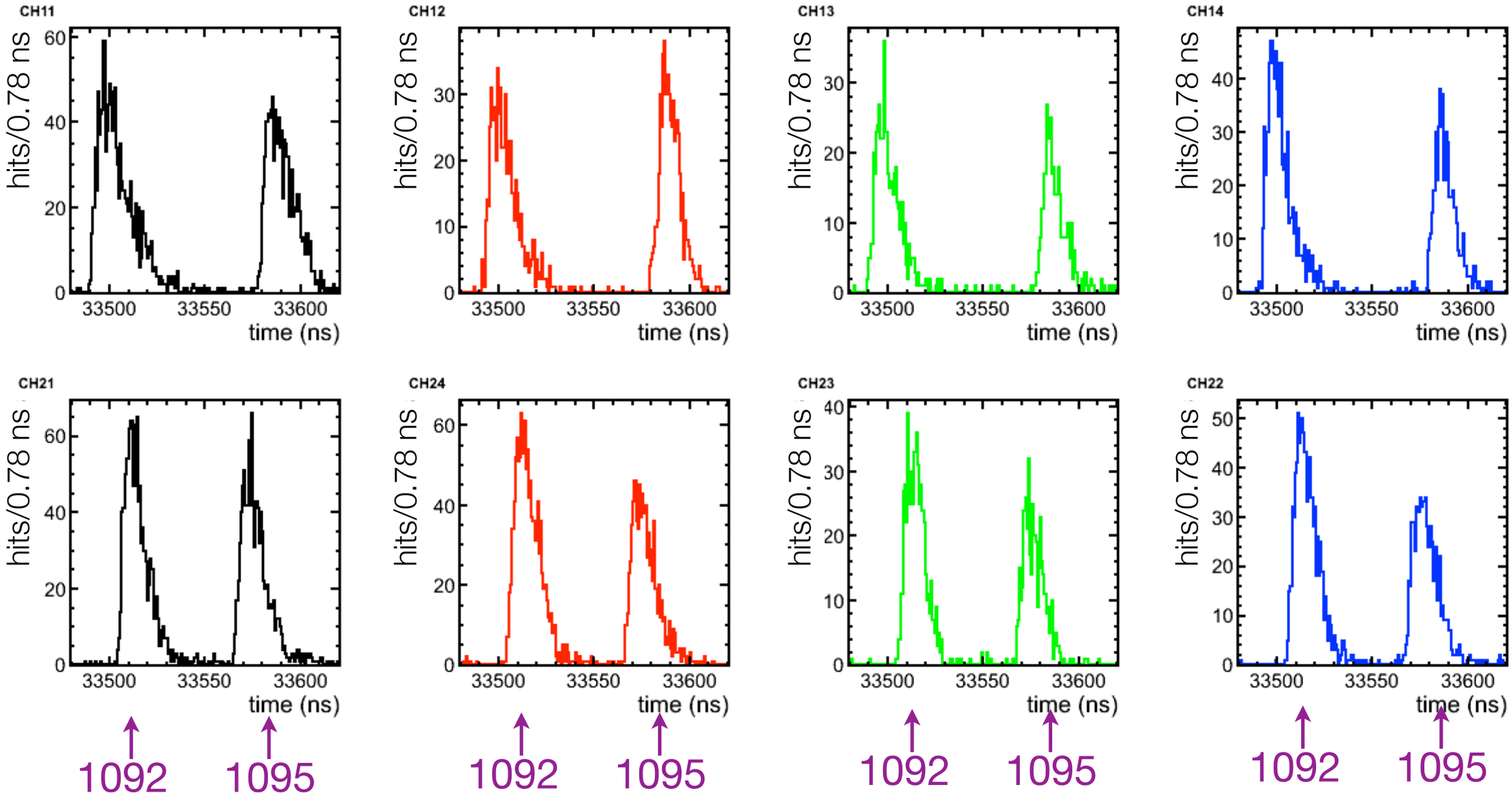
BCM1F TDCs

Roberval Walsh
DESY

Weekly FCAL-CMS meeting
02.08.2010

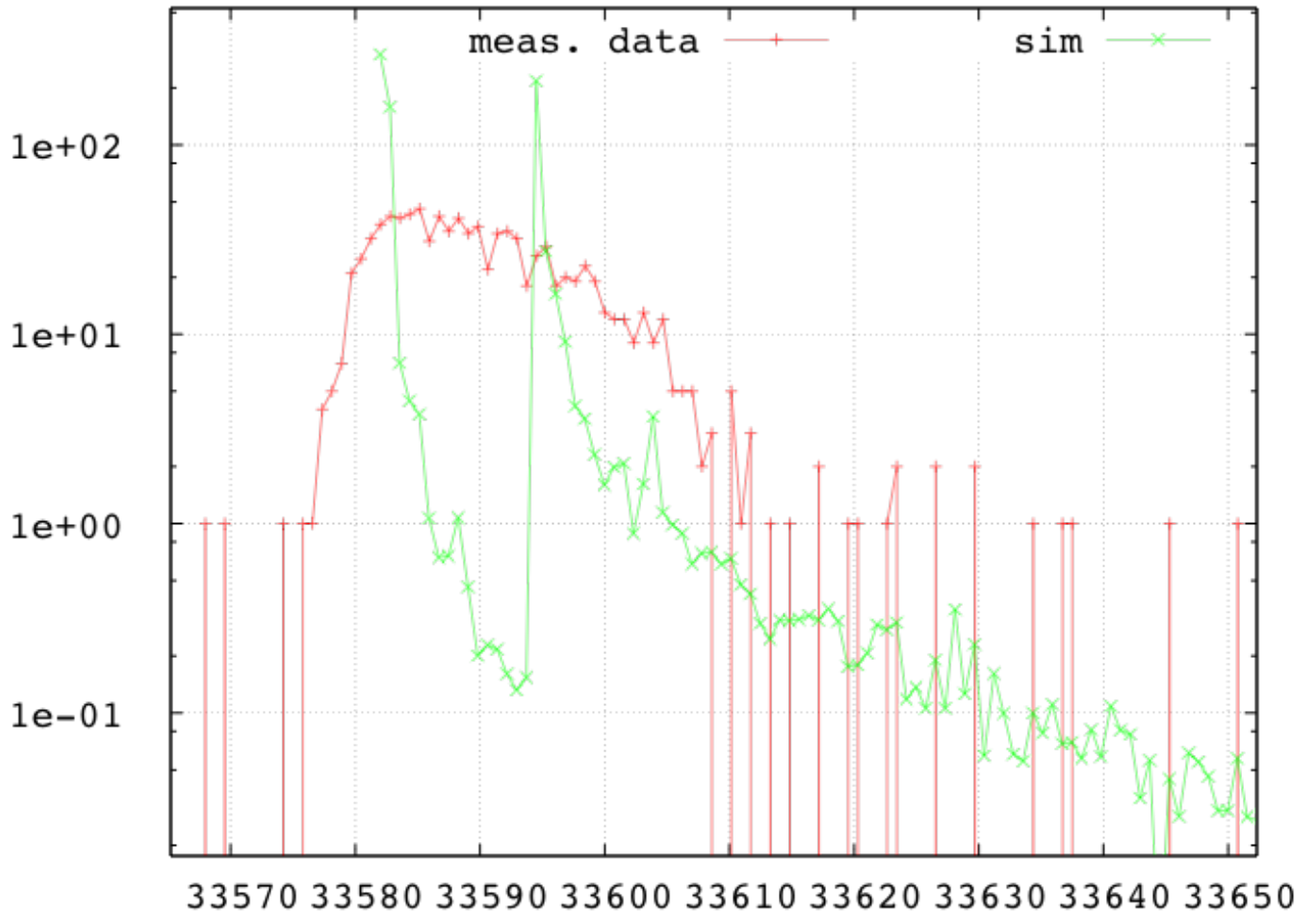
Fill 1225: BX 1092-1095

- 14.07 from ~10:50 until ~17:15.
  - Non-colliding bunches 1092 (beam2; -z) and 1095 (beam1; +z).



Fill 1225: BX 1092-1095

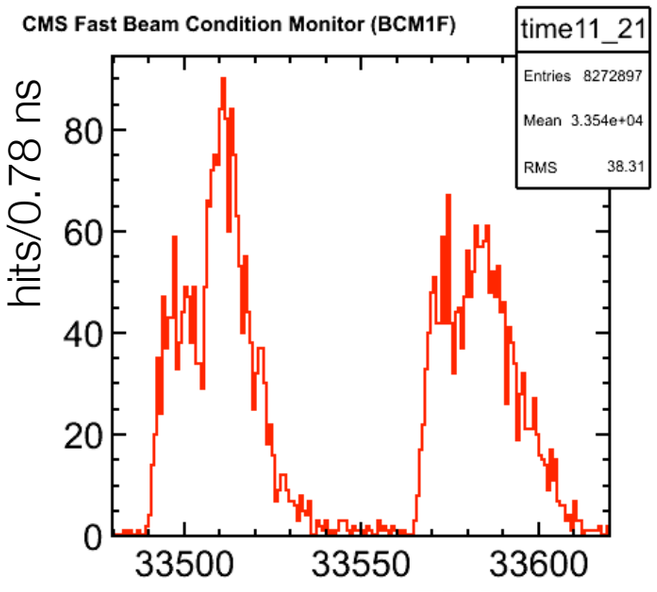
