

BGI status

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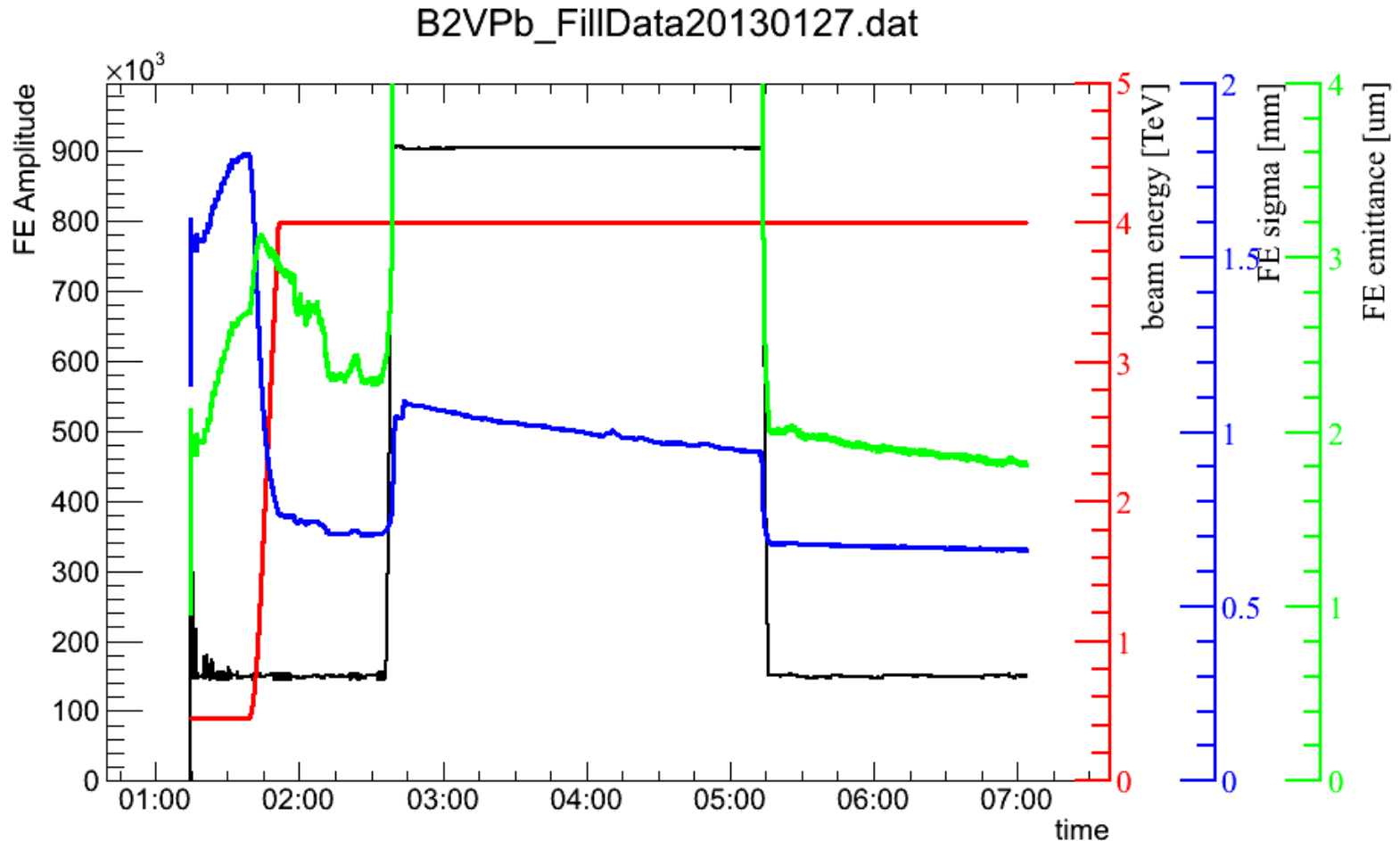
2013/02/06

