



E-lens related beam-beam experiment

05/20/2015

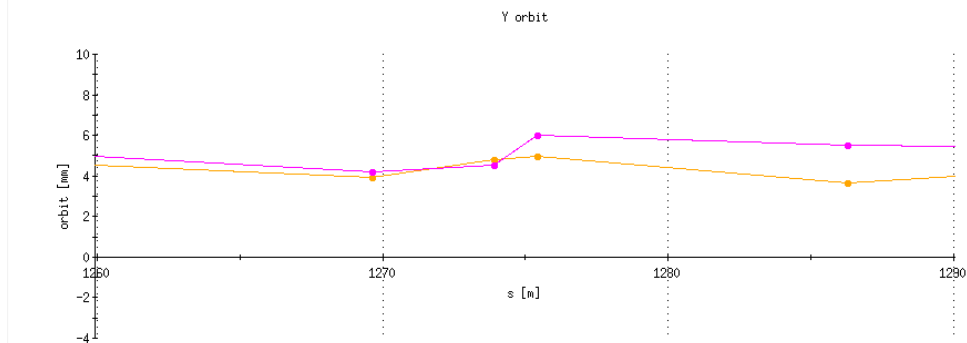
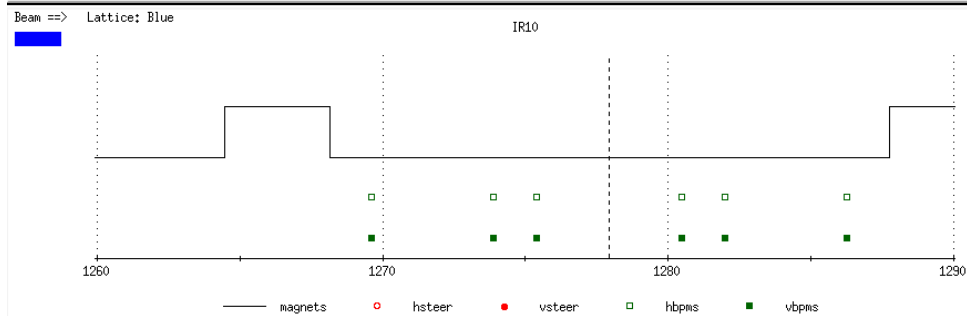
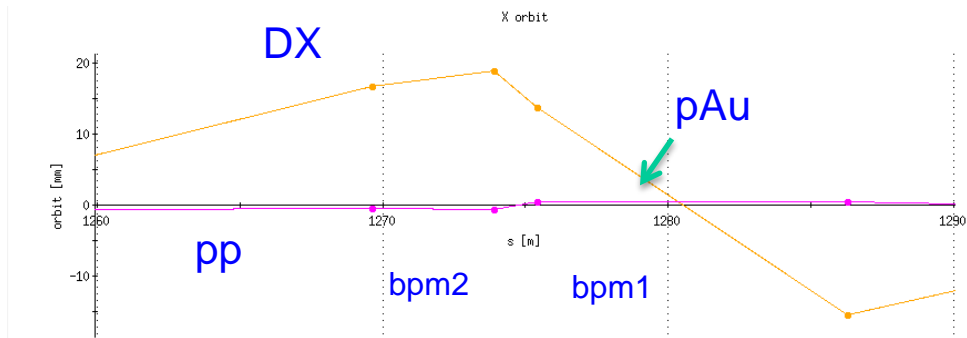
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a passion for discovery