- Steffen's simulation versus data for bunch 1095.
- Clear double peak in the simulation but not in the data(?)
  - Jittering?

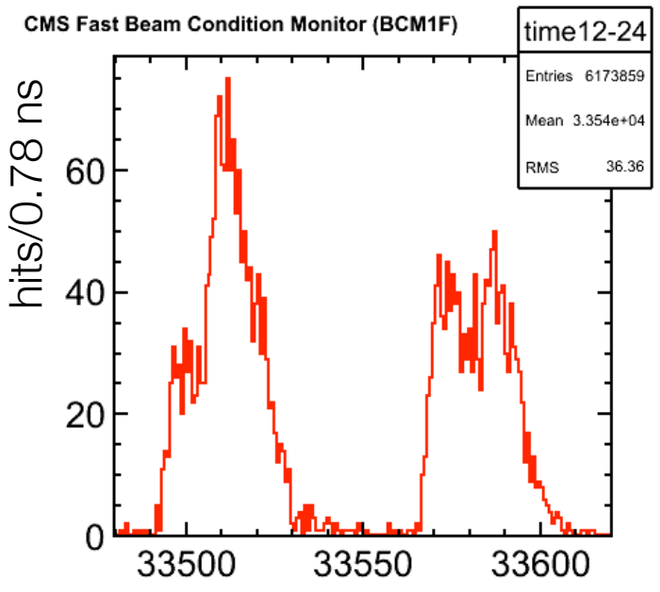


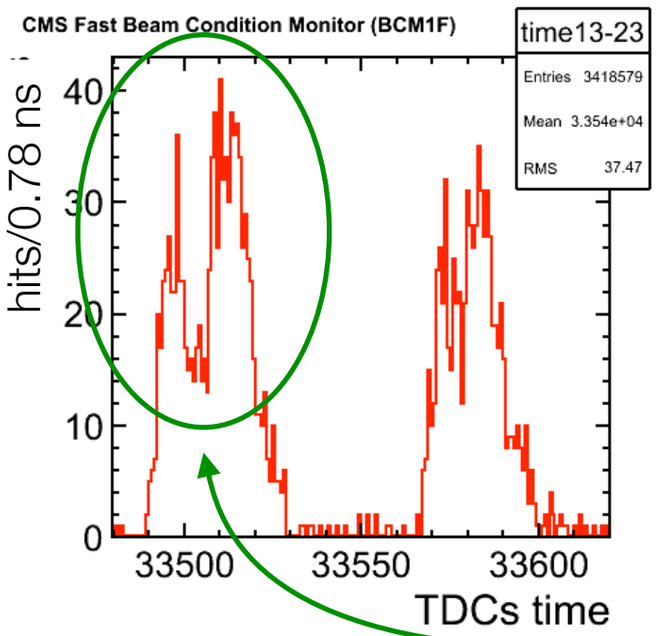
- Got more information with W. Lohmann about previous studies.
  - Jittering should be at most at the 2 ns level.

