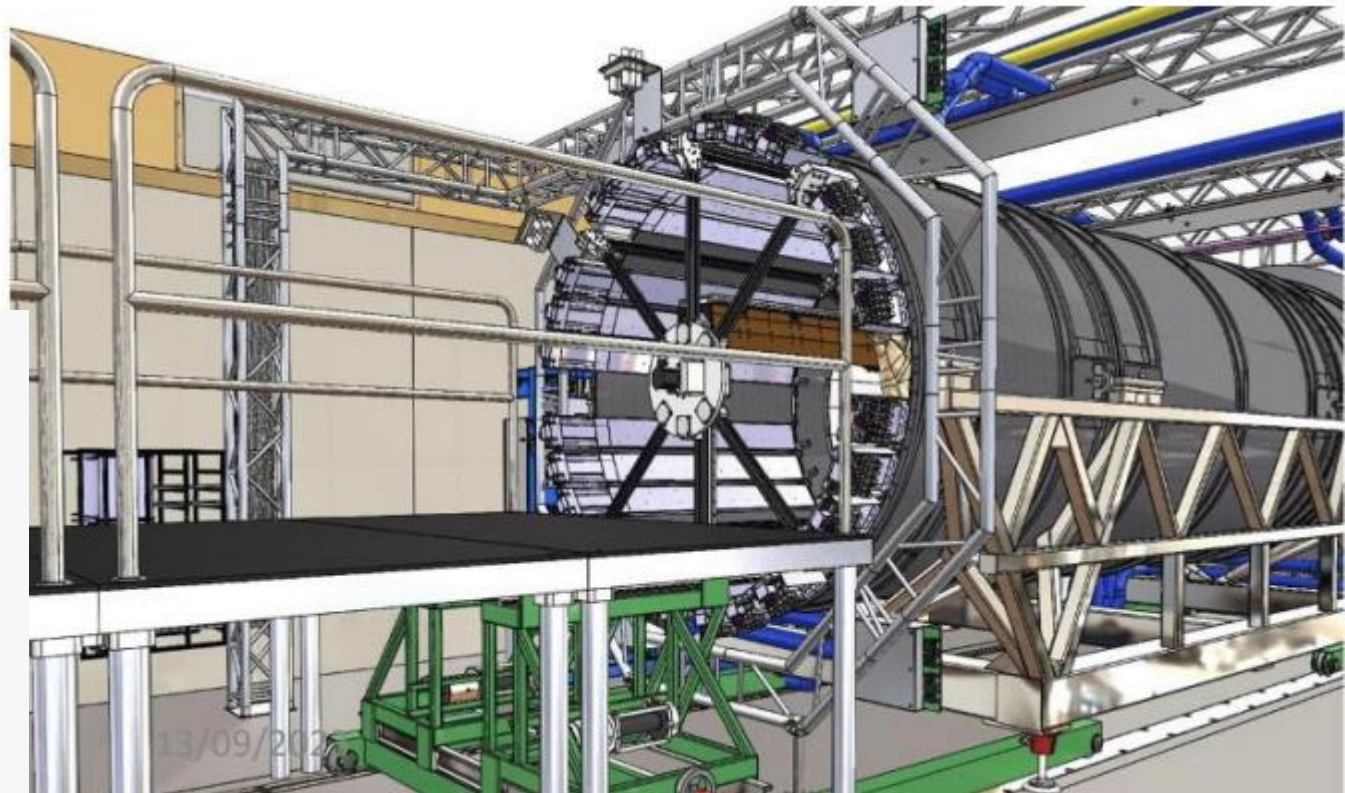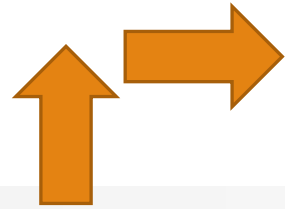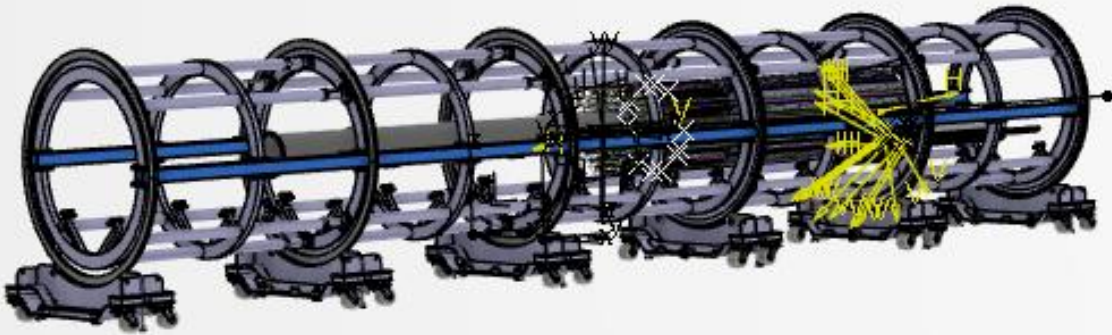 - → **Dressing sequence to be fully developed**
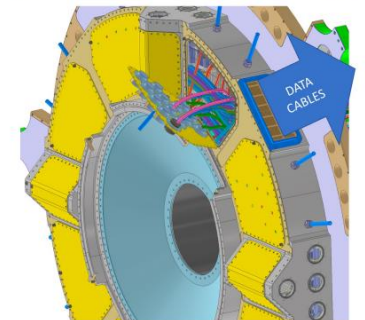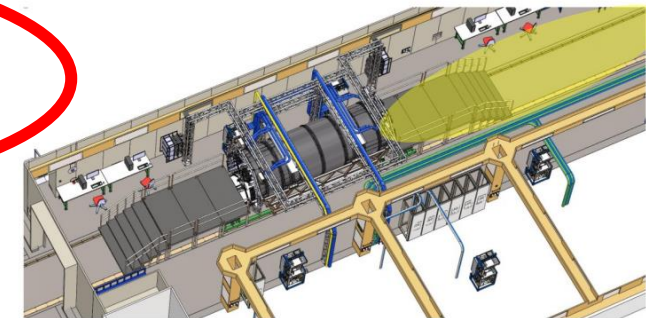
14.09.2023   ITk Pixel integration - Susanne Kuehn   10

