Stefan Schmitt
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Polarimeter meeting

HERA transverse polarimeter

Online DAQ and monitoring: status report

- Monitoring and Run Control
- Examples of operating the TPOL DAQ
- Summary

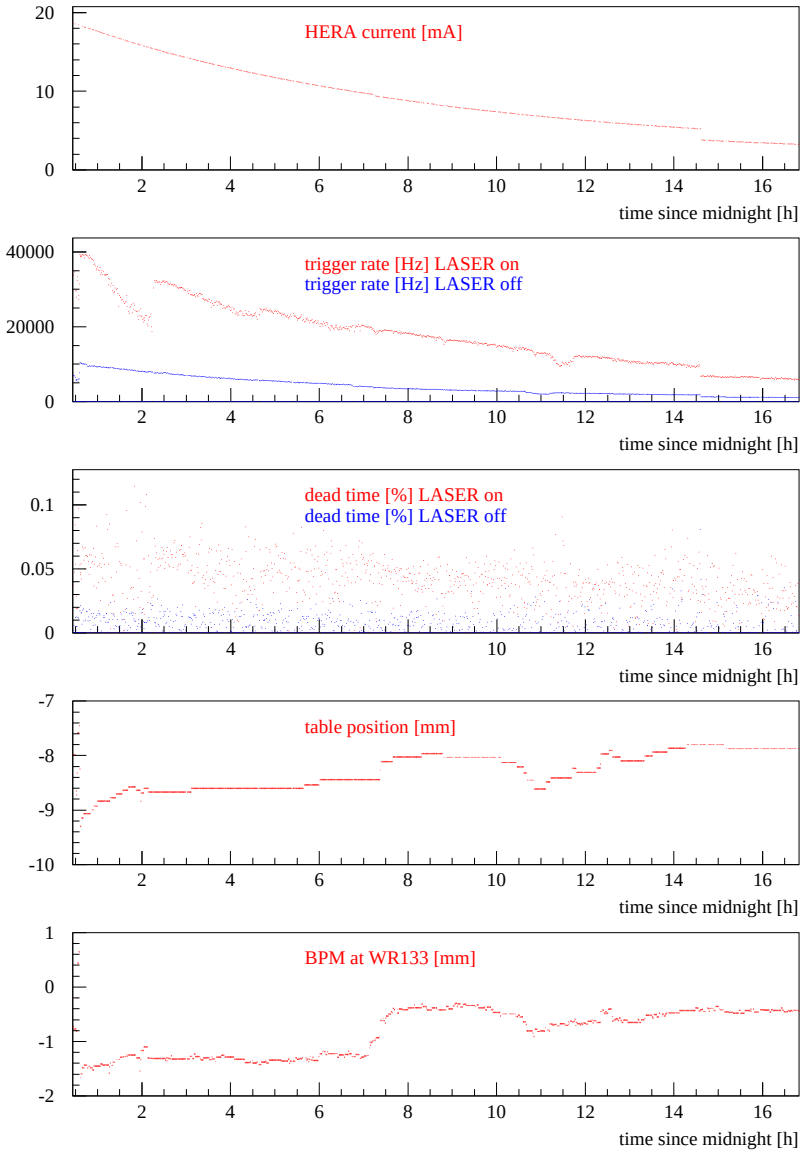
Monitoring and Run Control

- Please look at the TPOL WWW server
  `http://pctpol03.desy.de/`
- All tools for non-experts and "normal" Run-Control shifts are there
  - The **TpolMonitor**
    for online monitoring and run-control
  - online histograms
  - Documentation about the TpolMonitor
  - Documentation about operating the TPOL
  - Expert list and phone numbers
- Everyone interested, please have a look
- Need to define shift duties for the "polarimeter responsible experiment"