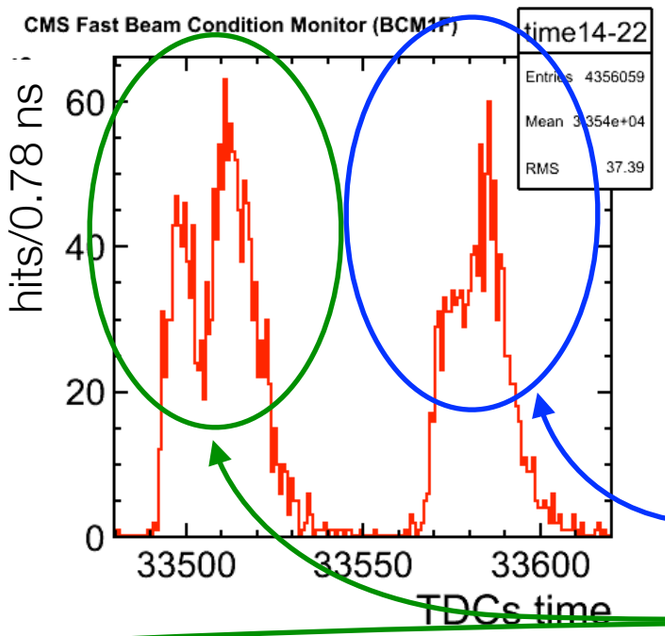
- Investigating...

Fill 1225: BX 1092-1095









1092 1095 1092 1095

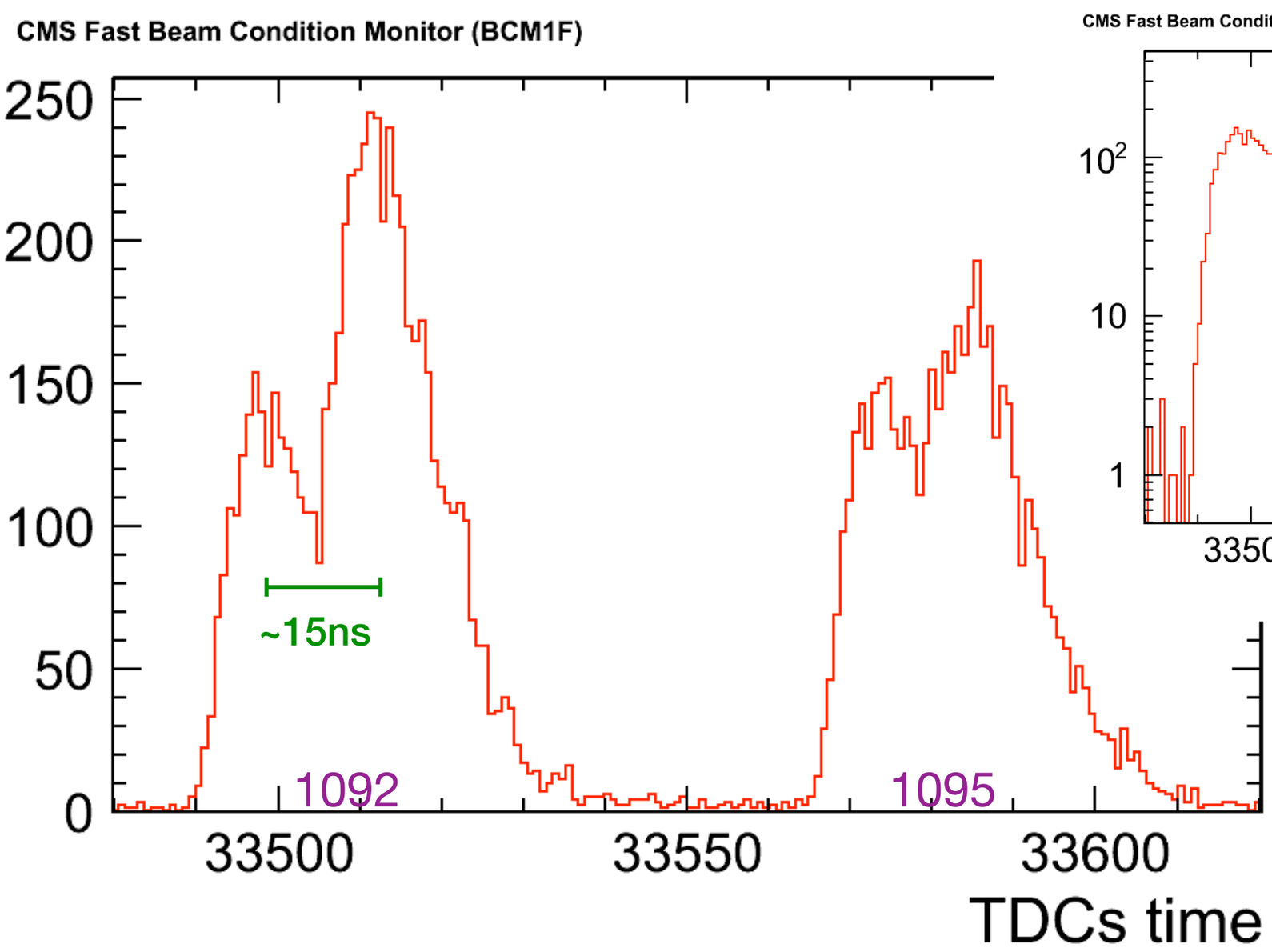
- Direct opposite channels integrated.
  - A double-peak structure for bunch 1092 can be seen. In some channels, e.g. 13-23, it is more clear than in others (12-24).
- But for bunch 1095 the double-peak is not so clear.
- Bunch dependence?

