S* Control at IP8

Yue, GRD, Al, Yun, Simon, Zhe, Mei

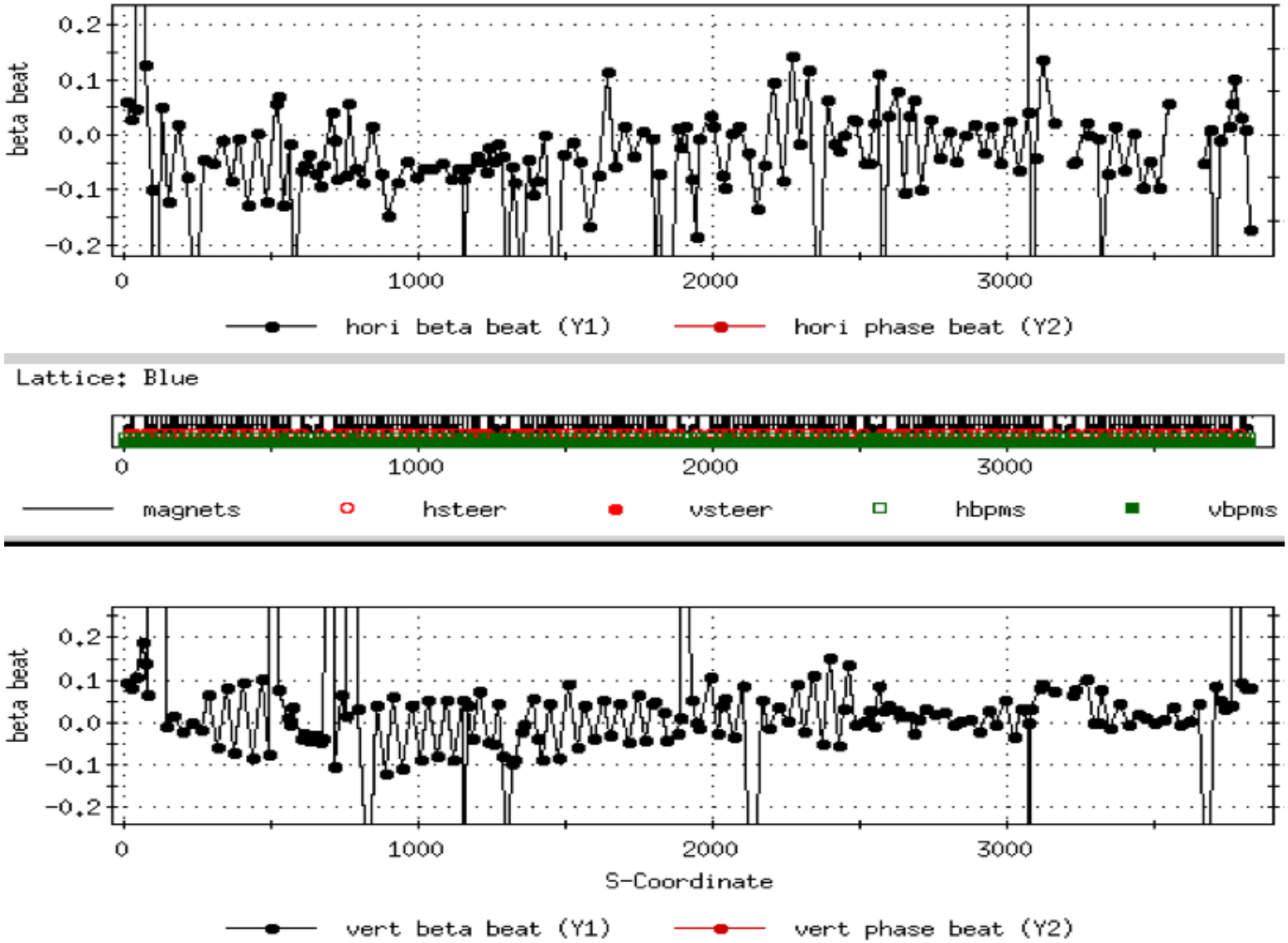
Summary of What was done

S*Control

- Linear Optics Correction at Au14-s0::store(beta*0.7m)
  - by GRD, to keep the beta-beat under +- 10%
- Scanned V s* shift at IP8, requested shifts are +-0.3m and +-0.45m
  - Took both bpm based measurements(loptics) as well as Yun's k -modulation
  - Loptics shows V s* shift without significant H s* shift as observed in previous APEX study. Results are on slide 6
- Requested H s* shift at IP8 of +0.45m and -0.35m
  - Similar results
  - No k-modulation measurements taken

