The HERA polarimeters

status report

- The TPOL
- The LPOL cavity
- The LPOL (talk by HERMES)

The TPOL

- Operation in 2003/2004: good stability.
- Constant small improvements, mostly invisible to the outside (e.g. offline recovery of malfunctioning oracle server)
- Online measurements are avaiable from three sources:
  - TPOL online server (TPOL monitor, H1/HERMES client, oracle client)
  - TPOL NETMEX server (HERA WWW page, machine archive)
  - ORACLE data base (analysis by HERMES, H1, ZEUS)

The TPOL (continued) Offline activities: how to get an absolute calibration of the TPOL?

Main source of problem: vertical beam size at TPOl IP has changed vs HERA I and varies from fill to fill.

Analysis approaches

- Monte Carlo studies (Vahagn Gharibyan): well advanced, will be ready for the summer conferences. Independent calibration of the TPOL. Expect systematic uncertainties of order 3%
- Offline analysis with/without Silicon detector (Osamu Ota, Stefan Schmitt): first results look encouraging, but many things are not yet under control $\rightarrow$ large systematic uncertainties 10%, but results are compatible to Monte Carlo studies
- Dedicated Silicon analysis (Catherine Fry): online-monitoring of beam parameters under development. Hope to have per-minute measurement of beam ellipsis by the end of this year.

TPOL calibration

Accuracy lilmited by old risetime calibration and MC extrapolation

Rise–time calibration 1997 Focus 0.45 mm at HERA I → MC studies: Converter plate Focus dependence 0.45–0.65 mm → Correction Function for Online measurements **READY**

Offline analysis: multi–parameter fit Main uncertainty: eta–y transformation ⇢ Correction Function for Online measurements **NOT READY**

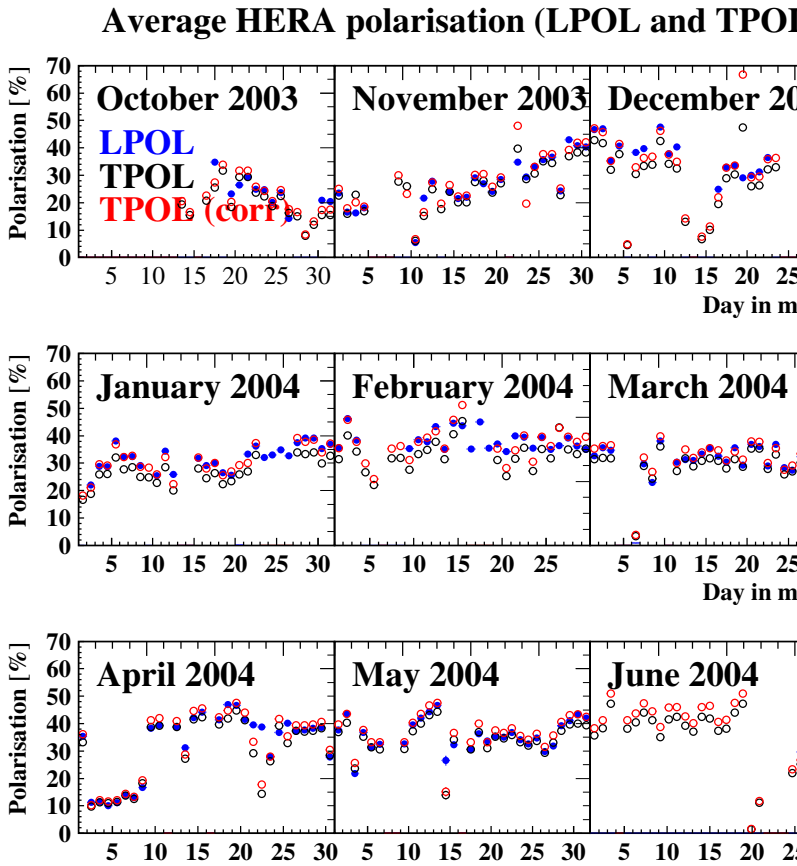
Silicon detector: eta–y transformation converted photons ↑

Complex analytical description

Chi–square not yet satisfactory

Stand–alone fit of eta–y not compatible with results from silicon analysis

Expect improvements in the future



Corrected TPOL and LPOL in agreement. Short writeup by this week.

Provide calibrated online measurements after shutdown.

The LPOL cavity

- Install electronics in radiation-save locations this summer. Use more radiation-hard electronics where possible.
- Commision polarisation measurement this winter.
- New calorimeter early next year.

Conclusions and plans

- Polarimeters in 2004: expect systematic error of order $2 - 3\%$
- Polarimeters after shutdown: expect to have LPOL cavity early next year, continue to operate existing polarimeters