

# HERA transverse polarimeter

## Online DAQ: status and recent developments

- Autopilot algorithms
- Experts training
- Data flow
- Silicon/Fiber detector DAQ

# Autopilot algorithms

The Autopilot acts by starting new runs depending on the beam status and online analysis results.

Run types:

run type	done by autopilot
IDLE	if beam condition changes
MIRRORSCAN	no beam: every 5h
LIGHTPOL	no beam: every 5h
LUMISCAN	with beam: every 2h or if $\mathcal{L} < 45\%$ every 5 min
CENTERTABLE	with beam: if $\Delta y + 2\delta y > 60 \mu\text{m}$
BEAMPOL	with beam: if otherwise idle
TILTSCAN	never
FOCUSSCAN	never
CALIBRATE	never
TESTRUN	never

# Shift training

Version zero of a DAQ manual available

`/afs/desy.de/user/s/sschmitt/  
public/tpol/tpolmanual.ps`

The current version only contains rather technical documentation about the run-control and the autopilot.

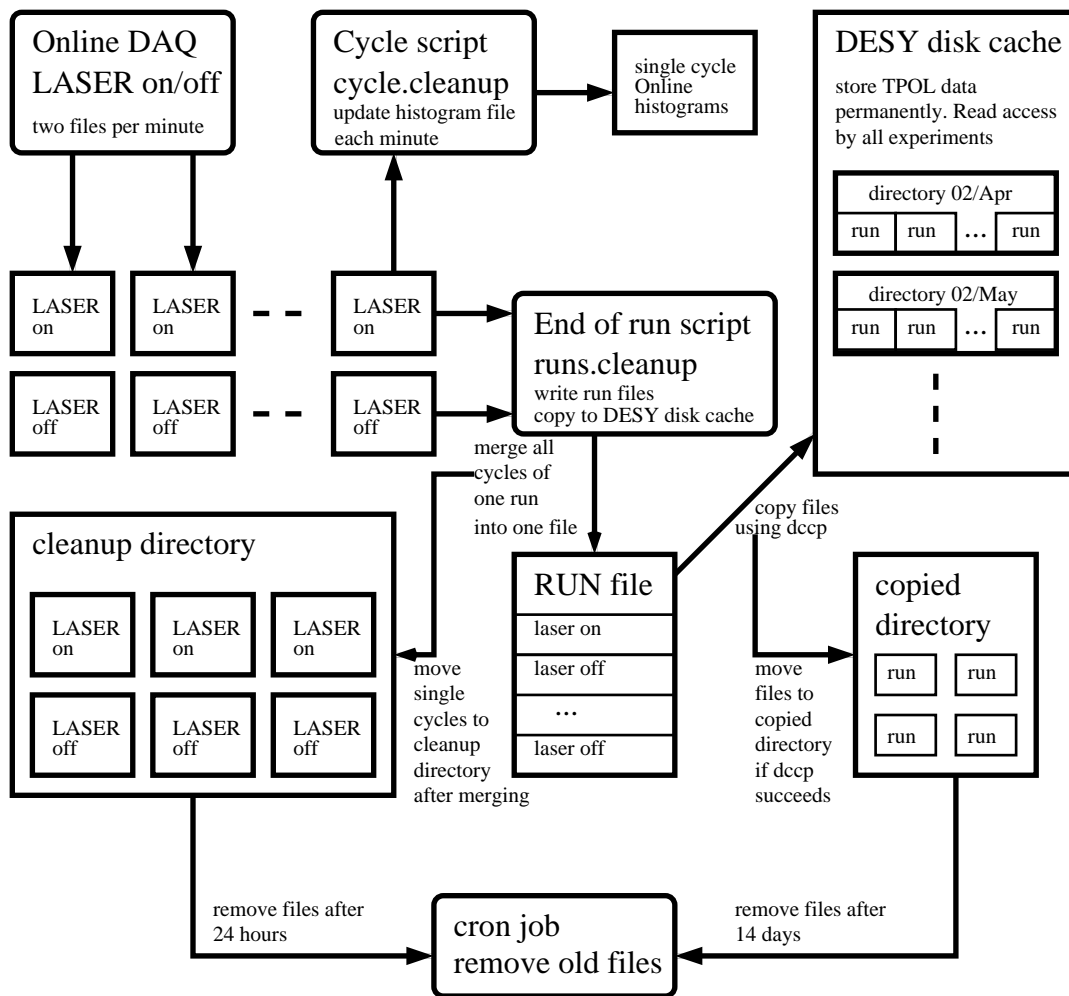
All polarimeter experts are invited to contribute to the text such that we arrive at a manual which may be used by shifties and experts

Start expert training as soon as possible!