Lifting System

❑ The OS integration tool will need to be lifted and aligned to the PST → We need more clarifications on tool and process of this action → impact on OS integration tool
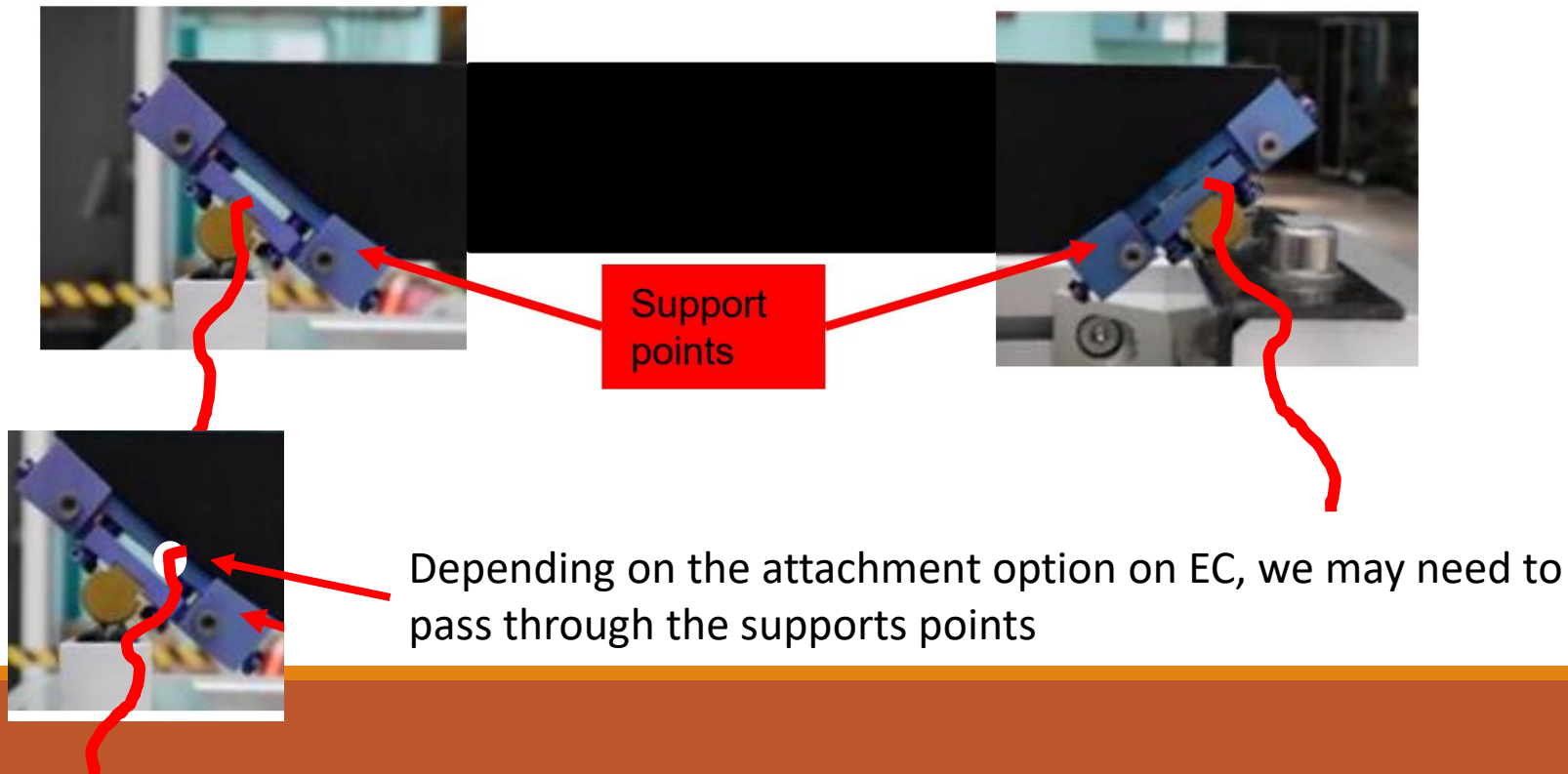
Pulling system

❑The Pixel OS will be inserted using a wire pulling system similarly to the current pixel detector process

❑Cables will need to be attached to ECA support points → OB can not work in compression mode

❑Need to decide if we place One or two cables and if the two cable will be joined to have a unique pulling wire