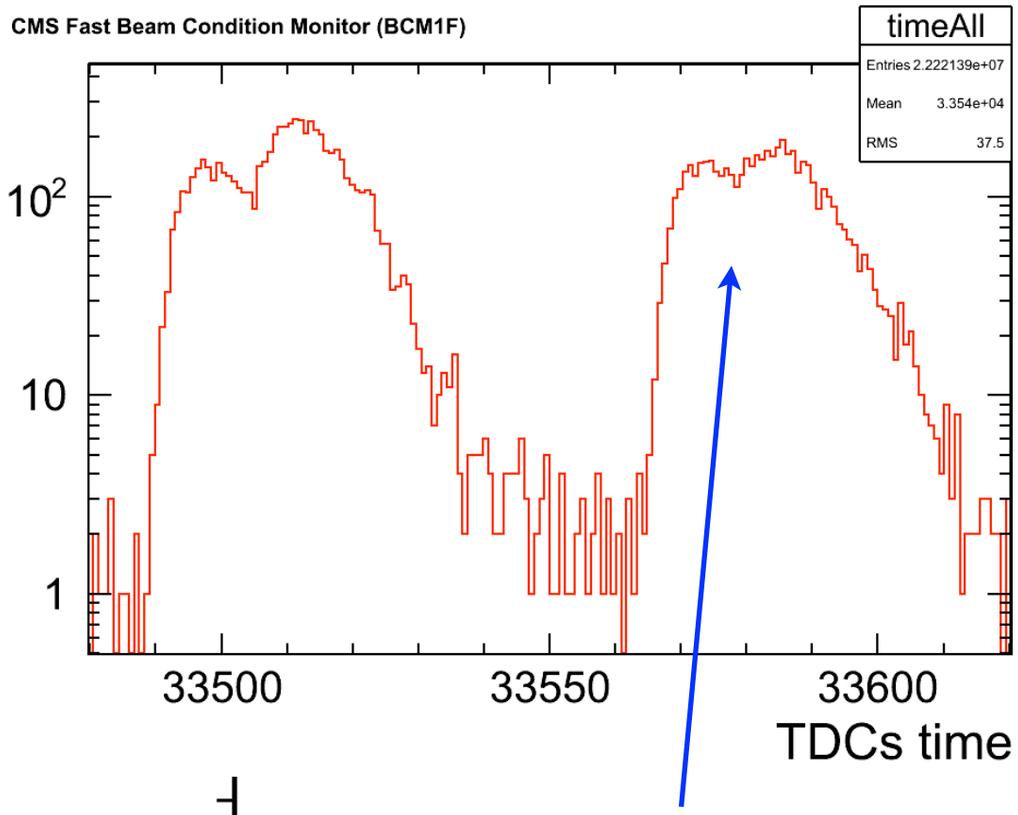
Not clear double peaks

Clear double peaks

Fill 1225: BX 1092-1095

- Even integrating all channels a double peak can be seen.
  - More clear for bunch 1092 than for bunch 1095.

