

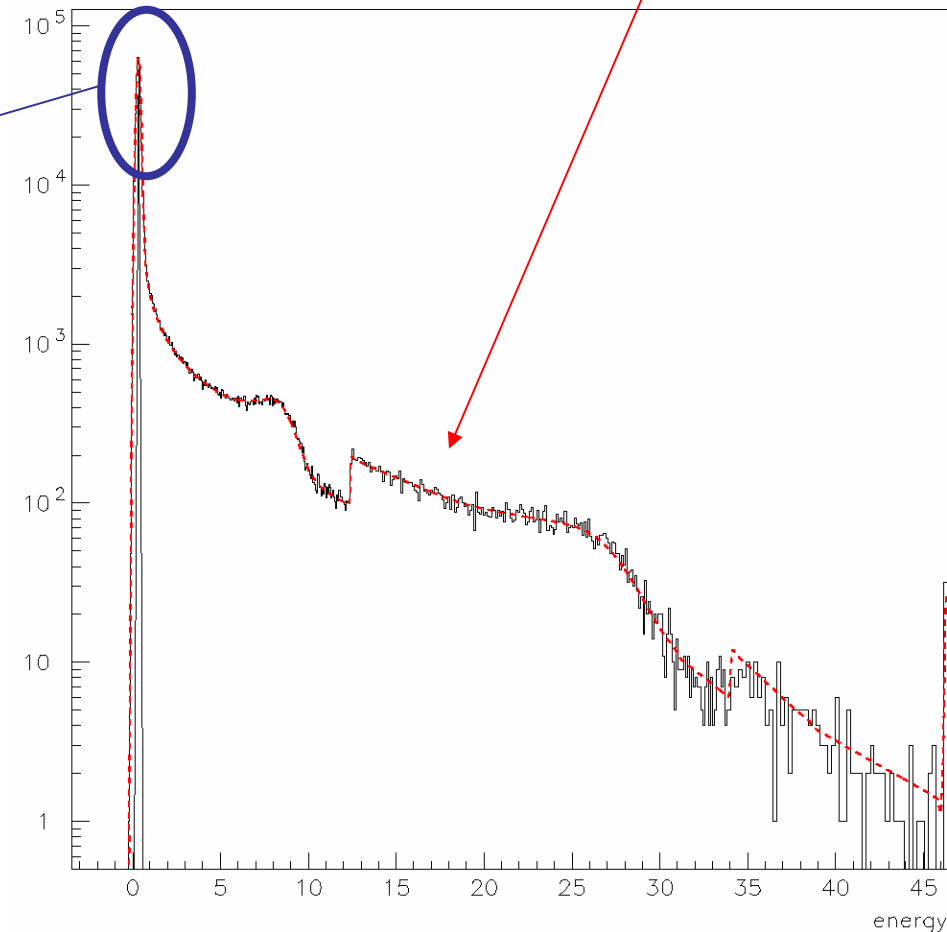
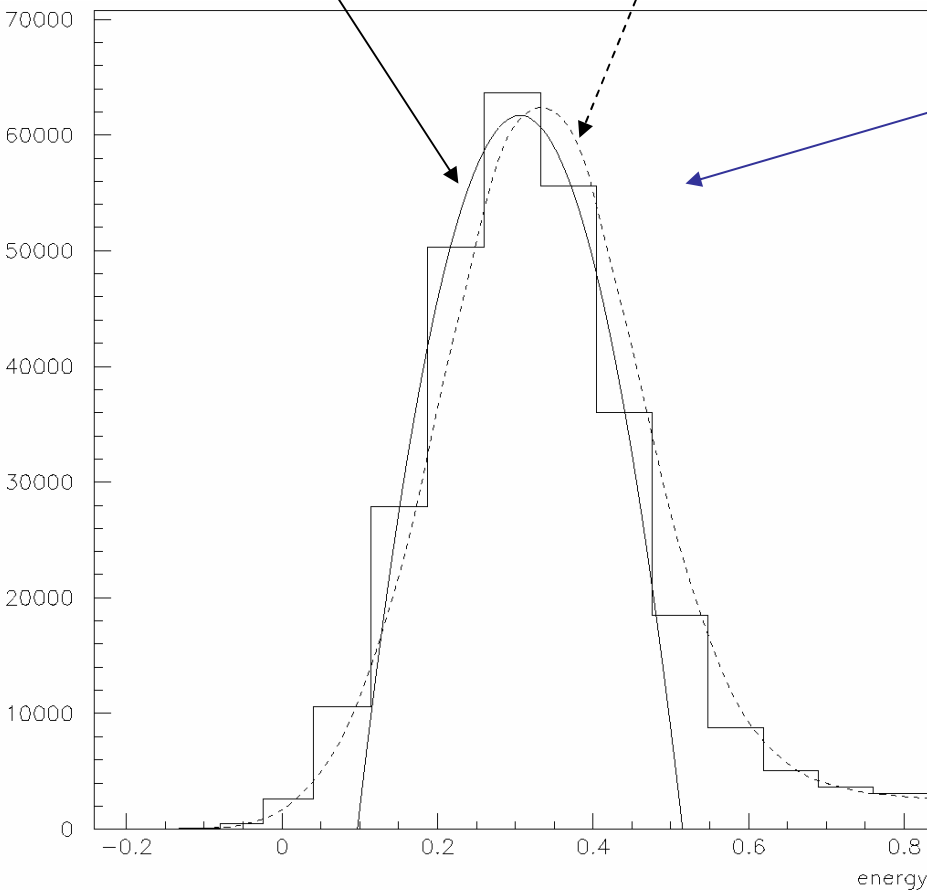
LpolCav