Two options for the wire fixation
On EC
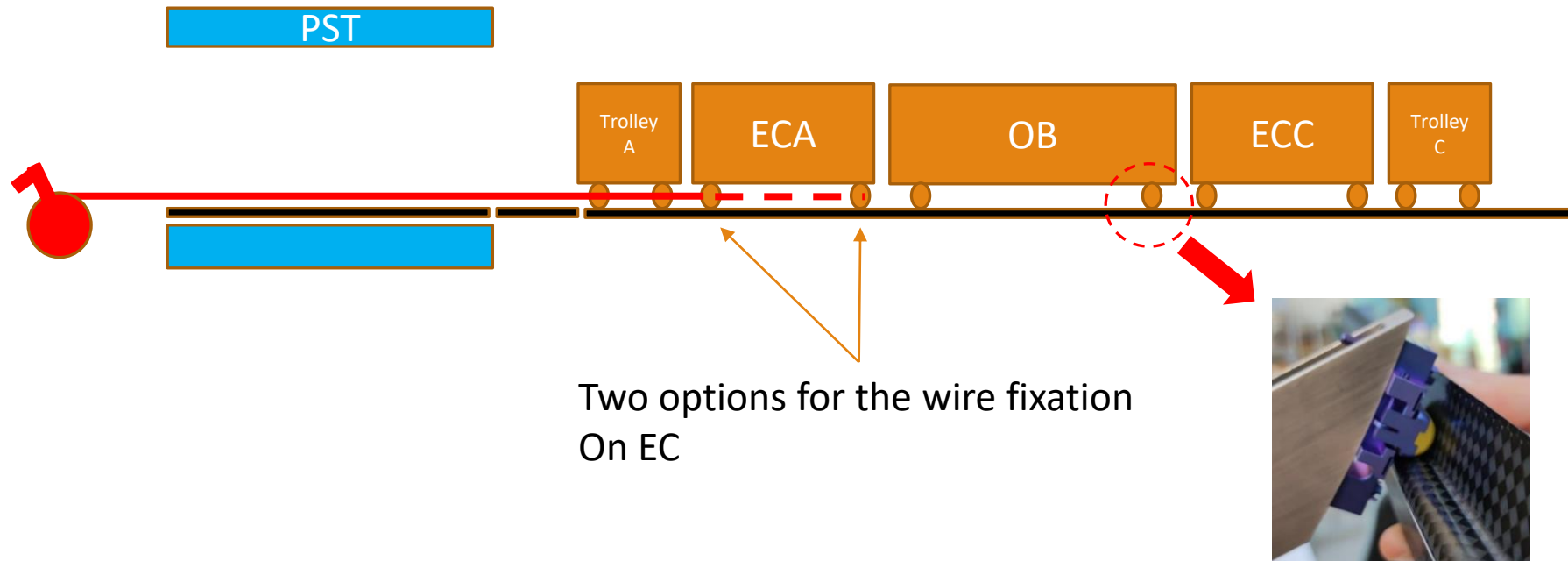
Wire path

❑As we decided to attached the cable on the sliders the cables have to pass though the sliders, the space is limited due to OB services on top of EC


Support points

Depending on the attachment option on EC, we may need to pass through the supports points

Symmetric pulling force

❑ We need to decide if one cable (asymmetric load) or two cable (one per side, symmetric load) will be used

❑ In case of two cables we will need to join them for the use of a unique pulling cable