# Data flow

Access to DESY disk-cache has been implemented.

→ all data is now recorded permanently to disk, accessible by all experiments!



# Silicon/Fiber DAQ: current status

Only very limited time will be available from S. Schmitt to work on the silicon and fiber readout in the future.

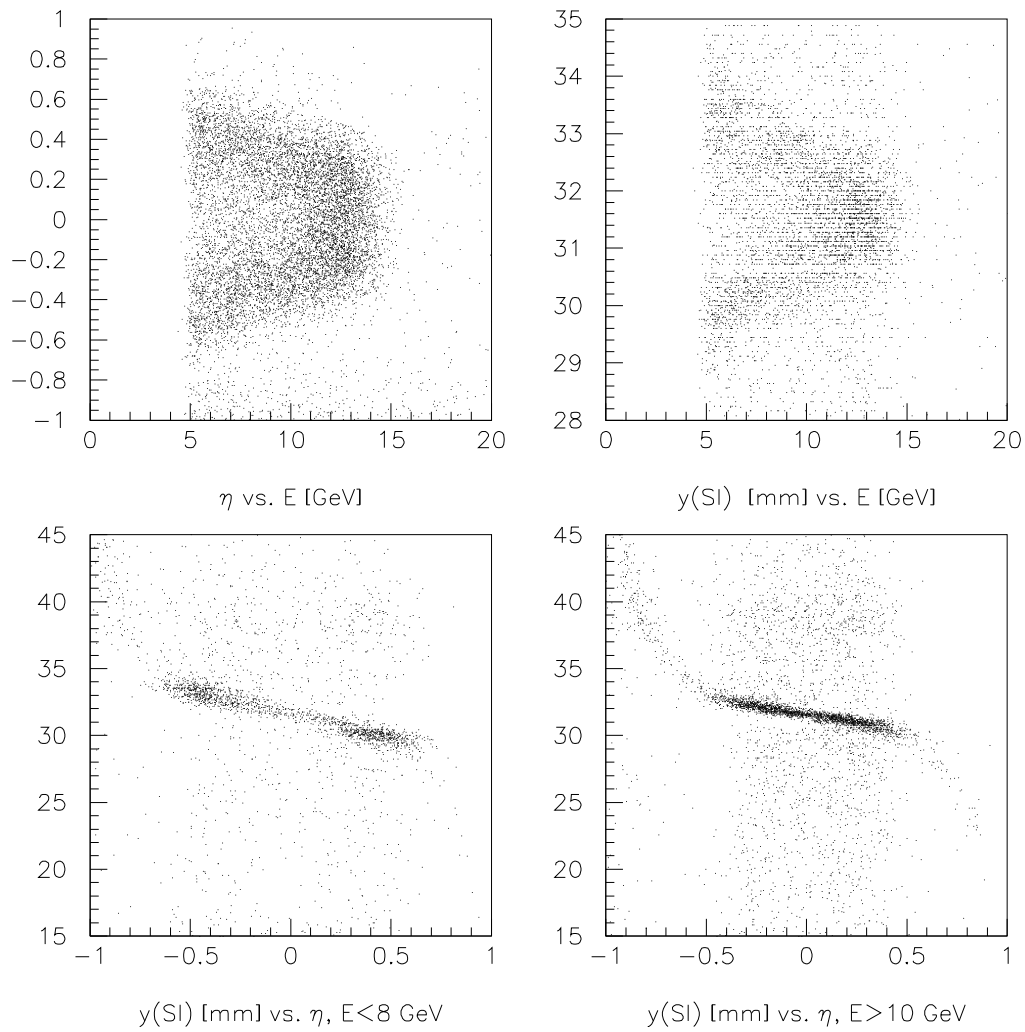
Current status:

- Threshold has been lowered to 5 GeV
- Runs can be started from run control
- Raw data format defined
- End-of-Run: data are converted to Ntuples
- No interference with TPOL operation
- Slow controls partially implemented
- Readout problems concerning synchronisation of silicon and calo events  
→ not all runs contain useful data
- Approved silicon clustering algorithm still missing

# Silicon/Fiber DAQ: some suggestions

- understand and solve synchronisation problems  
(flaky hardware? FED programming?)
- implement missing slow control items  
(silicon HV, fiber home command)
- develop clustering algorithm (use the data collected so far)
- define and implement algorithm to automatically collect/analyse/store data in parallel to the “standard” TPOL data
- online analysis: monitor beam spot, size, position online

# First silicon studies:



→ Measurement of true beam spot size and position, energy-dependent  $\eta - y$ , etc

looks very promising. Vast amounts of data can be collected very fast (trigger rate  $\approx 1$  KHz)