Emittance Working Group

Run in 2013

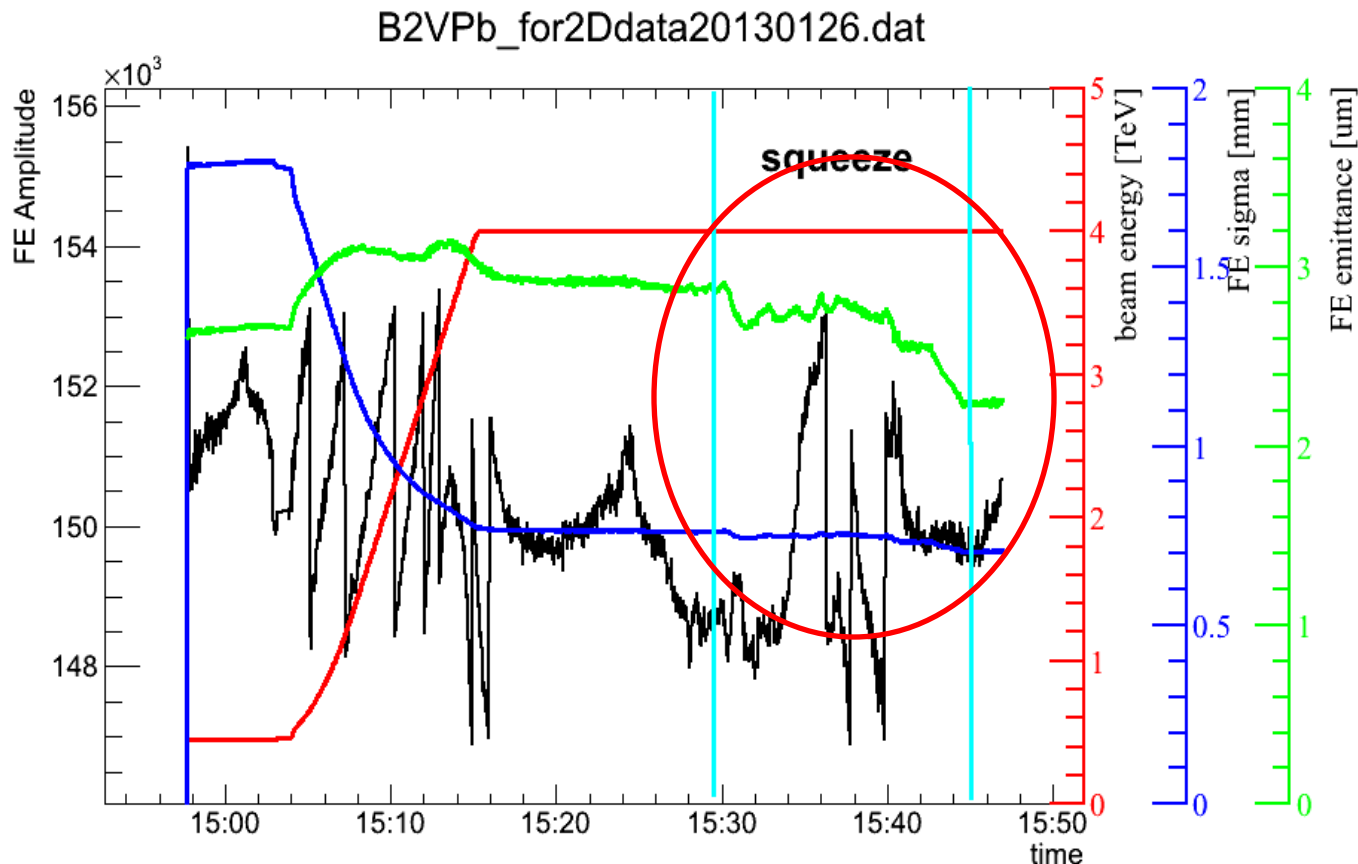
- Ion beam gave nice signal on both detectors on beam 2
- Signal amplitude feedback working stable since January 29th
- After species change (protons in beam 2) there is still a nice signal in vertical detector (but not horizontal)

Example 1: illustration of problem with amplitude feedback



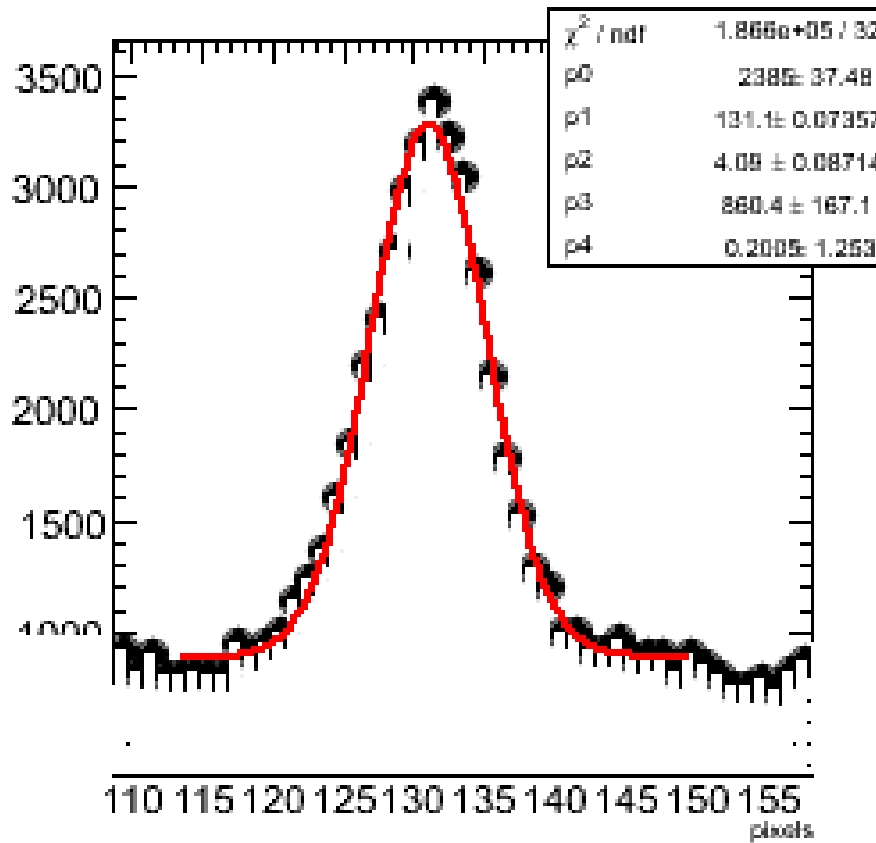
Example 2: what happens during the squeeze?