Support points
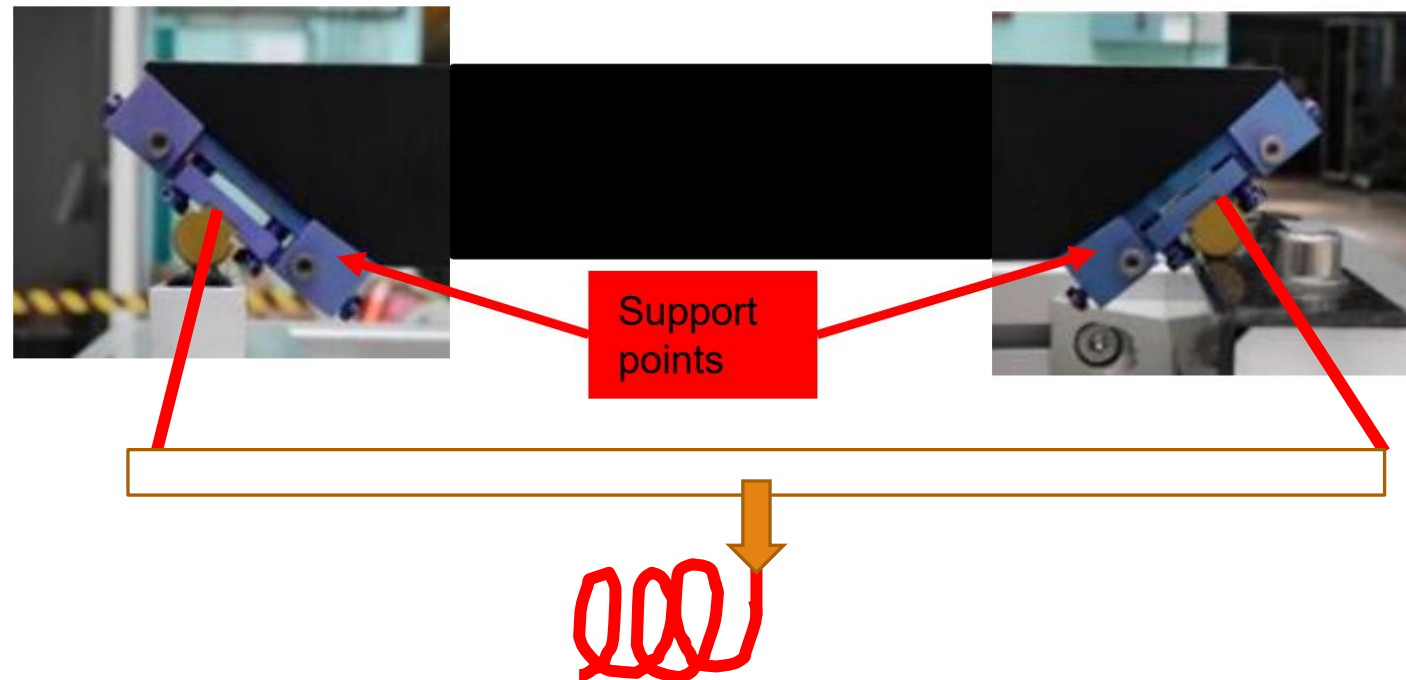
Z stopper

❑We did not defined yet how the detector will be referenced in Z direction

❑For the OS this is foreseen on C side on the E level

❑We need to define also the IS positioning in Z direction
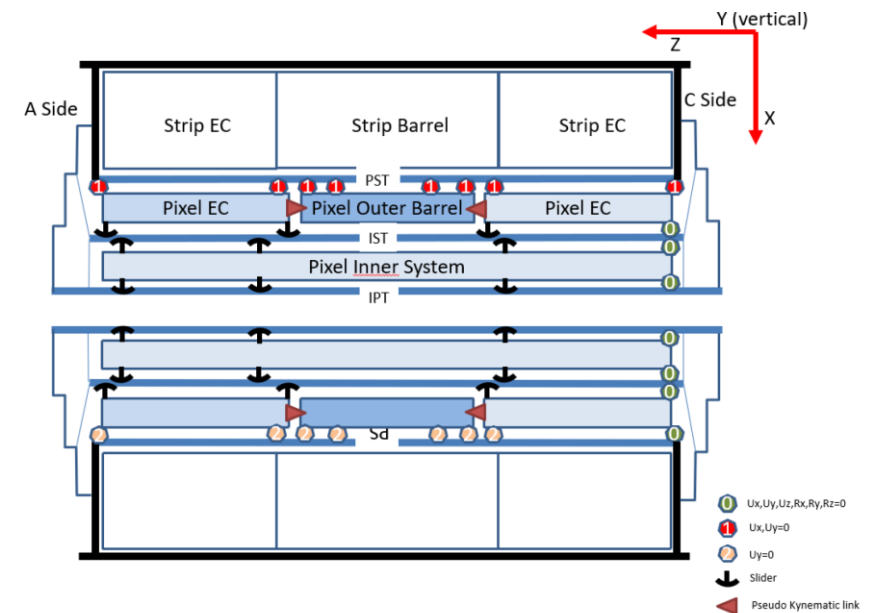
Conclusion

❑ This part of the Detector construction have not been worked out so much a lot remain to be done

❑ For the ITK Pixel GM&I FDR, slider design should be completed and implemented in our design, this include wire system for the insertion

❑ Z stopper remain to be clearly described and add in our design → this may affect the IST flange design

❑ As the OS insertion is a share work between ITK GM mechanics and OS subsystem a lot of interfaces need to be described → We need more interaction there