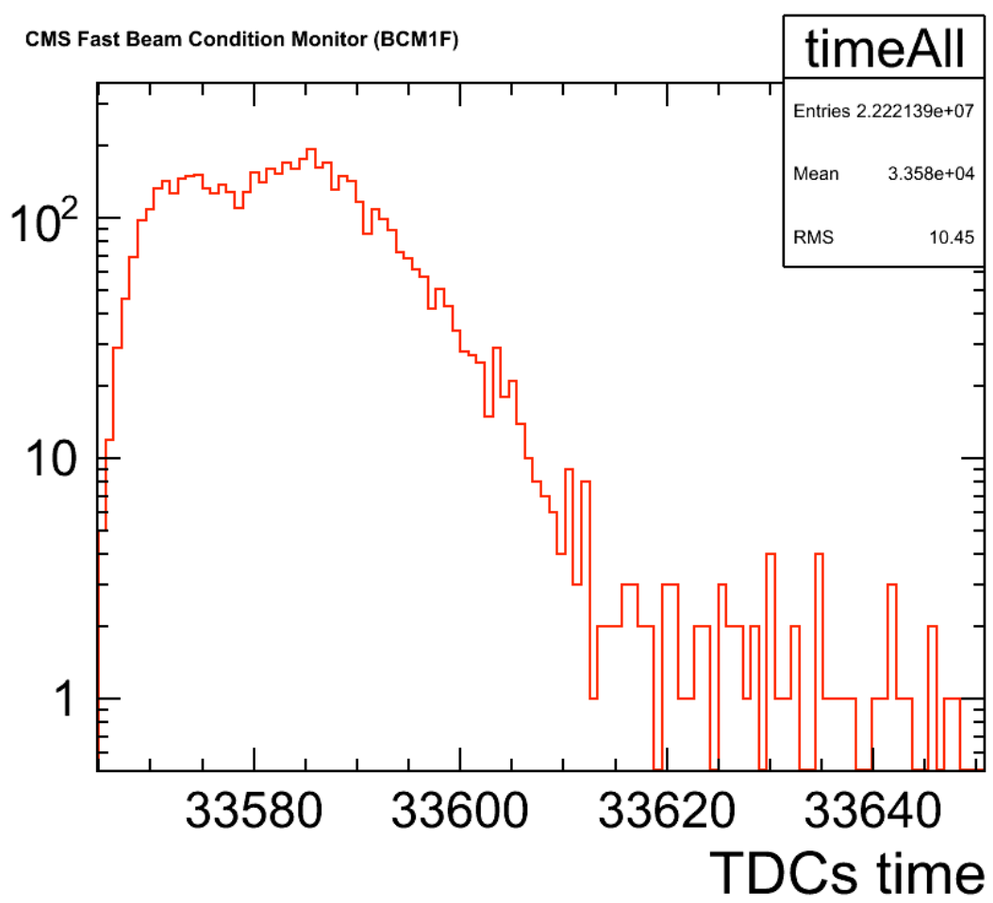


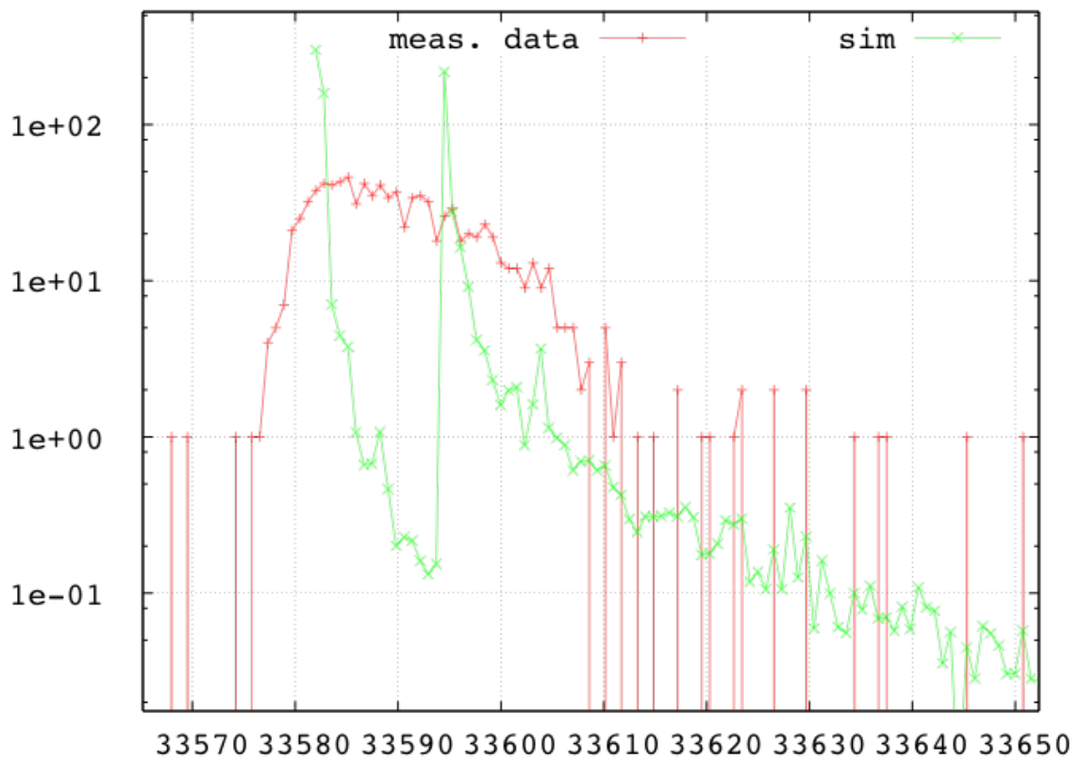


Log scale can “destroy” the double peak but...

Fill 1225: BX 1092-1095

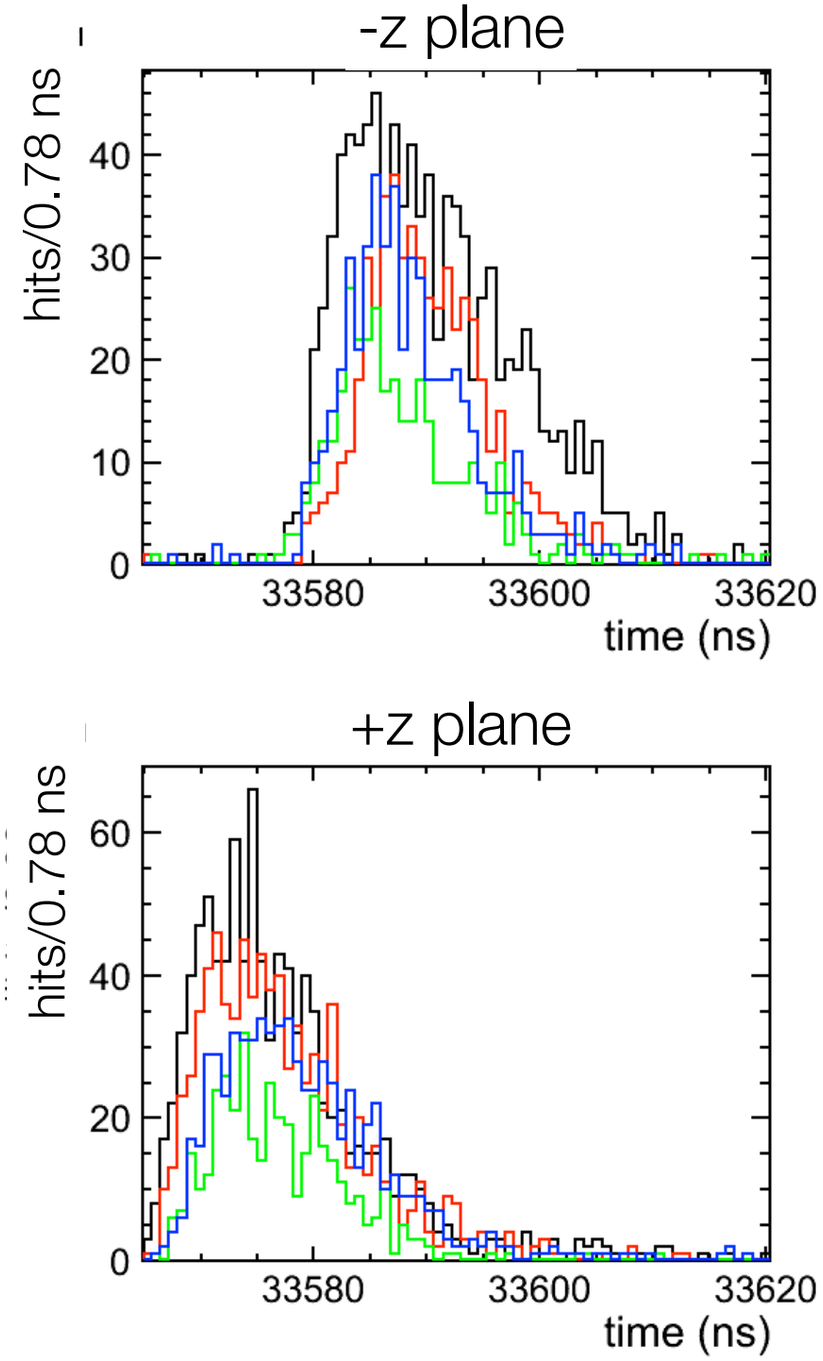
- Comparing my data with Steffen's data shows differences.
  - My data has a small double-peak structure and is shifted with respect to his plot.
  - Looking in the data file I see it is consistent with my plot.
  - Need to cross check with Steffen.





