IPM status

September 22, 2006

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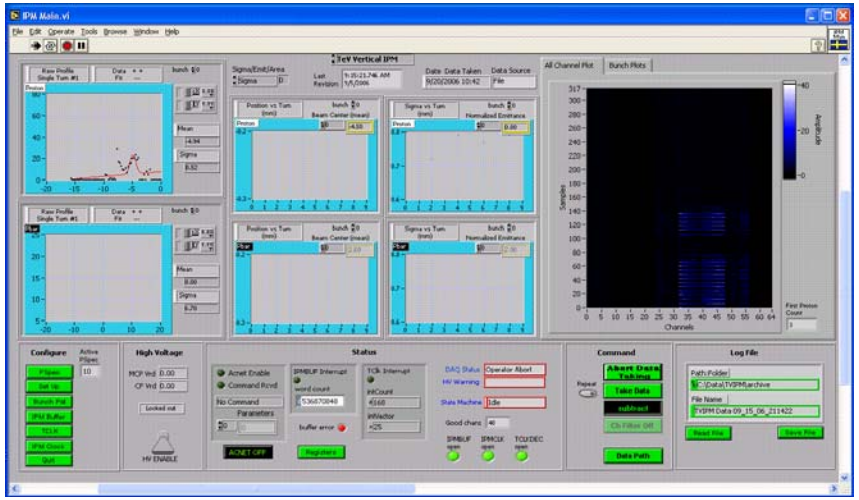
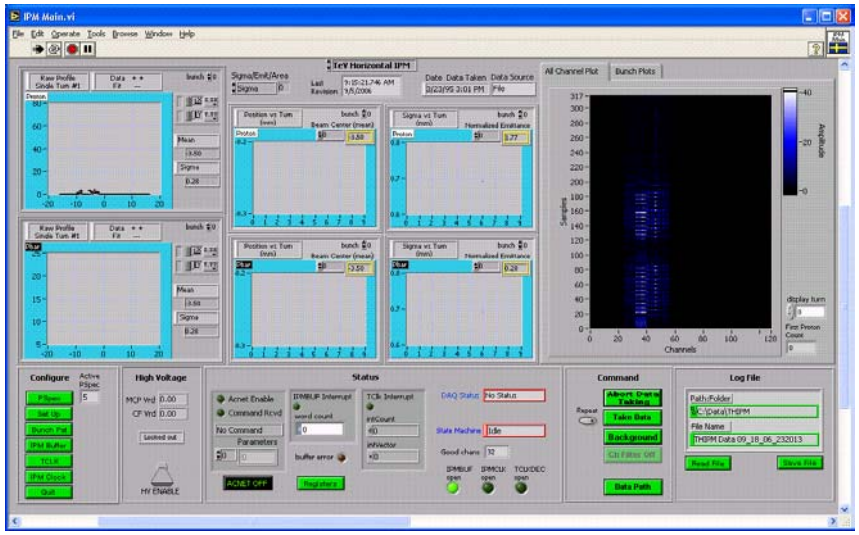
Horizontal IPM

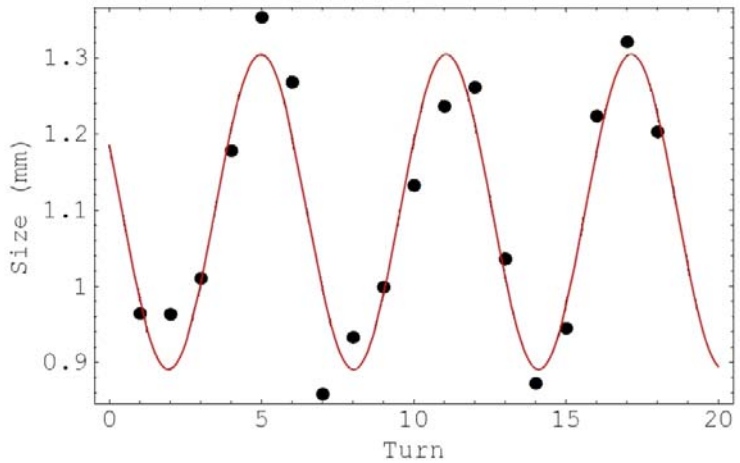
NB. REAL DATA!