- Status
- Futur plans

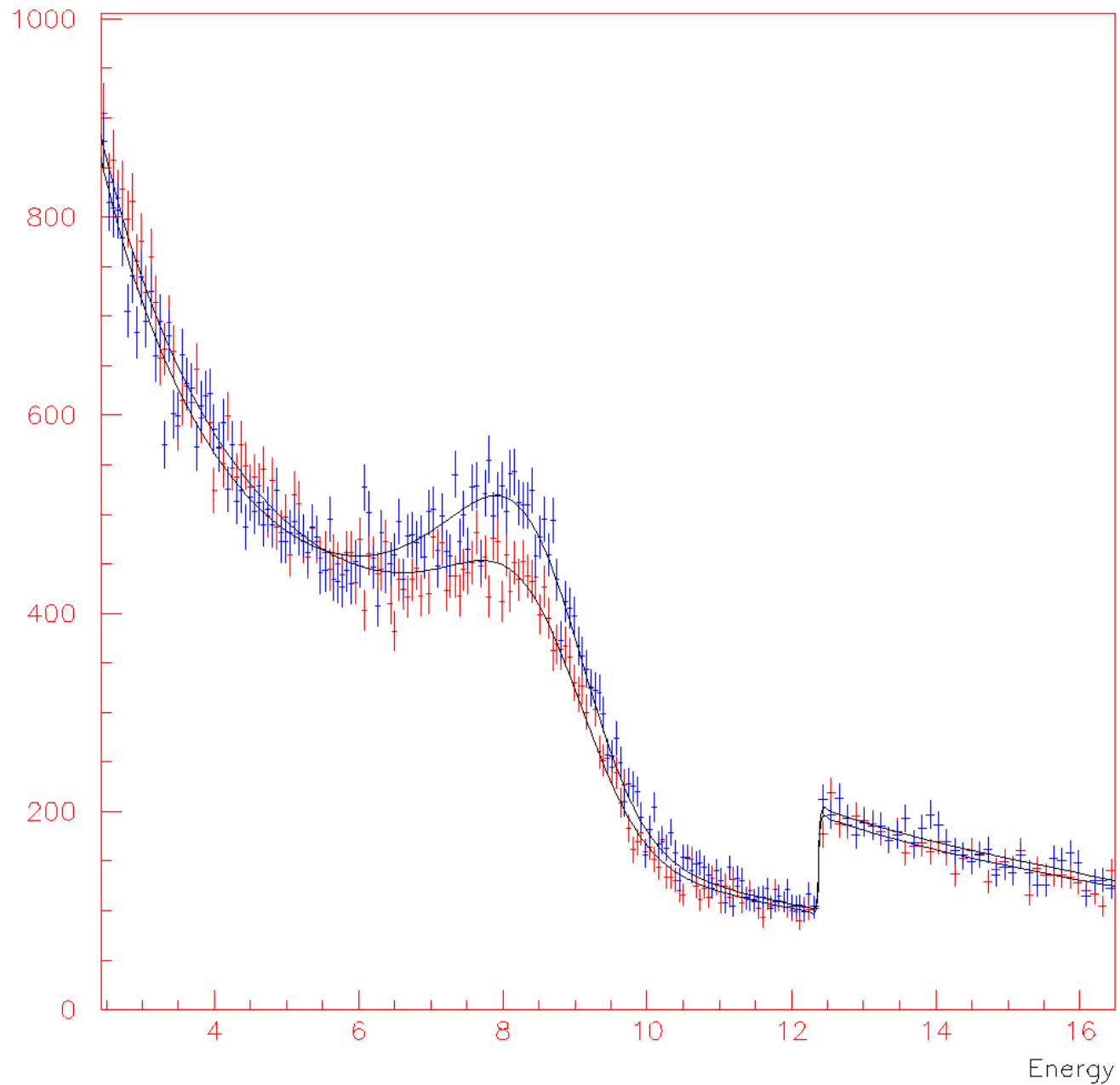
New :
parabolic fit to extract
the rad synch energy
[No more 'fit parameter'
in the minimisation]