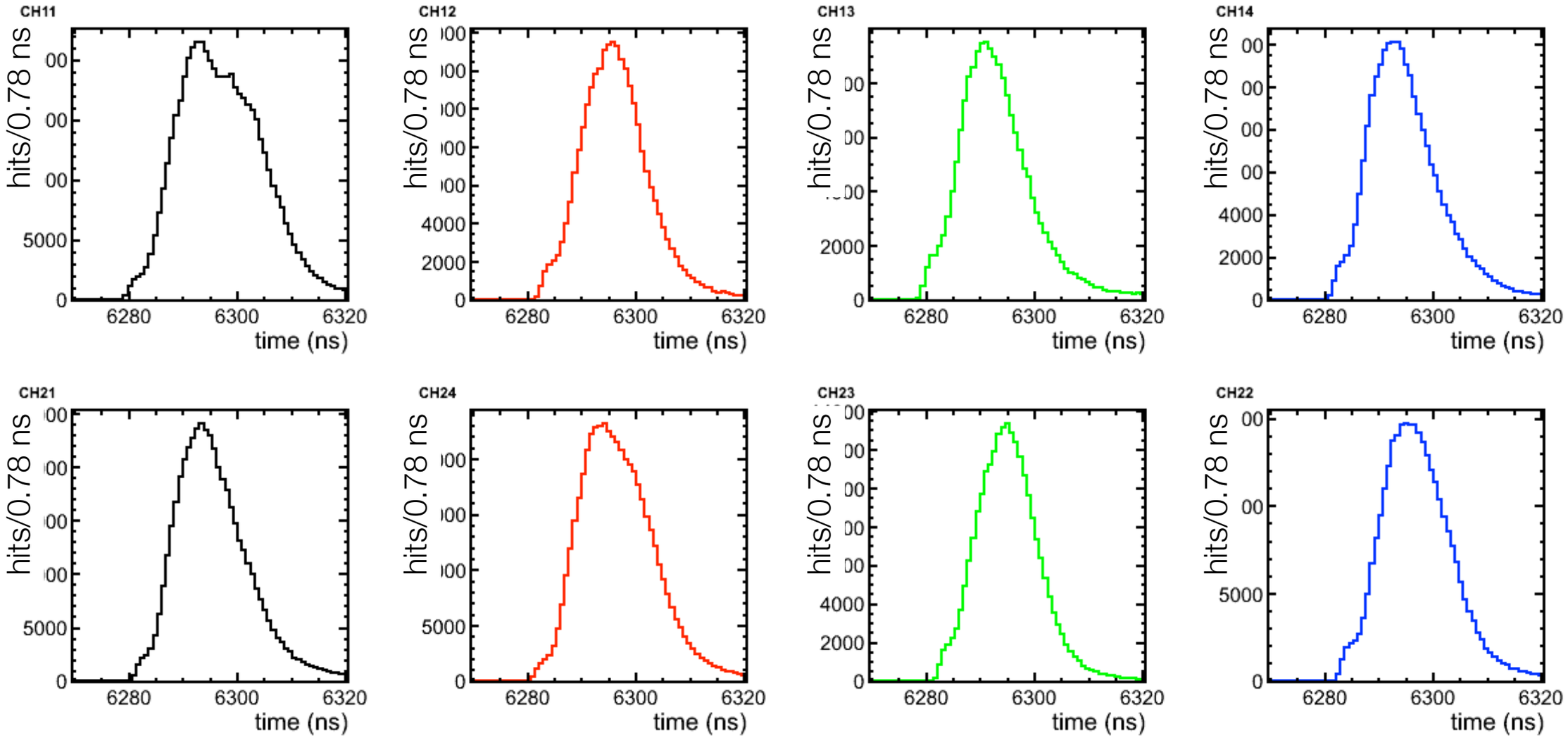
Fill 1225: BX 1092-1095

- Overlaying channels in the same plane.
  - Channel 11, for example has a wider distribution compared to the other channels in the same plane.
  - No significant relative shift of the peak.

