

# **REPORT FROM THE BPTX** **TECHNICAL LIAISON GROUP**

## **Group Mandate:**

- The group mandated to develop the read-out and exploitation of the BPTX signals.
- Joint work between representatives from machine (SL/BI) and experiments.

## **BPTX Function:**

- Monitor phase of the clock of the two beams locally at the IRs, thus determining whether the TTC is synchronized with actual arrival of the bunch.
- Identify location of the bunch train gaps.

## Technology:

- Button Electrode: Electrostatic pick-up  
25 V output signal for nominal I  
- 0.7 V for pilot run worst-case scenario  
Simple construction  
4 Buttons on either side of each IP  
Not directive
- Stripline Coupler: EM metallic stripline pick-up  
100 V output signal for nominal I  
- 2.5 V for pilot run worst-case scenario  
Split signal to several end-users  
More complex construction  
Some directive information
- Proposal: Use Button Electrodes  
Output signal is adequate  
Signal to one central location / experiment

*Ions: Will get similar  $V_{peak}$  as for proton pilot run*

## Read-out Electronics:

- SL/BI electronics do not provide timing information requested by the experiments.
- Experiments to propose own read-out scheme:
  - Could be as simple as a digital scope?
  - Other electronics within the experiments that can be used as is or after small modifications.

e.g. ALICE TOF

## Cables:

- For the case of the Button Electrodes have 8 cables / IP.
- Experiments should draw up cable routing scheme from the BPTX to their underground counting rooms.
  - Check attenuation
- Cable specification for machine BPM is available.
  - Based on coaxial cable CMC50
- Experiments should make a common purchase.

## **Additional Information:**

- Collision Position: from BPM in front of inner triplet.
- Bunch Intensity: from BCT at Point 4.

Integral & bunch-by-bunch.

- Both the collision position and bunch intensity can be provided to the experiments and updates every  $\sim 1$  second.