Loptics Optics Correction

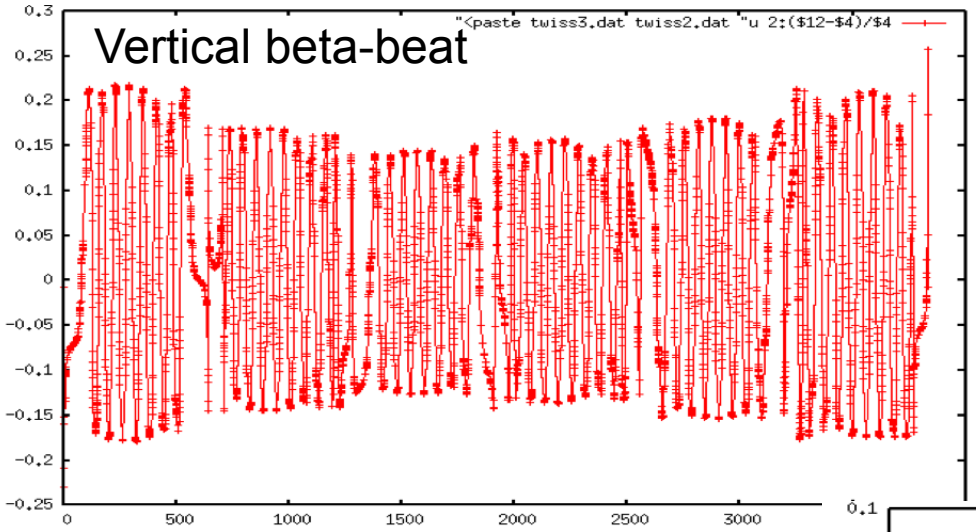
S*Control



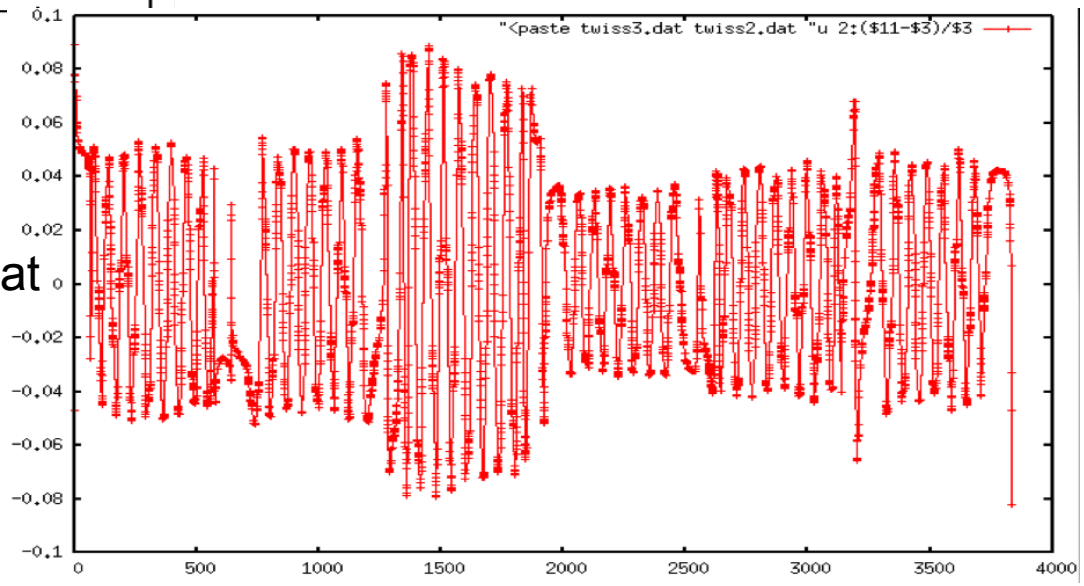
s*control sensitivity to beta-beat

S*Control

- Generate beta-beat with random gradient errors in the model



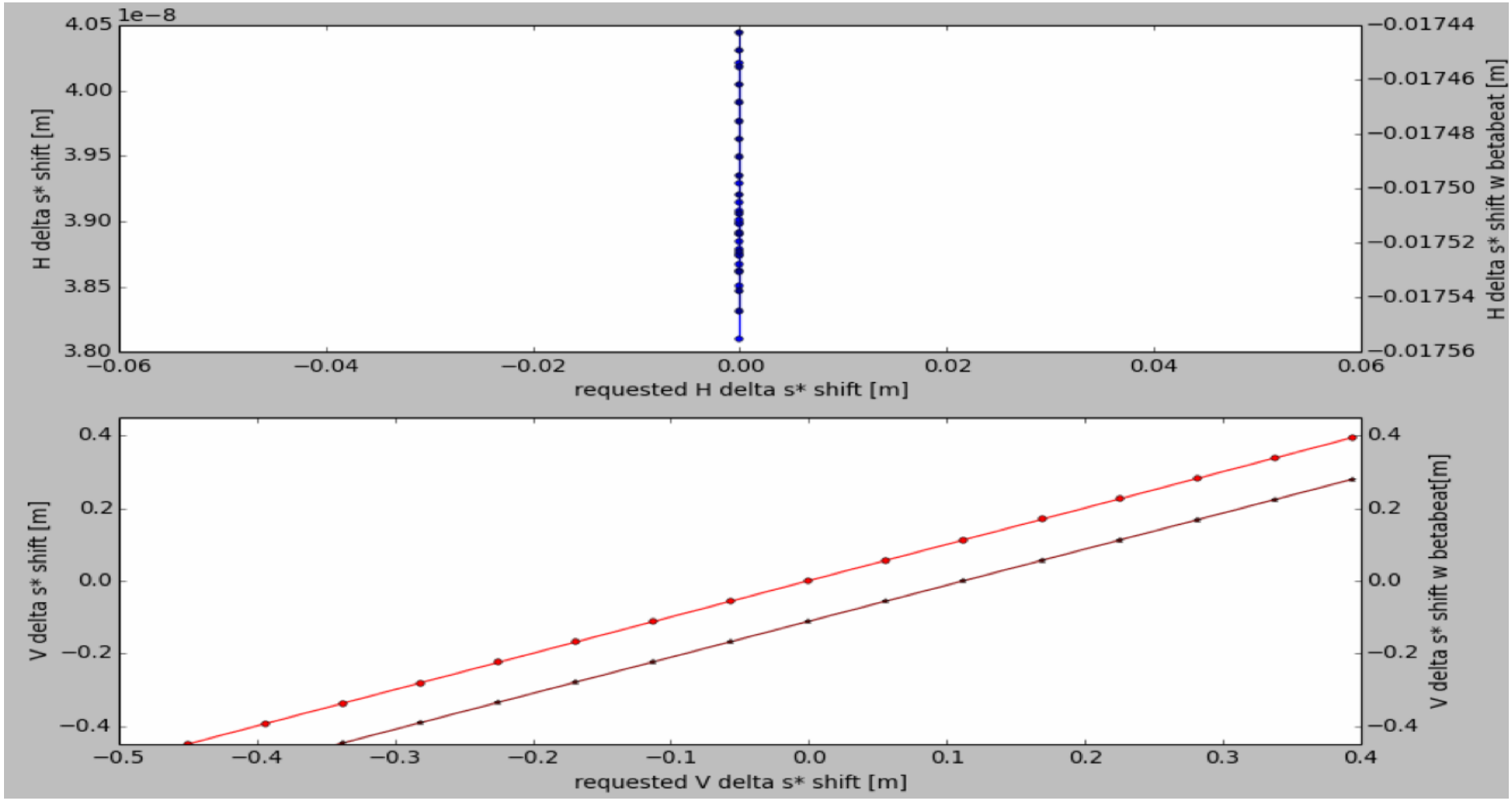