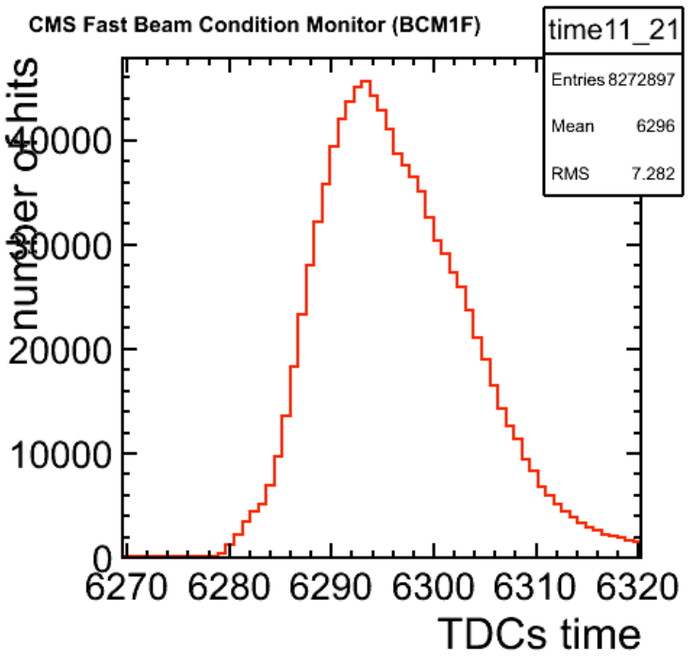


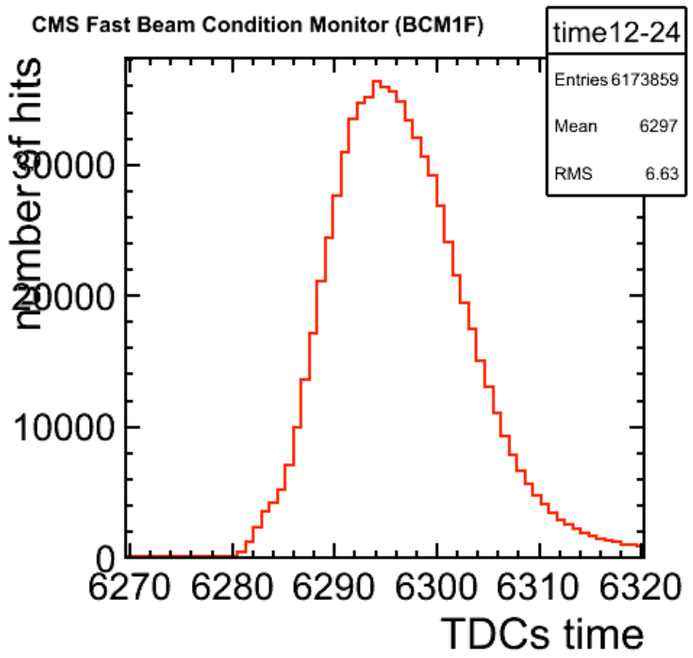
Fill 1225: BX 1

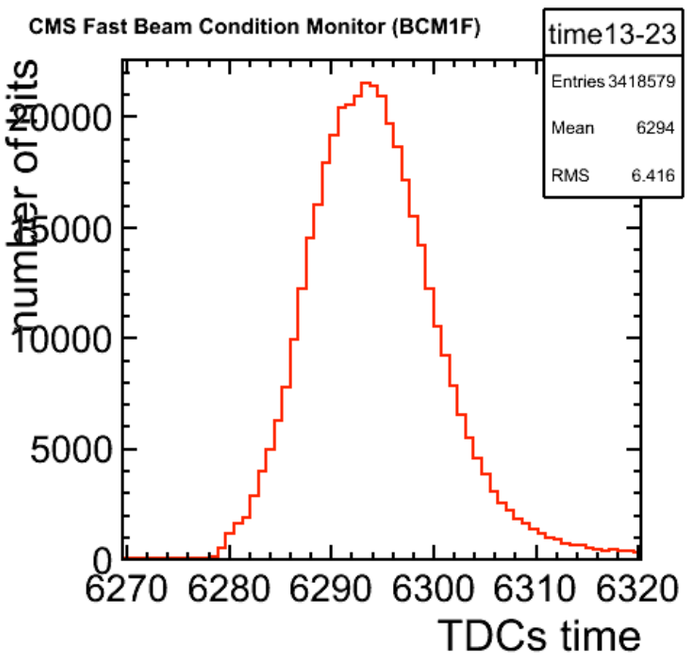
- Colliding bunch

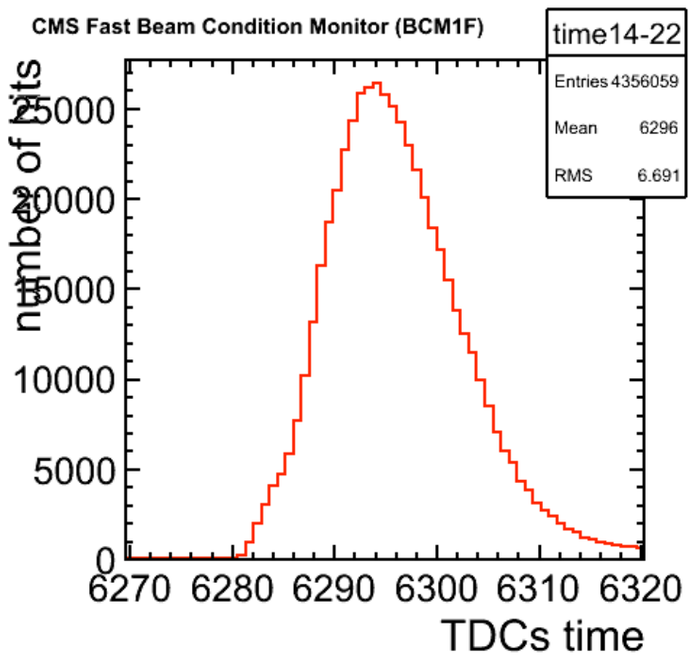


Fill 1225: BX 1





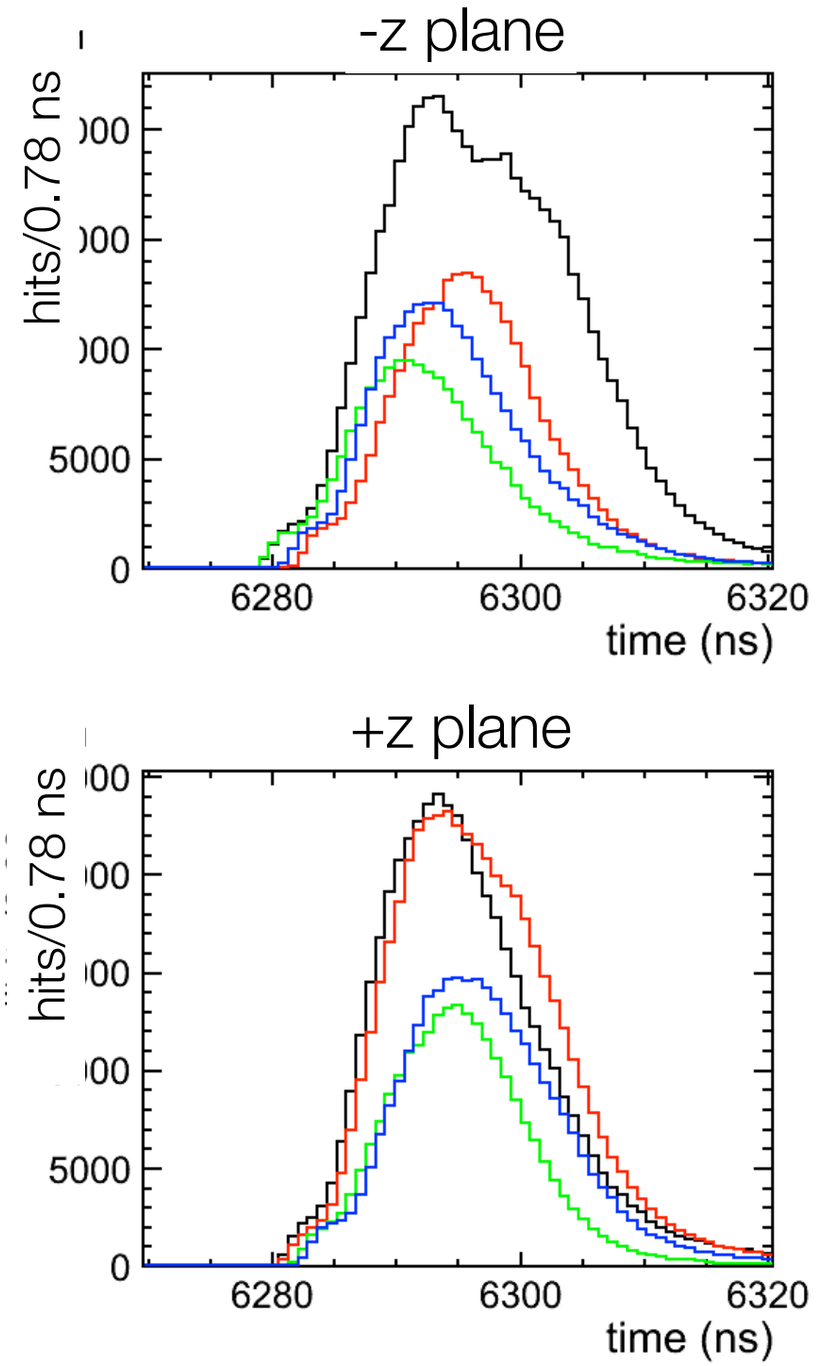




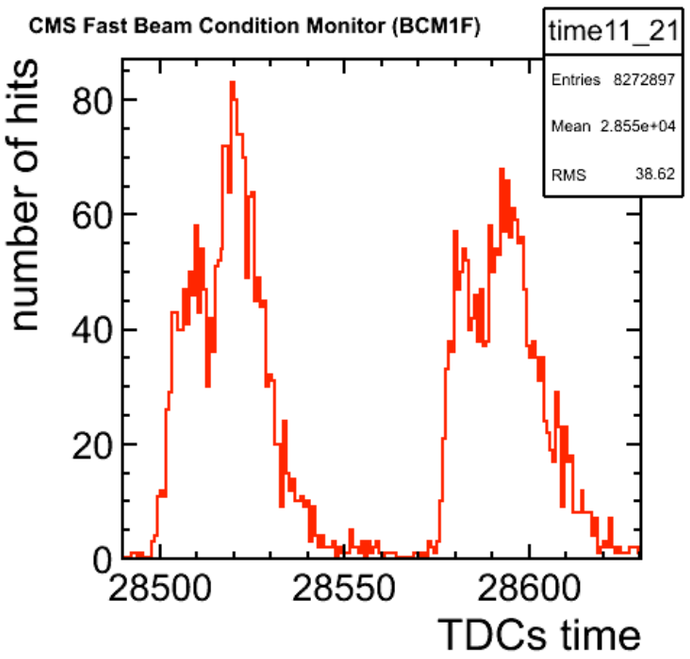
- Bunch #1
  - No clear double-peak structure.

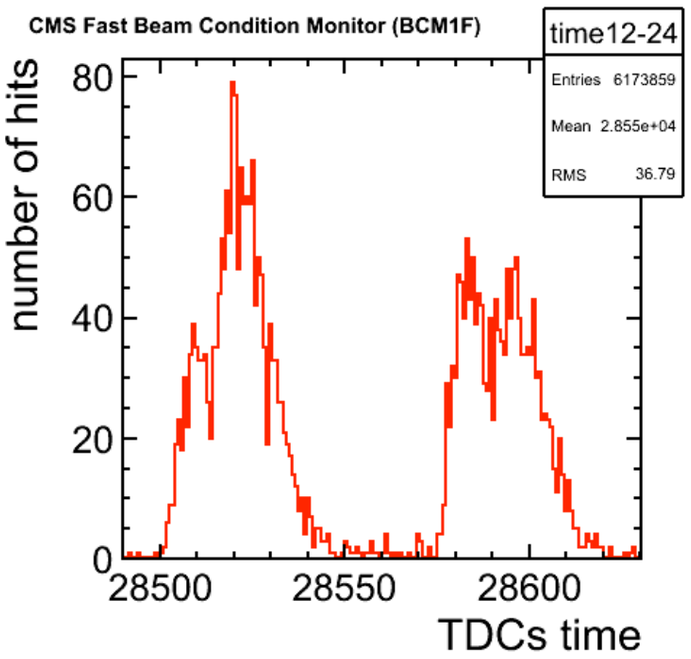
Fill 1225: BX 1

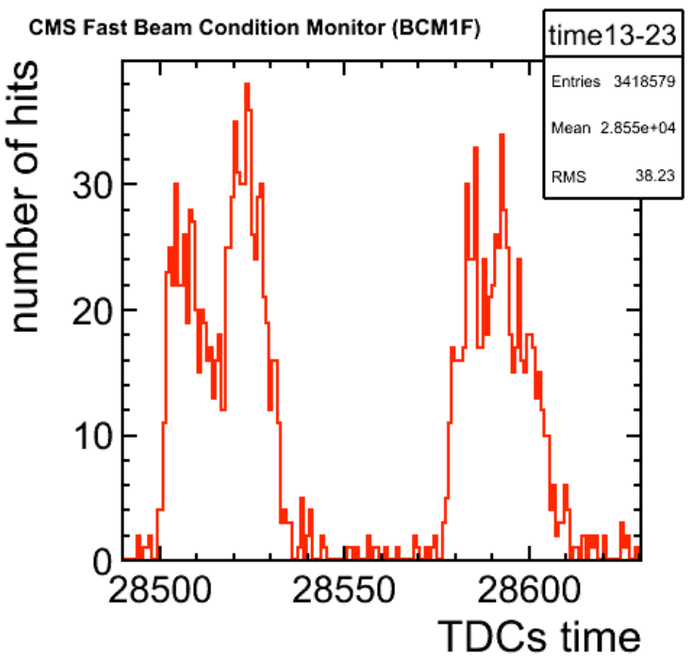
- Overlaying channels in the same plane.
  - Only channel 11 shows some double-peak structure (?)
  - Significant relative shifts of the peak.