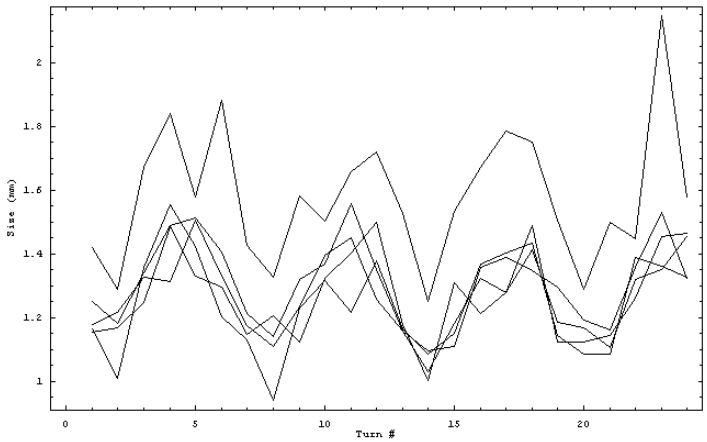
- Both IPMs now have new software and firmware.
- Software/Firmware still being improved.
- Vertical IPM works pretty well.
- Horizontal IPM has some hardware problems (one dead FE board, one FE board with a sync problem, several broken channels) that require an access.





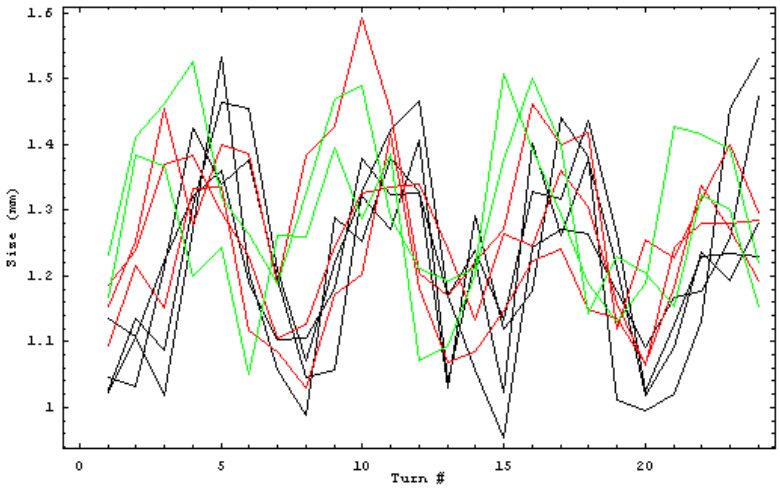
A closer look at the mismatch

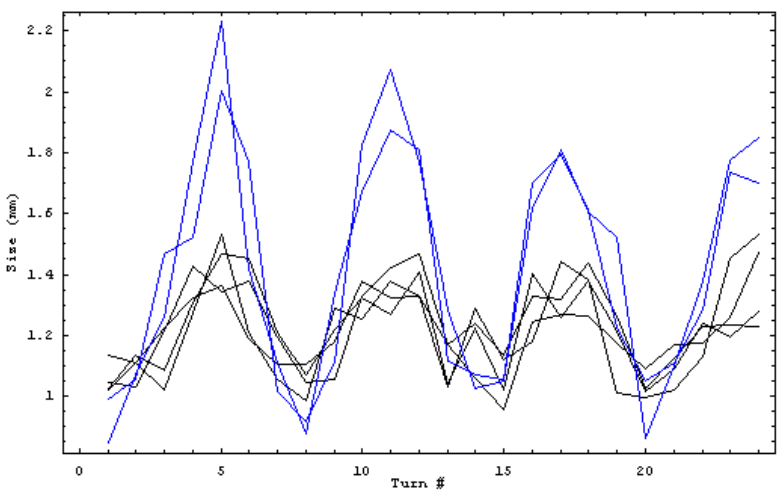




- First measurements early summer indicated ~20% beam size oscillation amplitude (~40% beta mismatch).
- Measurements on Monday September 18 showed consistent mismatch.