Performance of the new TPOL DAQ

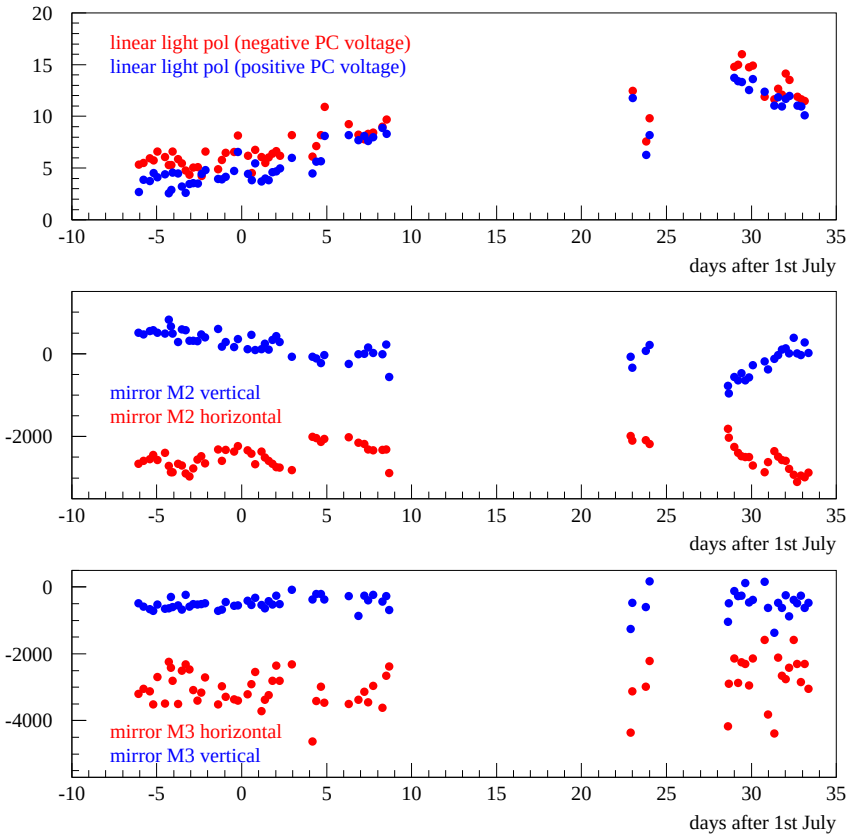
- TPOL is operated routinely, collecting data with zero polarisation
- Fast DAQ shows no problems, but has not yet been tested at $I_e = 40\,\mathrm{mA}$
- Typical dead-time is $< 5\%$ at $40\,\mathrm{KHz}$ (hardware causes $\approx 1.4\,\mu\mathrm{s}$ per event)
- TPOL Autopilot usually takes data without human intervention:
  - Steer mirrors and find the beam
  - Center table on beam
  - Adjust calorimeter HV settings if necessary
  - Measure light polarisation if HERA is off
- Shift crew needs to take action in case of problems only

TPOL operation: July 24, 2002



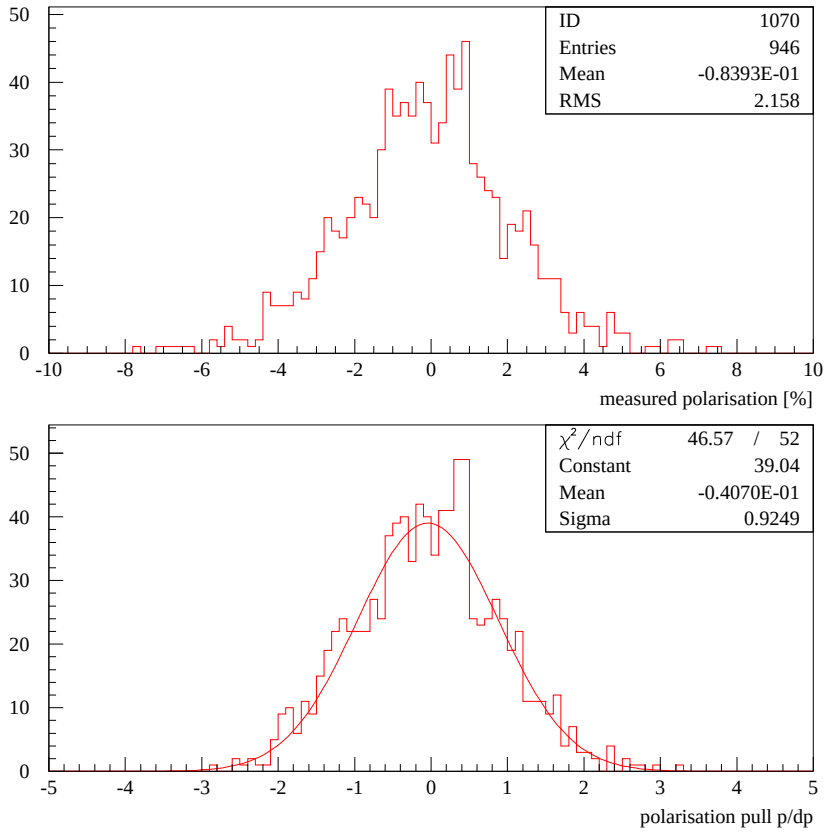
Smooth operation, calorimeter position follows beam position

TPOL operation: light polarisation



- Mirrors M2, M3 are optimised automatically (maximise LASER power in tunnel)
- Manual adjustment of laser optics needed once in a while (as in previous years)
- Add remote control of additional mirror M1B?

TPOL operation: beam polarisation



- Observed beam polarisation is zero
- Pull distribution $\frac{\mathcal{P}-0}{\sigma_{\mathcal{P}}}$ indicates that statistical uncertainties are overestimated by 5%
  Need to investigate.

Summary and next steps

- TPOL is ready to measure polarisation at any time
- Normal operation happens automatically, shift crew needs to react on exceptional conditions only
- Define standard procedure and checks to be done by non-expert shift crew, e.g.
  - monitor quality of the polarisation measurement
  - recover from certain well-known error conditions
  - call experts if necessary
- Expert tasks: monitor and adjust laser and optical transport system, fix DAQ problems
- Open points: automatic operation and online analysis of silicon detector