# BPM instability and beam 60Hz modulation studies Vardan Khachatryan and Antoine Chapelain

X3D horizontal coordinate drift study



like saturated

3







Button:4/Button:4(0) BPM:104, X3D, 1876828-1877450







### Libera data show that the chamber is not moving

Libera X S4A was stable during that period



## orbits 1898700-1898706, T1B1 current 0.37-0.73mA

Buttons 2 and 4 are saturated, while the button values are ~25% less from the saturation value.





37E horizontal coordinate drift study

Probes are attached to the chamber and will detect the magnetic field change if the chamber is moving



#### Q37E k=-4.94 \*T/m; 0.2mm $\rightarrow$ ~10 Gs $\rightarrow$ 8.3 mV for probe:6



Beam horizontal 60Hz modulation

## TBT data, 60Hz horizontal modulation is going up since the beginning of 2023

Sin amplitude µm



## Summary

- X3D coordinate instability is because of the button:2 and button:4 saturations X2A button:2 is also saturated
- No evidence yet that 37E instability is because of the chamber movements. To be re-checked.
- Horizontal 60Hz RMS is growing