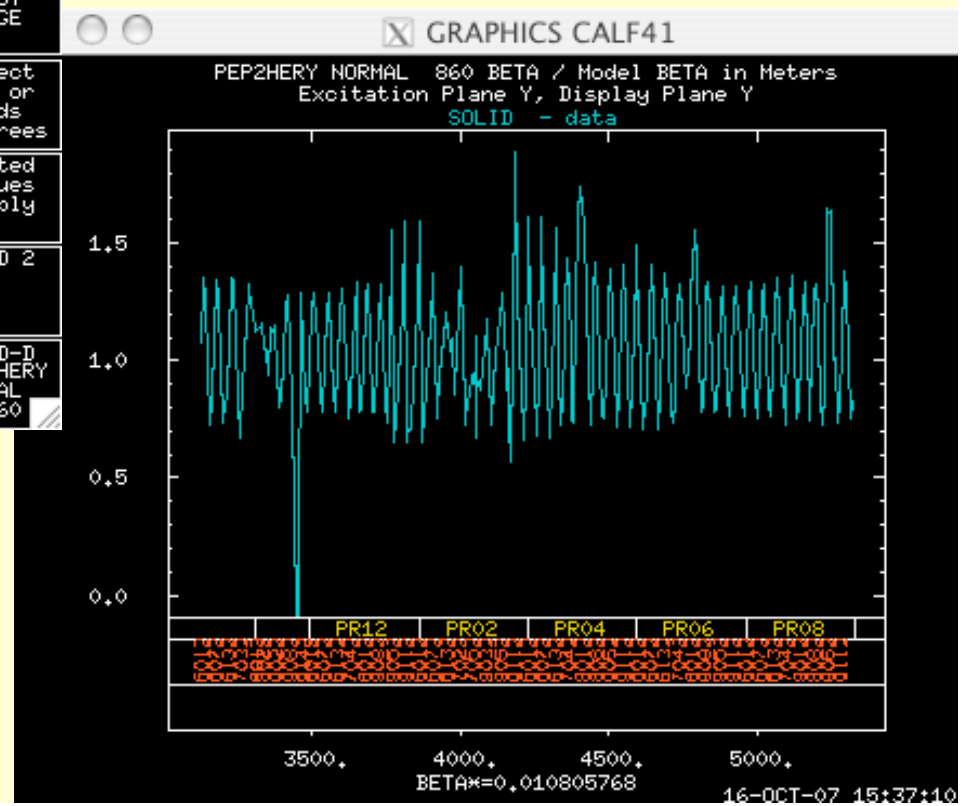
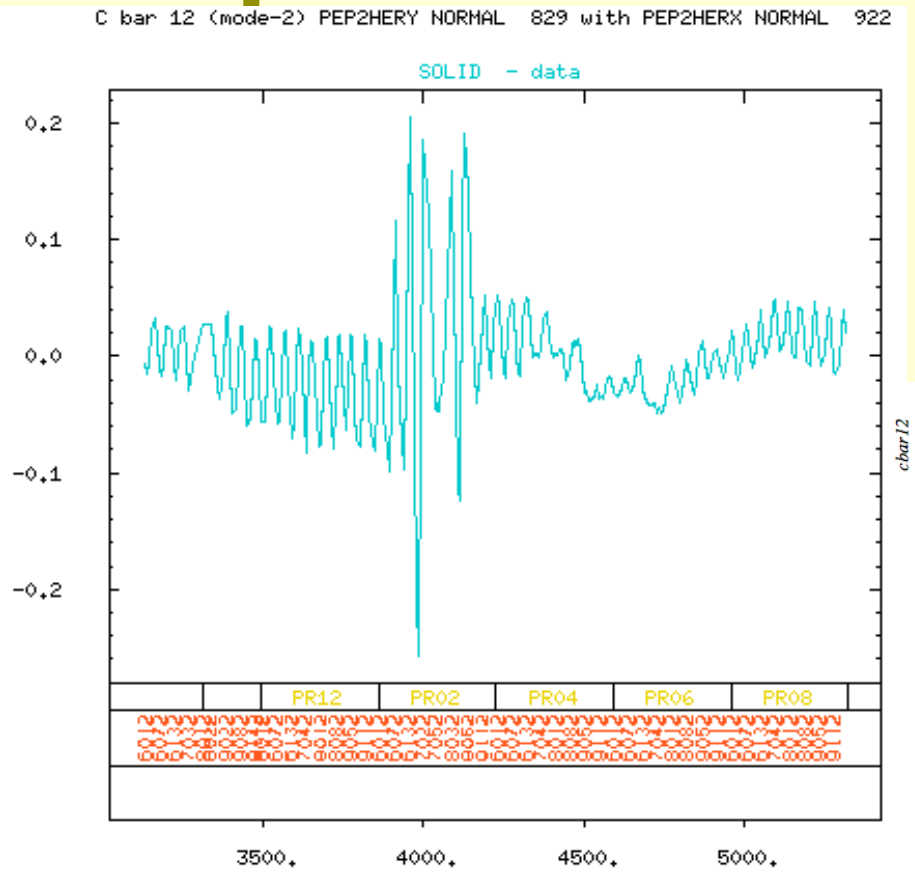
Analysis of Phase-Advance Data

