

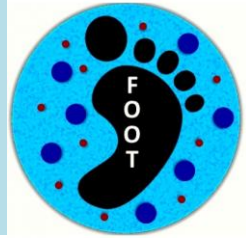
# Assembly and test of the final $\Delta E$ -TOF detector



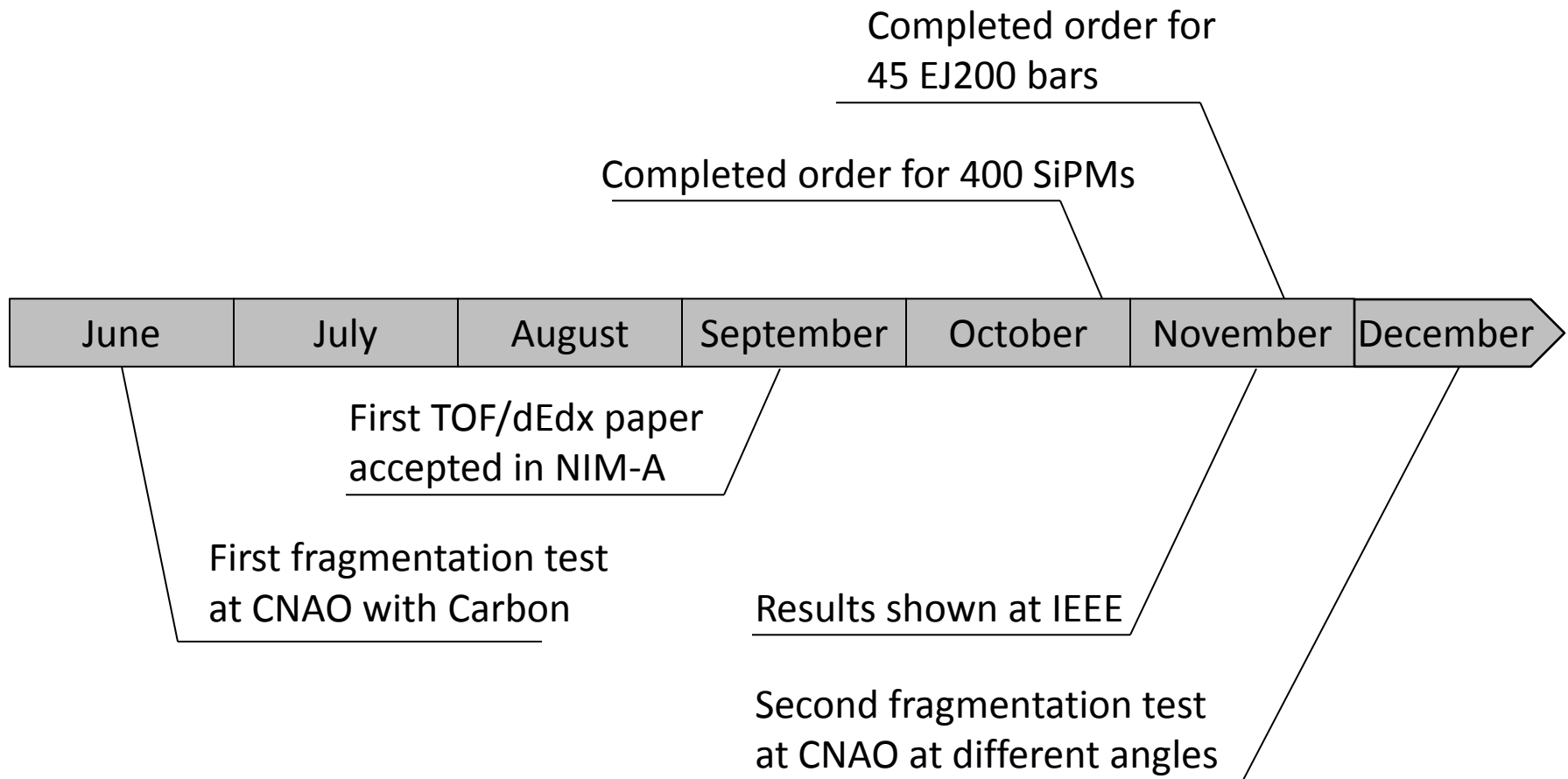