The corrections/calibration is likely not correct here but
at FT corrections are frozen, so something really happens to the beam.



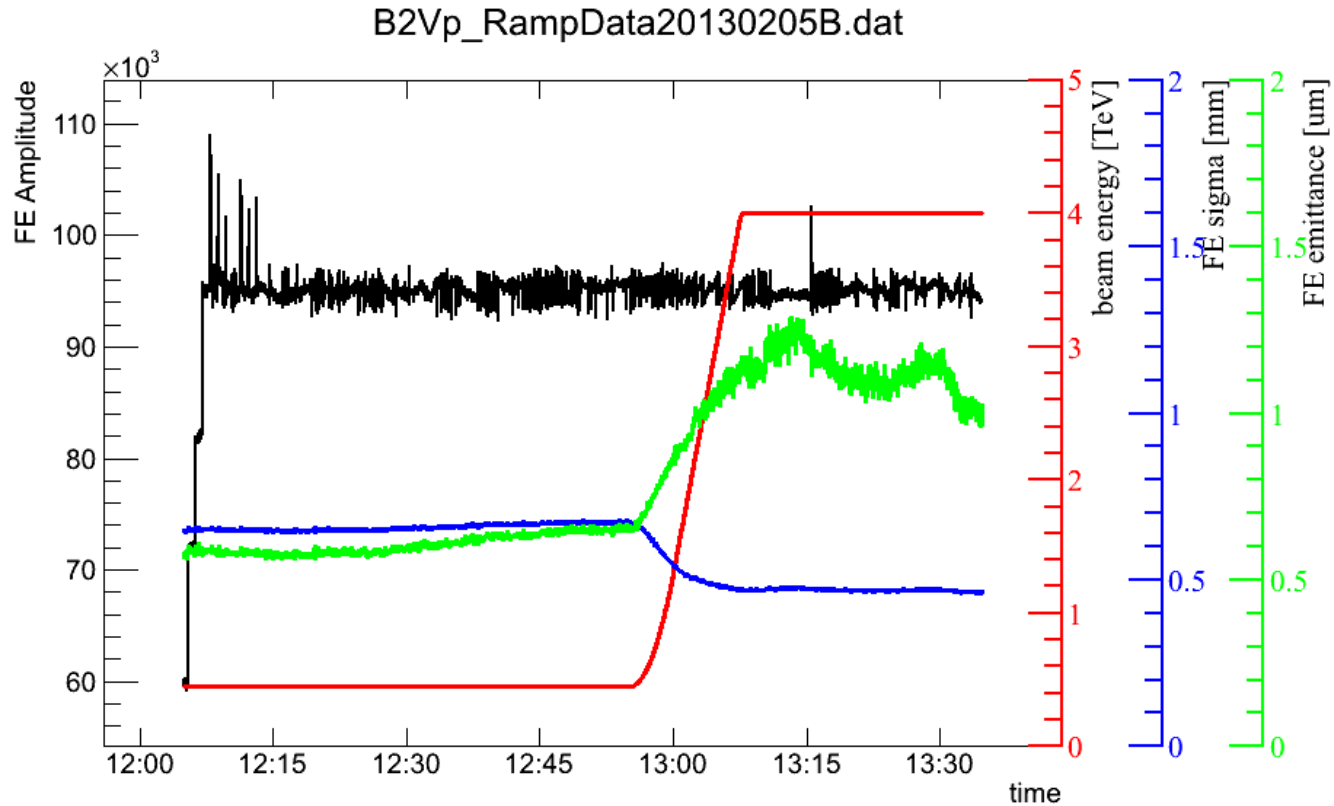
- Optics changes?
- beam oscillations + MCP non-uniformities (enhancement)?

Example 3: proton data



Profile of a proton beam with emittance < 1 μm at 4 TeV.
There is still enough points per pixel.

Example 3: proton data II



Remarks/conclusions

1. I had no time yet to analyze the data in detail, so these are just some flashes.
2. Of course having nonuniform MCP is not helping, but proton data are taken with orbital bump of 1 mm and recalibrated accordingly.
3. What would help:
 - Shorter integration time (now 0.1s, processes happening in ms timescale)
 - Better noise filtering
 - More signal
4. Need to correlate these measurements with other beam parameters
5. Clear correlation with bunch length have been already observed.