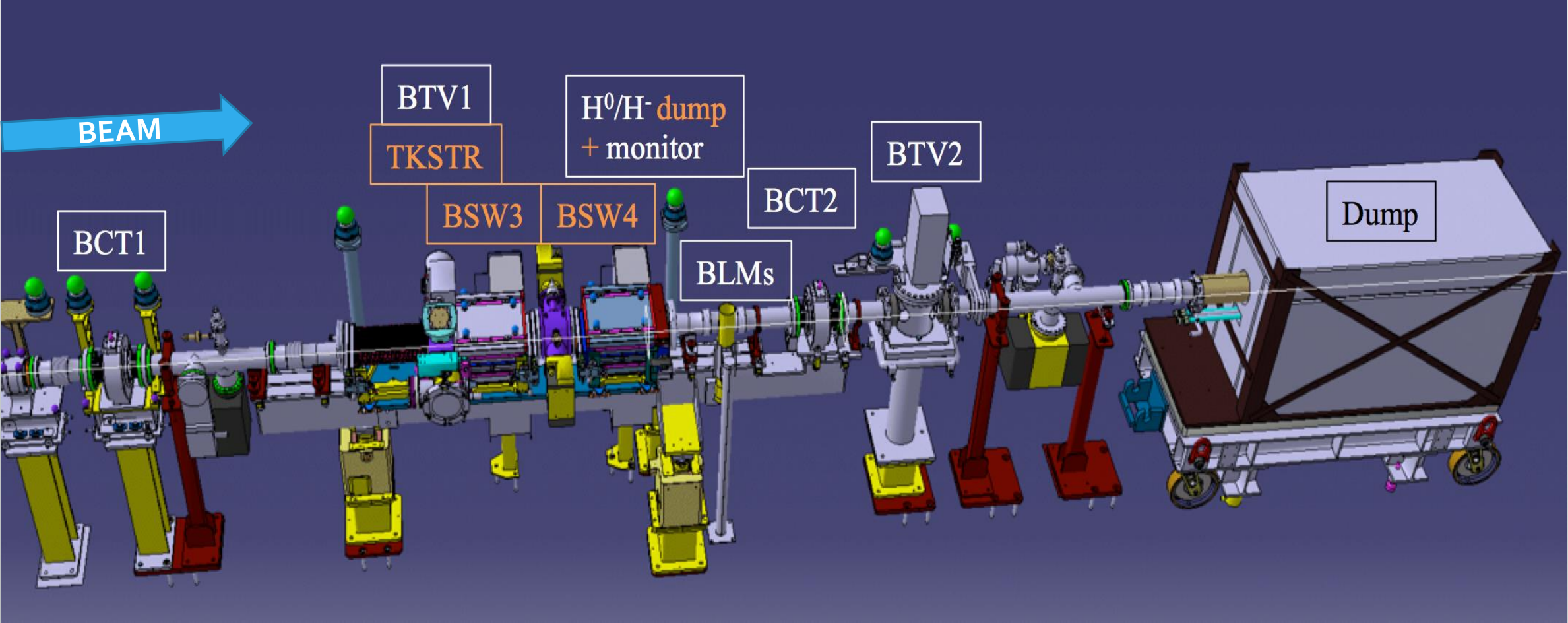


Beam instrumentation performances from the HST point of view

G. Guidoboni, B. Mikulec (BE-OP-PSB)

01/06/2017

Half Sector Test (HST) installation in L4T



BI from HST point of view

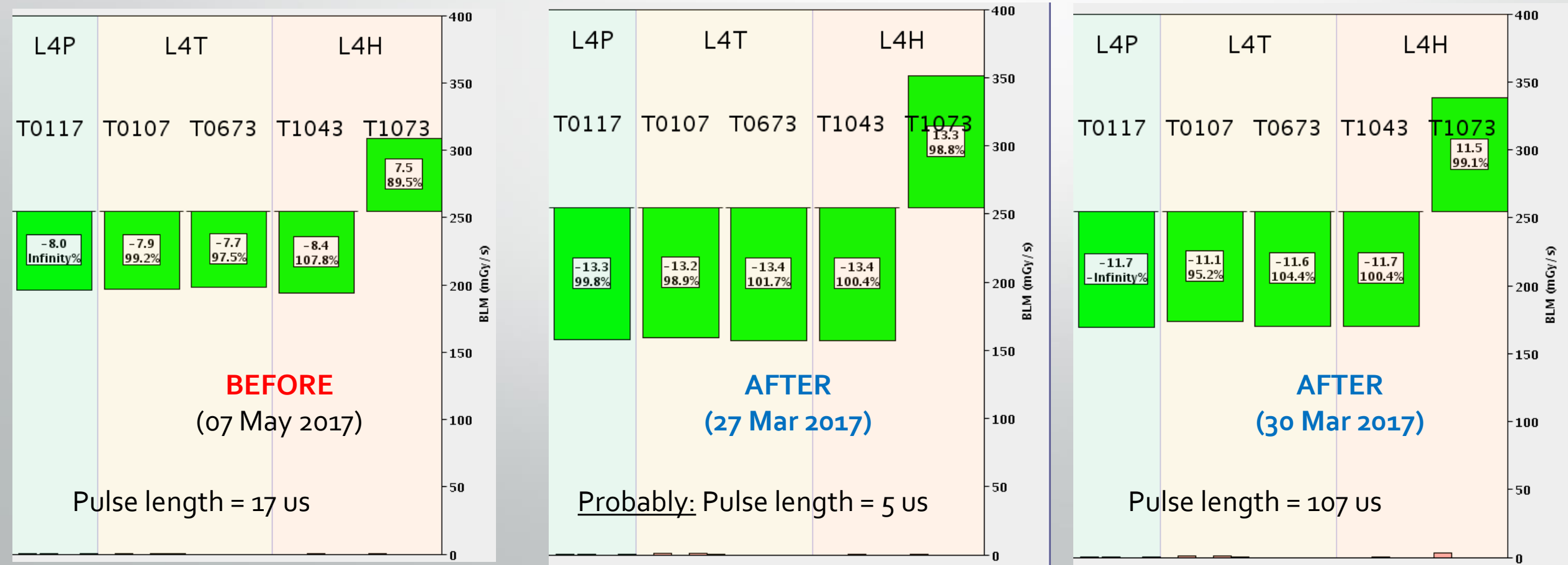
- BCTs

- Problem of wrong transmission **SOLVED!** Thanks to Juan Carlos and to all BI team!

It required new filters in the head amplifiers to subtract **high-frequency components from Linac4 RF.**

- After new filters installations, only few days left to complete the measurements. Still **to be checked:**

- 1% precision** from specs.
 - minimum measurable pulse length with new filters.**



BI from HST point of view

- **BTV**
 - **Mechanical screen movement improved** at the test stand.
 - **Ag coating to be tested** to solve the foil breakage observed when removing the BTV from the IN beam position to the OUT position. Possible explanation: screen charged up by the beam.
 - Filters can be adapted to the beam.



BI from HST point of view

- **Stripping foil current monitor**
 - It can **only detect a complete foil breakage**. The stripping foil is too thin to trap the stripped electrons.
- **Ho/H- monitor**
 - **Interlock still to be commissioned** (despite the installation of a new read out card).
 - Finalise the FESA class and hand it over to BE-OP (J-F. Comblin) for operational application.
- **BLM**
 - Beam losses adequately monitored with the **ionization chambers**.