Matteo Morrocchi

FOOT General Meeting  
3-5/12/2018

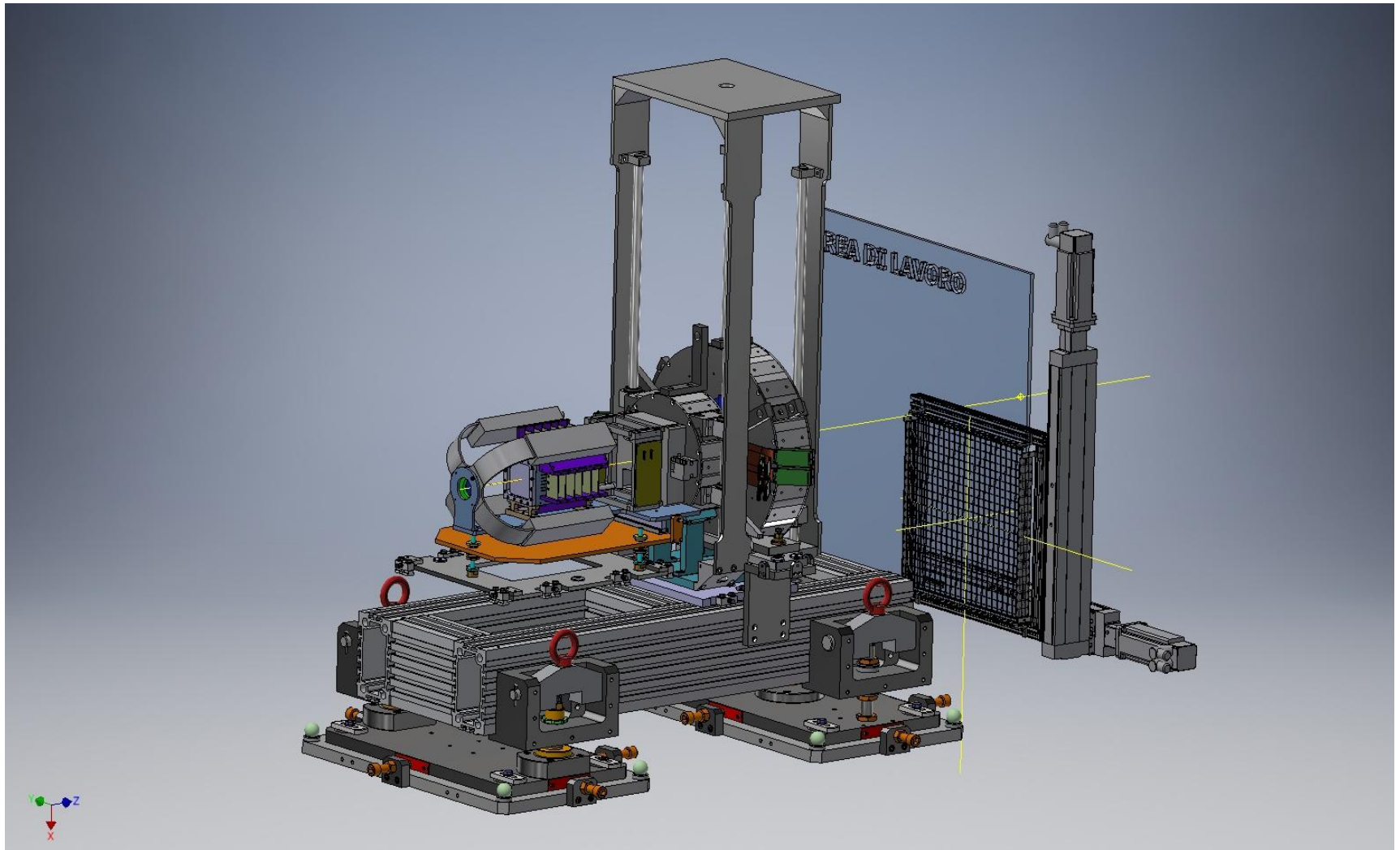
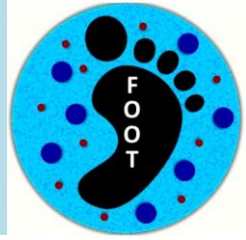
# Summary