Horizontal beta-beat



s*control sensitivity to beta-beat

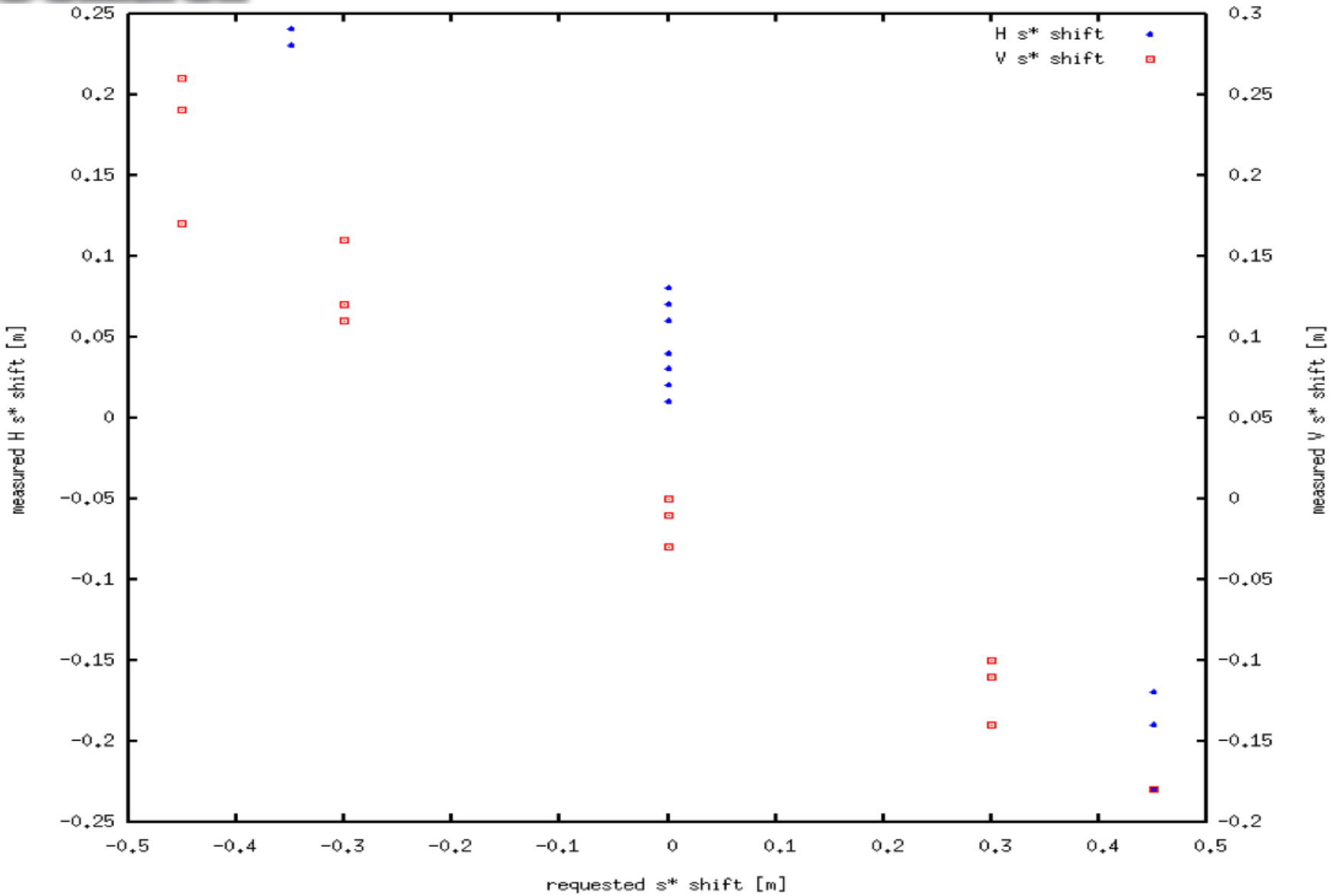
S*Control

- Beta-beat effect on S* knob



s*control study preliminary results

S*Control



Conclusion and Plan

S*Control

- Conclusions
  - We are convinced that a well corrected optics, i.e. minimize the difference between live machine and model is critical in model based s* control
  - Still needs to understand k-modulation data
- Plan for next APEX
  - Further correct loptics
  - Exam the s* control using lumi-monitor