 - **Diamond detector:**
 - **Analogue signal transmission to be improved** (noise-dominated on surface).
 - New readout (as done for SPS) has been requested. To be included for the new PSB installation during LS2.
 - **Thresholds to be defined.**
- **BPM**
 - Thresholds to be set precisely for low intensity beams.
 - **To be checked: minimum measurable pulse length** (linked to the thresholds) after the FESA class update.

BI from operational point of view

- SEM grids and Wire Scanners
 - NOT ALL instruments were available (until March 2017):
 - L₄T.BWS.0523 (after 2nd bending)
 - L₄Z.BWS.0267
 - (Other 2 WSs in PIMS section + 1 WS and 1 SG in HST section)
 - **Provide WS calibration** to J-F Comblin (OP-PSB).

SUMMARY

Great job and support from BE-BI that allowed the HST to be successful!

Still some work to do:

- Check if **BCTs** respect the 1% precision specification (at the test stand).
- Check in the lab and then with beam if the **Ag coating** on the **BTV** will solve the charging problem of the screen.
- **Ho/H- interlock** to be commissioned.
- Design carefully grounding and connections for **diamond BLMs** at the final location.
- Set **thresholds** for **BLMs**.
- Check **minimum measurable pulse length** for **BPMs** (with new FESA class) and **BCTs**.
- Provide **WS calibration** to Jean-Francois Comblin (BE-OP-PSB).

**HUGE THANKS TO ALL BI GROUP
and Linac4 team!**

... and for your attention!