- At PEP-II, phase-advance data is used routinely to assess state of the optics (β beat, coupling)
  - Turn-by-turn, 1024 turns, for each BPM
  - Phase and amplitude extraction in RInQ BPM processors.
  - Extract β functions by comparison with model
- LHC will have an AC Dipole & can take similar data
- The tricky part:
  - Dealing with 90°/cell (per BPM) phase advance (Wienands et al., EPAC 2002)
  - Dealing with imperfect data (noise, non-reading BPM, ...)
- At PEP-II this is packaged in the online system
  - Fortran/C, Oktave (Matlab) prototype exists also.

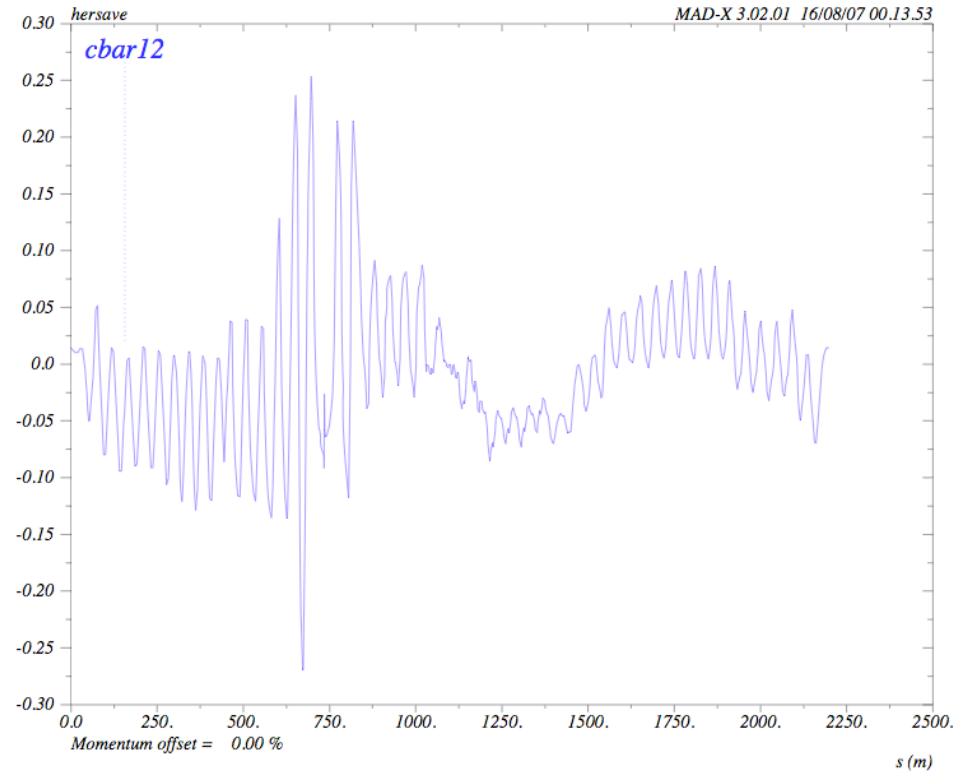
Phase-Advance Panel & Data



Use Data to Match Machine Model



Machine MODEL



Phase Advance Data

U. Wienands (W.Wittmer), SLAC-PEP-II
LARP CM#9, 18-Oct-07

Proposal

- Visit (in FY08) to CERN by Wittmer
  - Explore possibility of bringing our software to LHC
  - Explore possibility of collaborating with Fartoukh & Tomas to apply their methods to PEP-II
- $3k in FY08 for this visit
- Follow-on Request for FY09 to be presented at next CM.
  - Actual software port & installation.
- BNL / Fermilab has an AC-Dipole effort in LARP. We would like to explore joining with them.