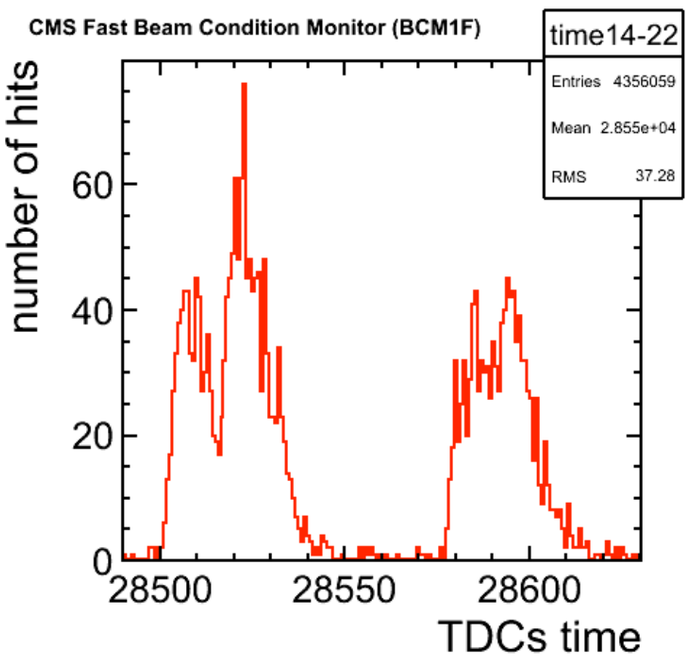


Fill 1225: BX 892-895









- Another example of non-colliding bunches
- Clear double-peak structure in some channels in some bunches...

Outlook

- A double-peak structure is observed in non-colliding bunches.
  - Resolution of double peak is channel dependent and bunch dependent.
- Data in Steffen's plot not consistent with data I obtained, nor with data sent to him.
- Peaks of channels show relative shifts, more in colliding bunches than in non colliding ones. Statistics?
- Still working on coincidences...