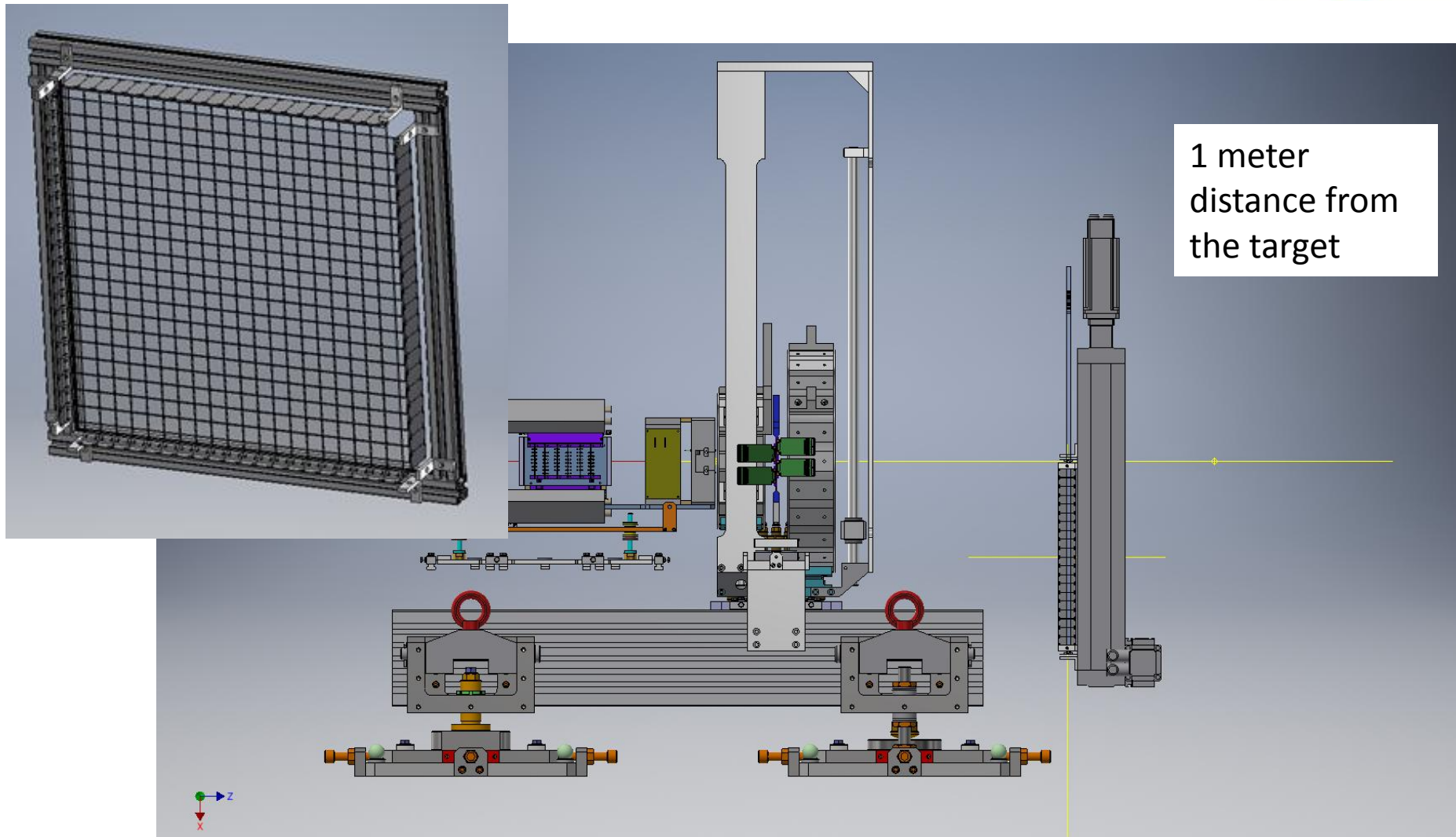
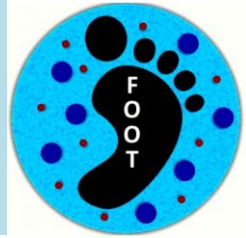
Since last General Meeting:



# Final Detector Structure



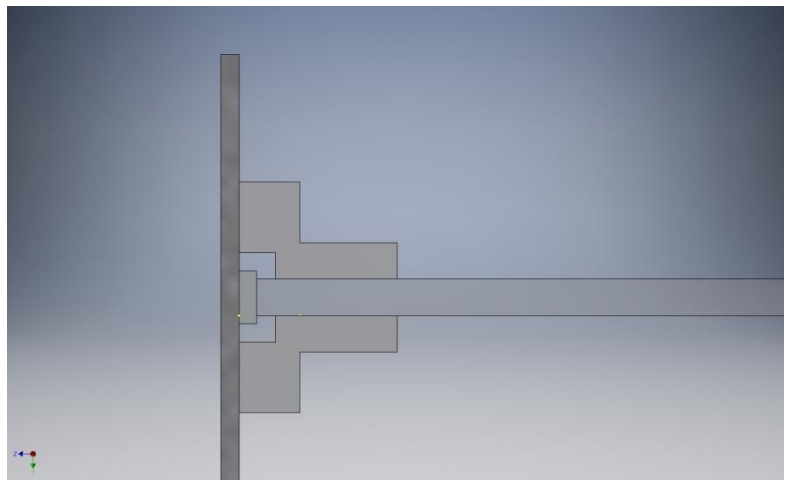
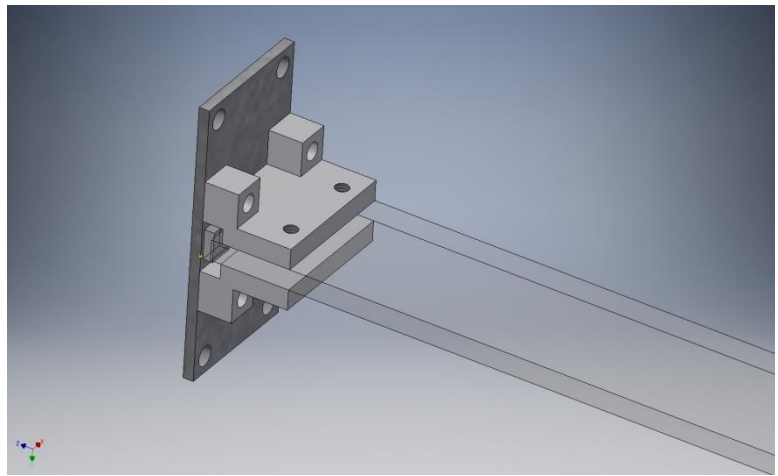
# Final Detector Structure



