

# LHC instruments

## LHC BPM multibunch acquisition

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Acknowledgements: B. Goddard, V. Kain, T. Pieloni, B. Salvant

# LHC BPM multibunch acquisition

- It gives the average position of individual bunches.
- Advantage w.r.t dampers pickup (see. T. Pieloni):
  - Can choose the number of bunches and of turns acquired.
- Drawbacks w.r.t dampers pickup (see. T. Pieloni):
  - Less sensitive,
  - Cannot play to much with this acquisition as it is linked to the injection system: **if one changes anything (# turns acquired, bunch pattern, BPM crates selected), these have to be set back to their initial values before the next injection, otherwise injection will fail !**

# LHC BPM multibunch acquisition

- To access the application: login to cs-ccr-ps1, then launch **ccm**, choose "LHCOP" and find:

LHC Control → LHC Beam Measurements → Multiturn


- Data are saved in

→ /nfs/cs-ccr-nfs4/lhc\_data/OP\_DATA/FILL\_DATA/1501/BPM/

→ For old data:

/nfs/cs-ccr-nfs4/lhc\_data/OP\_DATA/FILL\_DATA/ALL\_FILL\_DATA/1497/BPM/

- Experts: Verena Kain, Lars Jensen.



Replace by the actual number of the fill you are looking for.

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The screenshot shows the LHC MultiTurn software interface. The 'Acquisition' tab is selected. On the left, there are controls for 'Beam 1' and 'Beam 2', a 'Simple' and 'Pattern' selection, an 'Example' text box, and a 'Turns' spinner set to 10. Below these are 'Acquire', 'Listen', and a red stop button. At the bottom left, there are 'Acq. Param. Beam 1' and 'Acq. Param. Beam 2' buttons. The main area contains two plots: 'Horizontal Position' and 'Vertical Position', both showing a single data point at (0,0) for 'Turn No.' 0. A status bar at the bottom indicates an error: '18:02:06 - Could not read all settings - either they are partly different, or crates are down'.

Tab for the LHC BPM acquisition

To load automatically the current bunch pattern (or that of the next injection)

Type the bunch pattern here (1<sup>st</sup> bunch = 0 !)

Number of turns to be acquired

To launch the acquisition

In case some crates of BPMS are down, we can unselect them in Configuration → crate configuration