Stil:
A small bug
(shift)
almost fixed

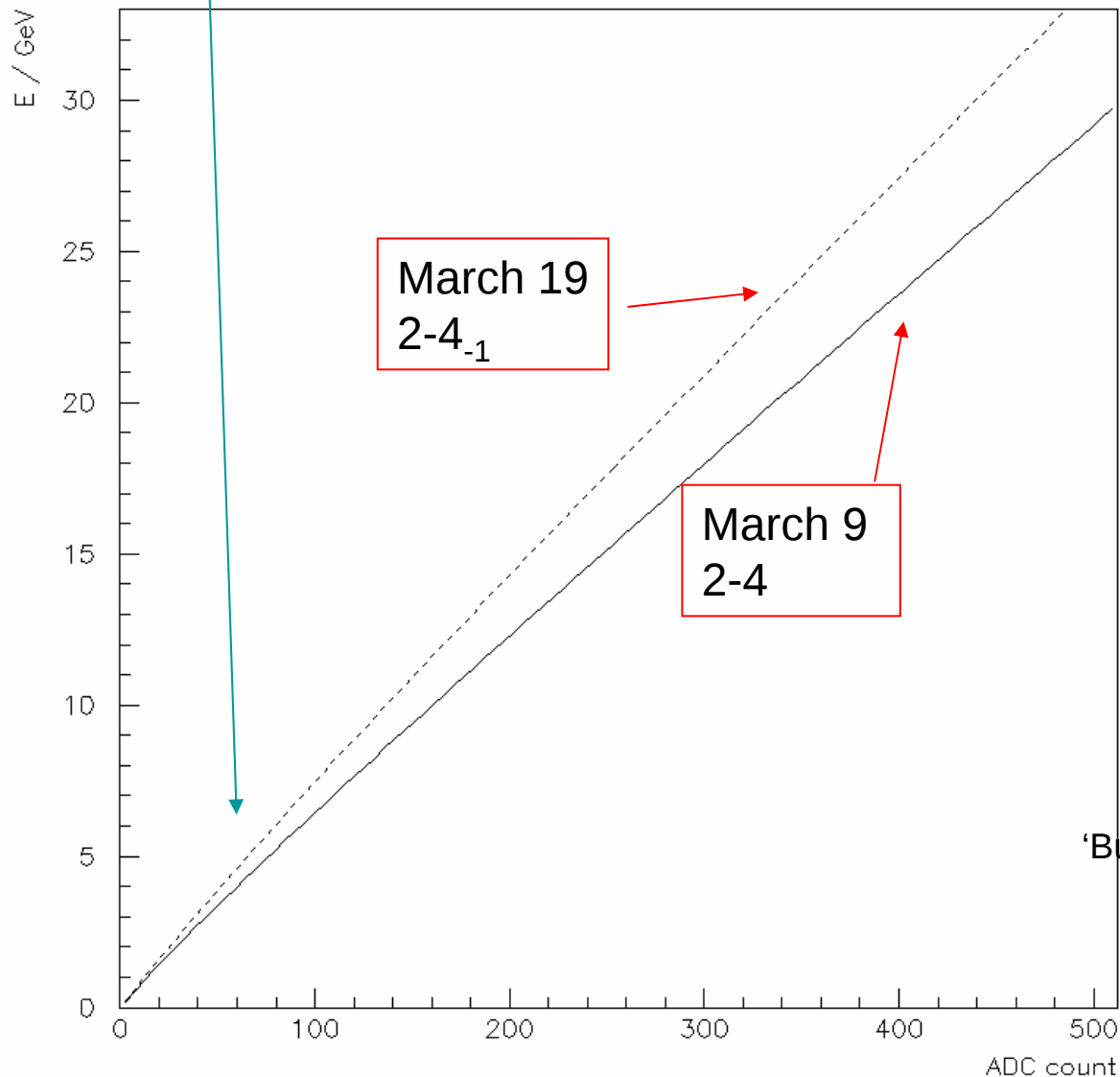
New : $\sigma/\sqrt{E}$ different for rad synch
peak and the other photon sources
→ $\sigma=17\%-19\%$ for brem edge as expected
(cf Lorenzon's note)
[$\sigma=7\%-16\%$ for synch rad]