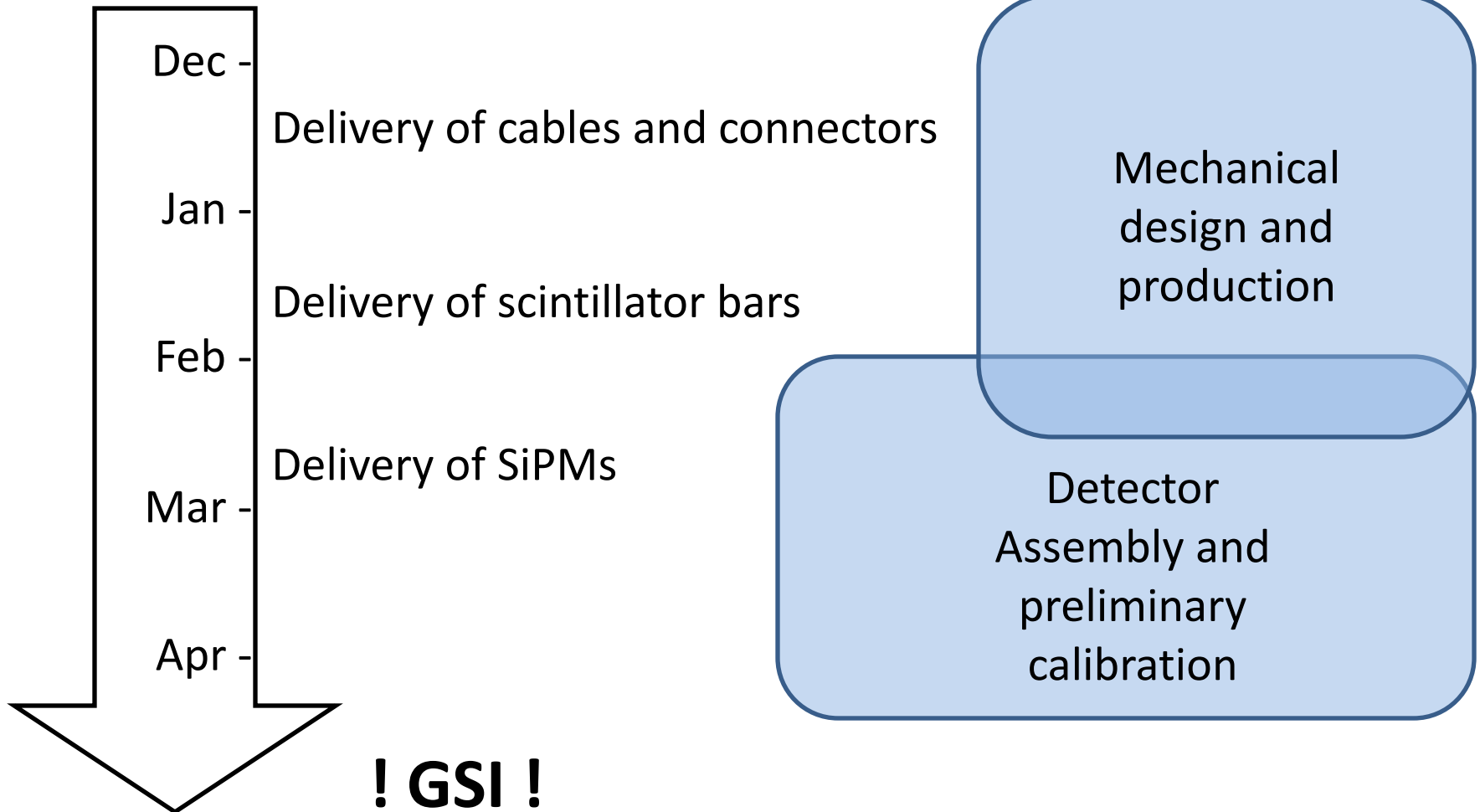
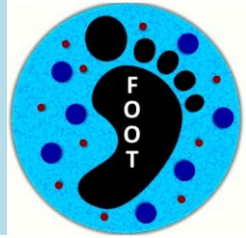
# Single Bar



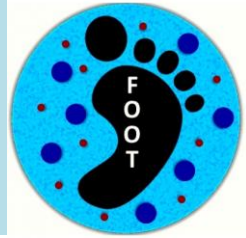
Optical coupling with EJ-560 silicon pad



# Timeline for Assembly



# For GSI

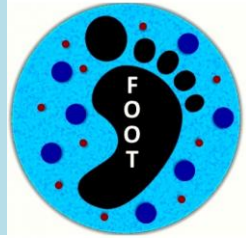


I. Partial part of the detector with a temporary set of translator and with a not complete calibration (CNAO?)

II. Ready with the complete detector (with a temporary mechanical support) with a not complete calibration (CNAO?)

... depending on the delivery time of the SiPMs from Hamamatsu

# Calibration



Scan of the whole detector:

- 20 x 20 positions ( or 18 x 18)
- at least 4 different energies
- at least 2 different particles (the more the better)

Estimated time:

$$T_{\text{TOT}} = N_{\text{particle}} * N_{\text{energies}} * N_{\text{pt}} * (N_{\text{ev}} / \text{rate} + T_{\text{trasl}})$$

Es:

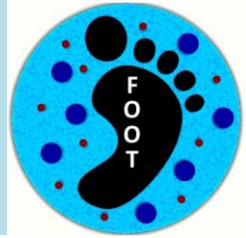
$$N_{\text{particle}} = 2; N_{\text{energies}} = 4; N_{\text{pt}} = 400; N_{\text{ev}} = 10000; T_{\text{trasl}} = 5 \text{ s}$$

$$T_{\text{TOT}} \sim 13 \text{ h}$$

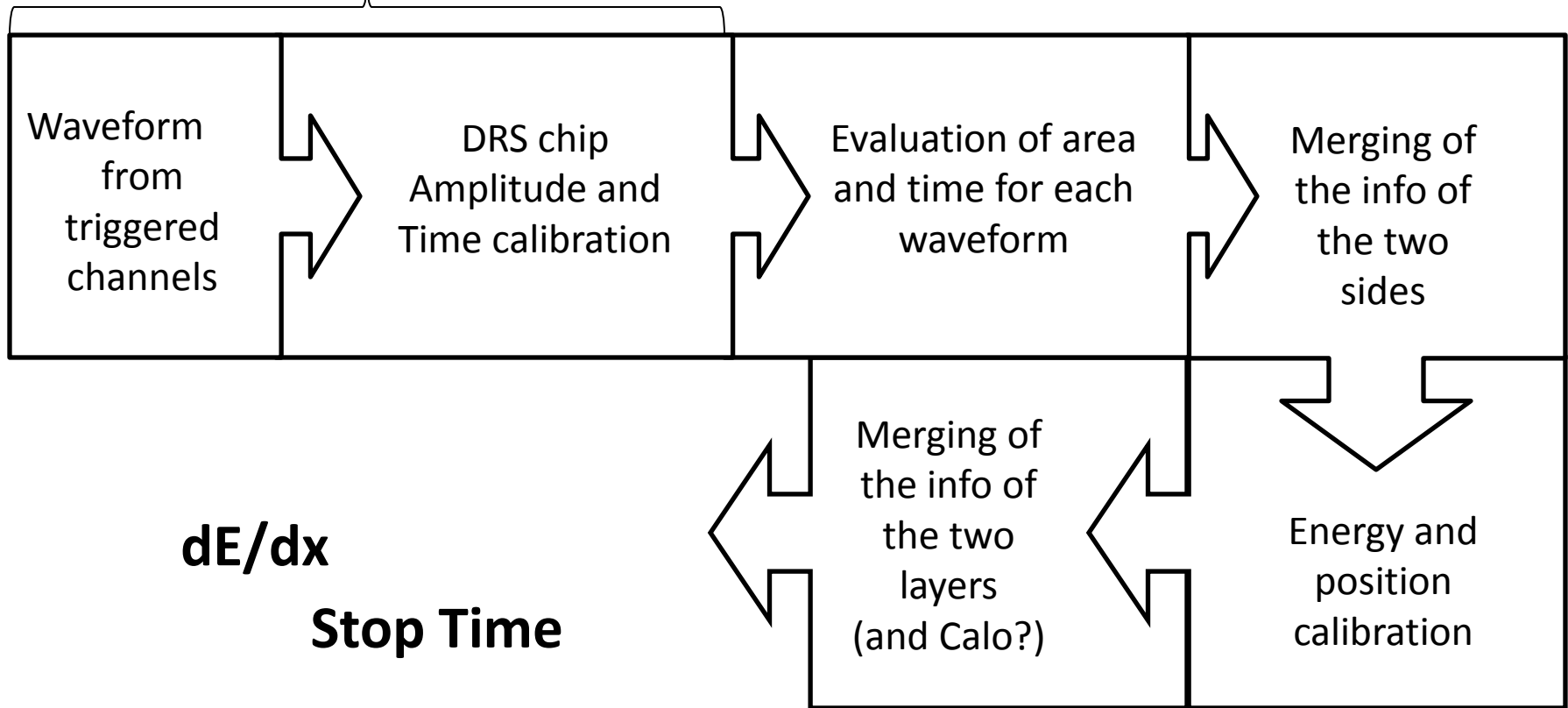
Need for a complete calibration before the FOOT data taking (once for all) and a fast check at some points just before the general acquisition to check the stability of the detector.



# Data Elaboration



Online



**dE/dx**

**Stop Time**