Transfer tuning study



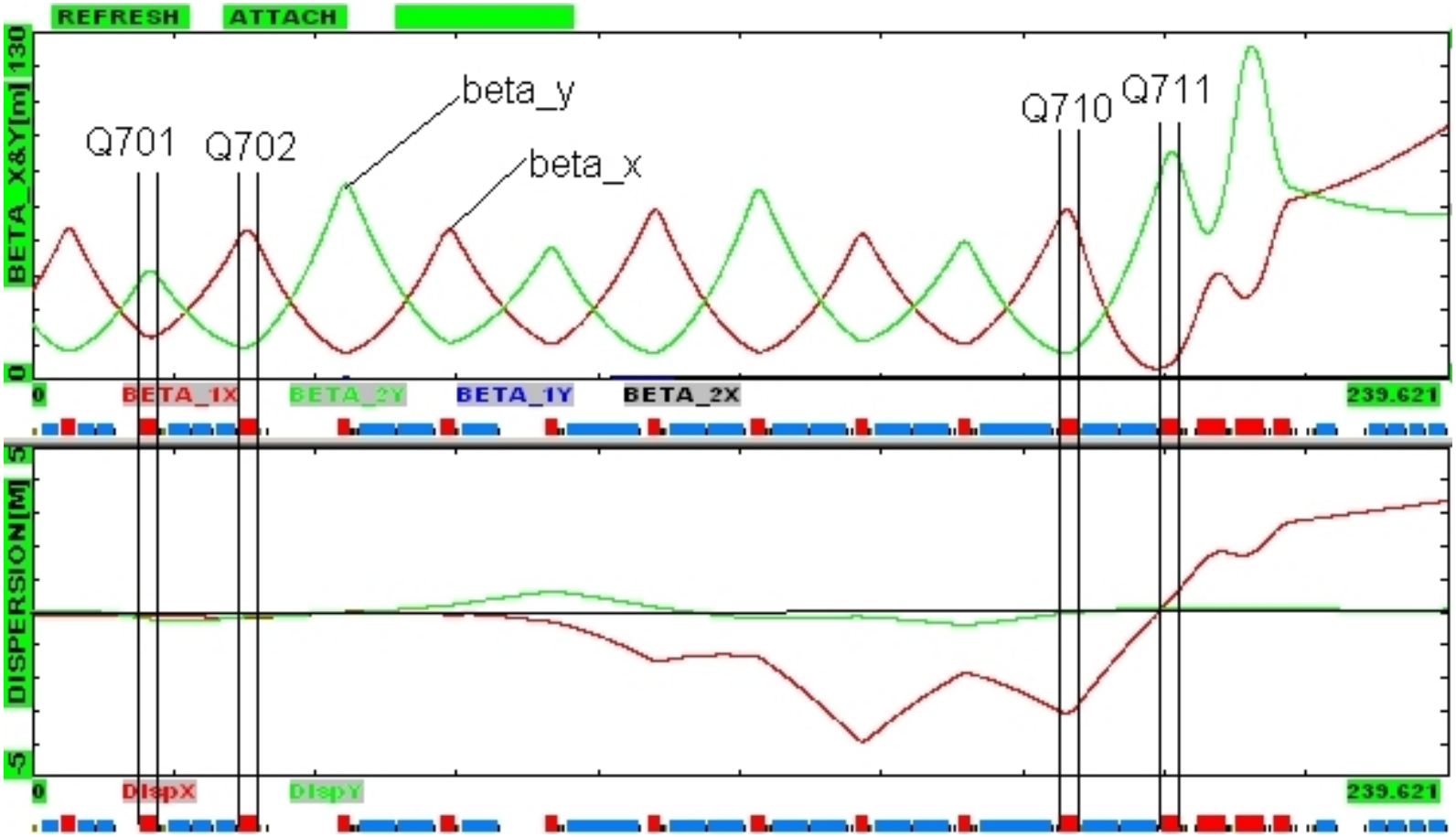


- September 20th: changed selected x-fer line quads

- Nominal settings
- Q701 at -22A
- Q701 at -42A
- Q711 at -25A

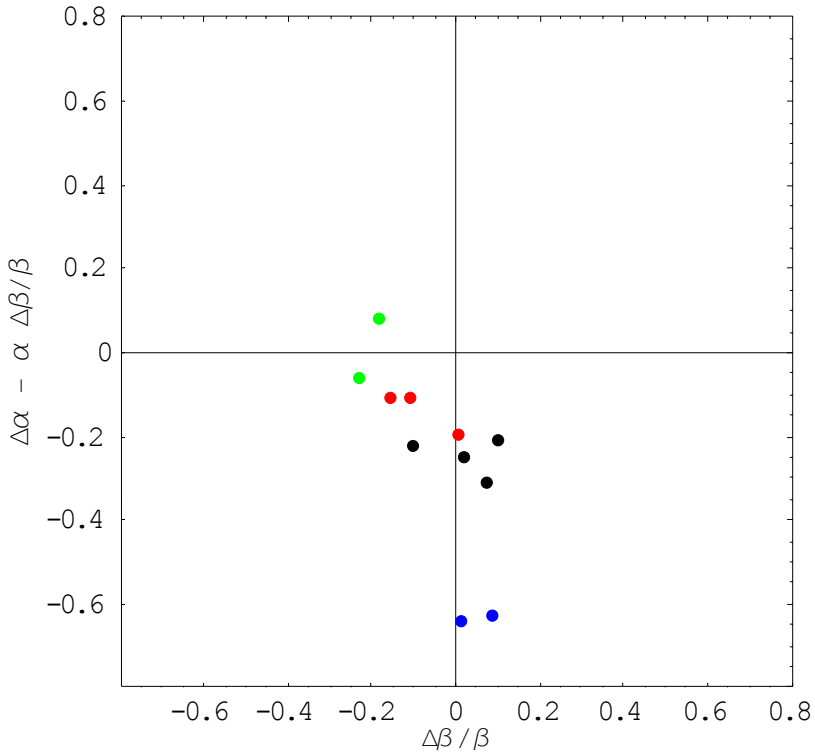
NB. Q711 was found to steer the beam significantly

P150 transfer line



Plot from M. Berdnikov

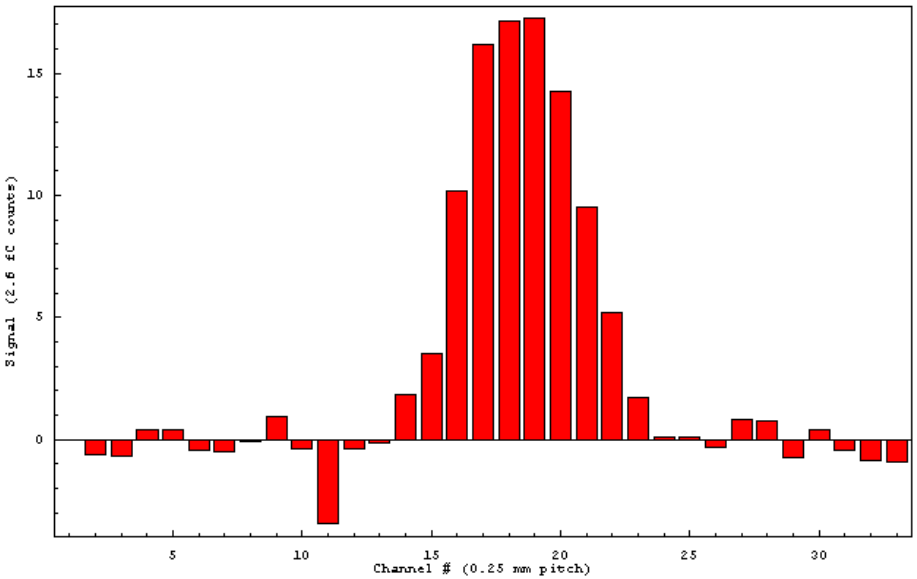
Measured mismatch vectors



- Nominal settings
- Q701 at -22A
- Q701 at -42A
- Q711 at -25A

- Need to increase Q711 by ~15A (saturation?)
- Should result in 5-10% smaller vertical emittance
- Should have very little effect on horizontal plane.

A first look at pbars



(average over 40 turns)

- Measurements during store 4963 on Tuesday September 19th: First look at circulating pbars!!!

Conclusions

- See vertical mismatch. Can be corrected using Q711 (need study time). Should give 5-10% smaller vertical proton emittance.
- Horizontal data not very clean due to hardware problems. First indications are that any mismatch is small, though.
- Saw coasting pbars (averaged data)
- Pbar mismatch measurements may need higher vacuum pressure. Will try.