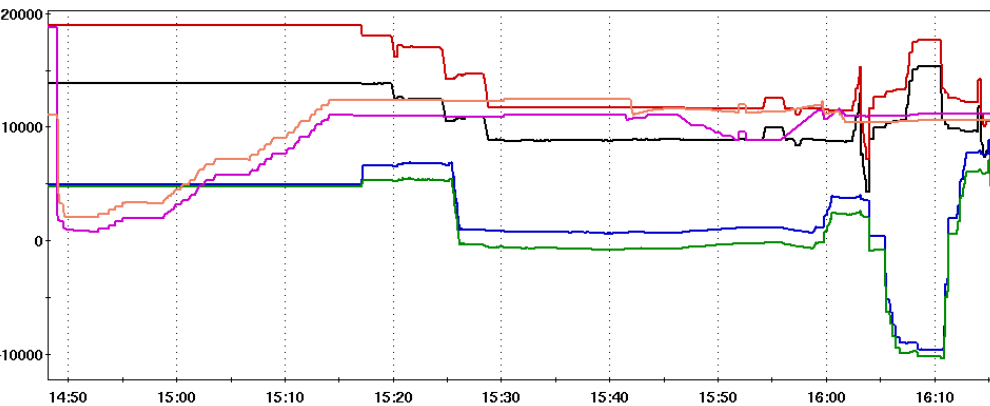
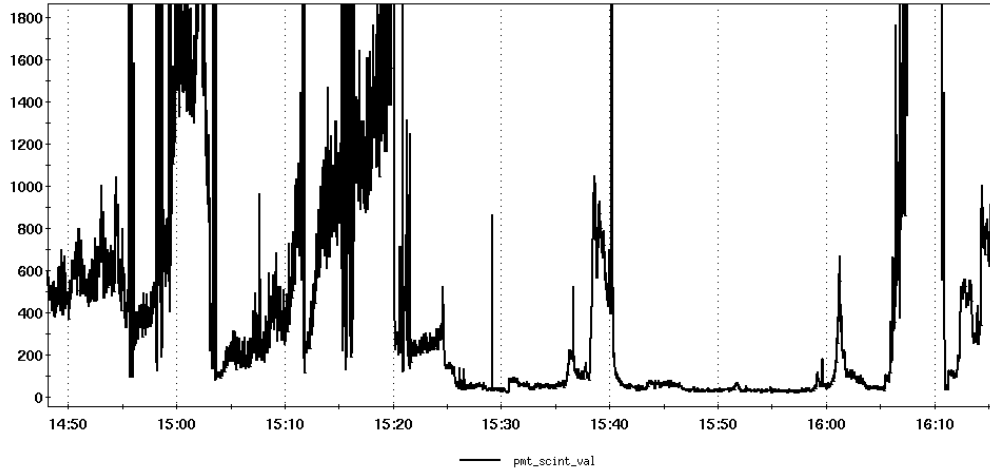
Orbit different between pp and pAu



1. DX bpm reading = 1.8 mrad
2. Elens bpm reading = 3.4 mrad
3. Design = 4.2 mrad
4. The discussion below: Two e-lens bpm are used. They can give e-beam and p-beam position reading.
5. pAu run and pp run have different sign of proton beam angle.



Experiment Procedure:



14:28 Started

14:40 Ramp Warm Solenoid

14:50~15:15 Change e-Beam Position

15:15~15:28 Change p-beam angle

15:27 Removed vertical bump

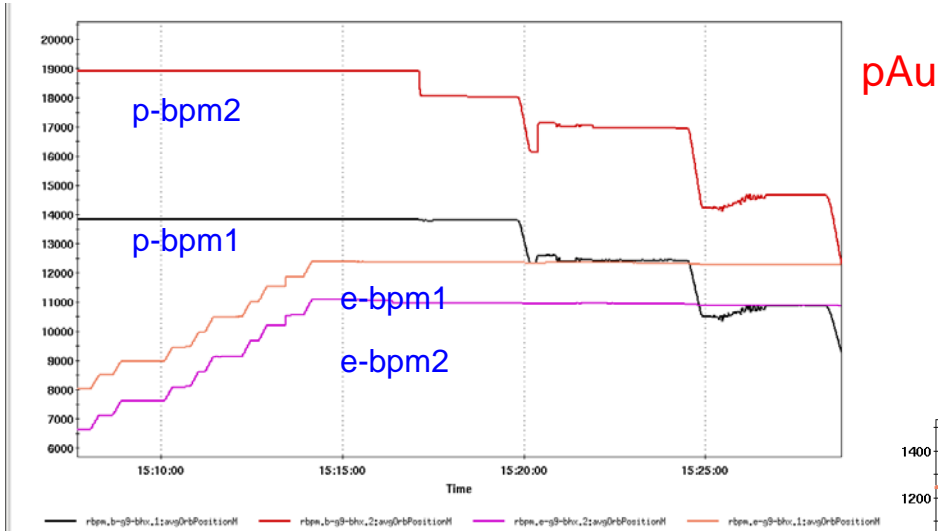
15:30~15:55 Change e-beam angle

16:00 move p-beam position vis Lias

16:20 Lost beam

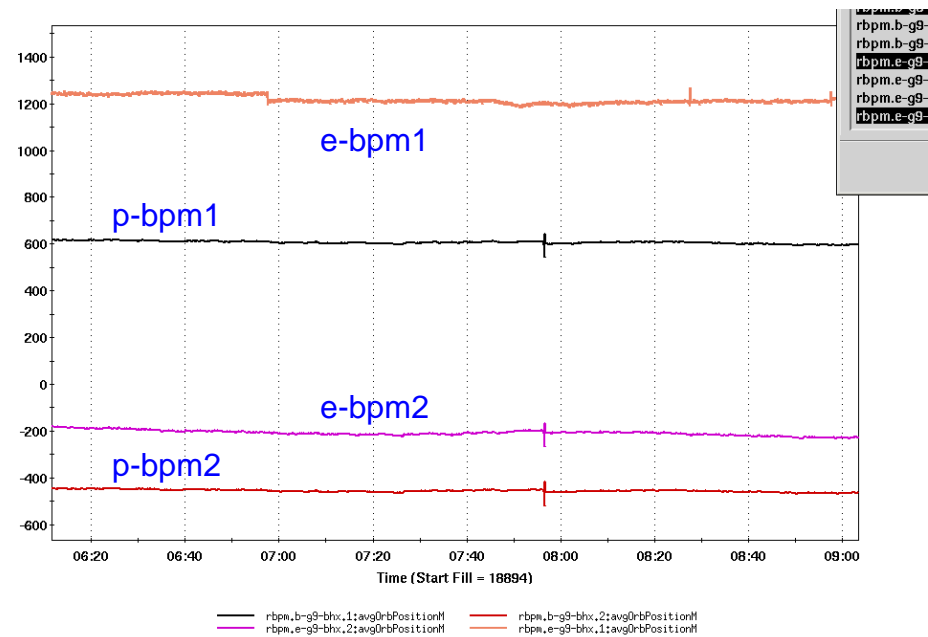


Angle



1. pAu run and pp run have different sign of proton beam angle.
2. Electron beam angle was 0.85 mrad and -0.53 mrad with 45A current. 1.38 mrad vs 1.5 mrad (6mT/4T)
3. Proton angle is reduced from 4.2 mrad to 2.5 mrad.

pp



Findings:

1. e-beam has different initial angle (0.85 mrad) with p-beam angle (-2.4 mrad after reduce proton beam angle). This is different from previous pp run. Finally, we only get -0.53 mrad with 45 A long corrector.
2. p-beam should keep 5 mm vertical bump
3. short corrector 3 didn't accept setpoint. Short corrector 5 accept setpoint and change both two bpm offset.
4. reducing **GSB current** from 700 A to 320 A can move e-beam to from 0 +10 mm and don't need to change csx.
5. **Lisa** still moves **proton beam position** from -10 mm to 10 mm vertically and horizontally from 15mm to 5 mm at least.
6. Move position first, then angle.
7. Injection or store (more eBSD signal?)
8. **Plan:** move e-beam angle during next Wednesday and save setting.