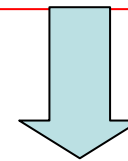
Example of the fit quality now: data of march 09



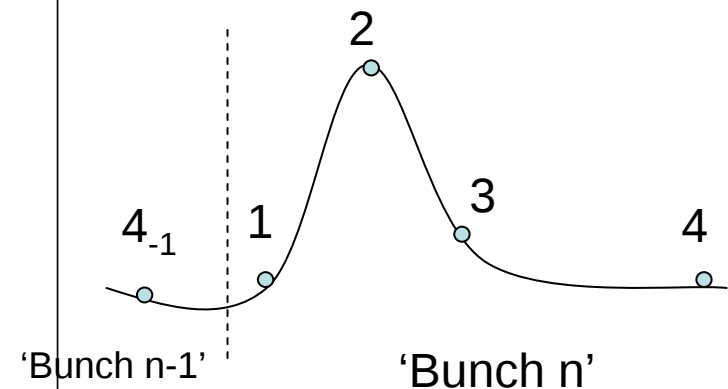
New: **non linearity allowed at low energy**, as expected (cf Lorenzon's note)
[Before only at high energy...]



2 ADC%ENERGY conversion
functions depending on the
ADC samples subtraction



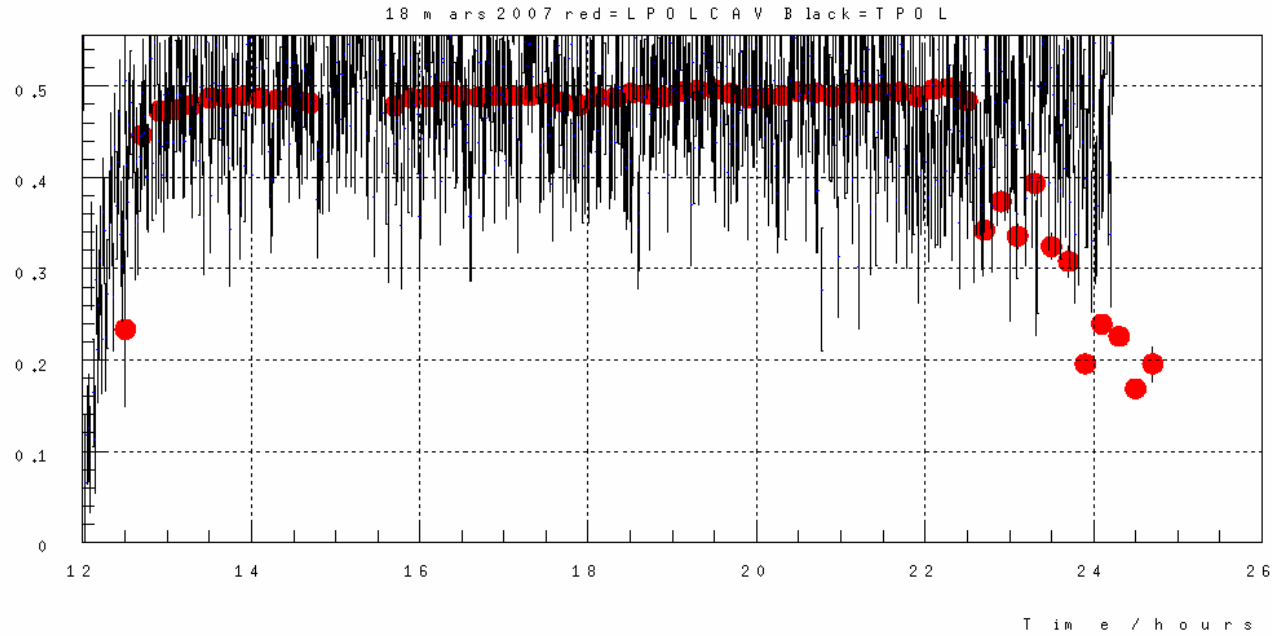
ADC samples:



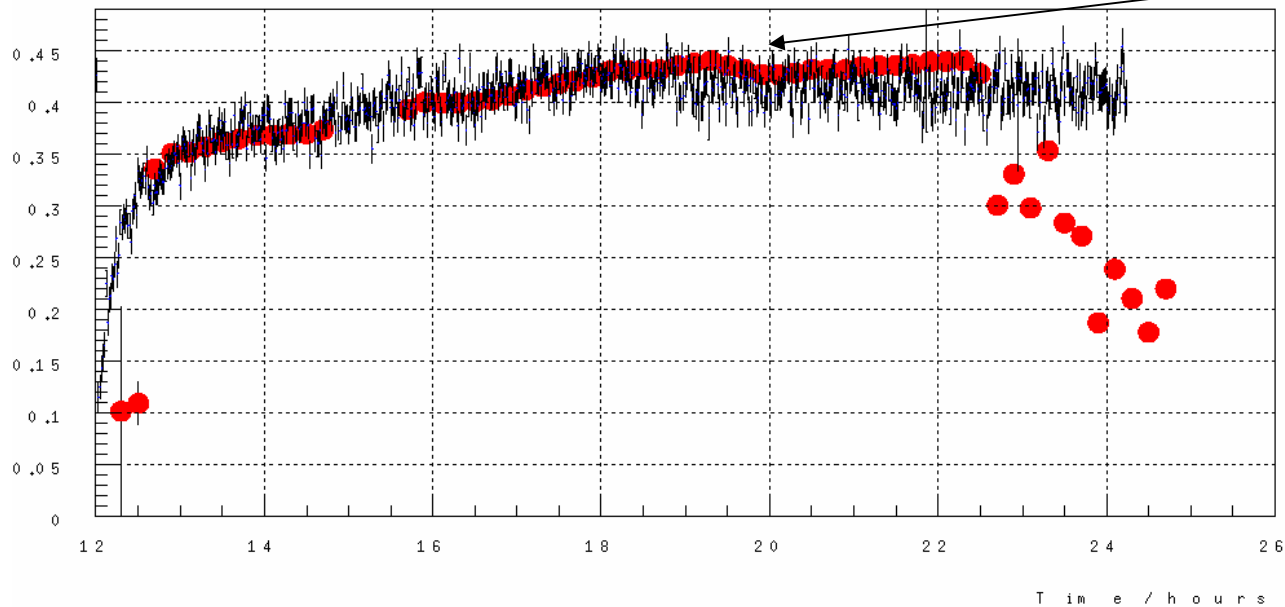
Status

- The detector response is now well under control [gain and resolutions]
- With the 'bug' in the rad synch energy determination the Polar provided by the present fits can be systematically off by a few percents (depending on the shift...)
 - To circumvent the 'bug' the fit programme is slow (to check bunch by bunch) → a factor of 10 slower than it will be once the bug will be corrected
 - Data of the 9 march, 16 march, 19 march have one bin or less shift, the effect should be small → plots

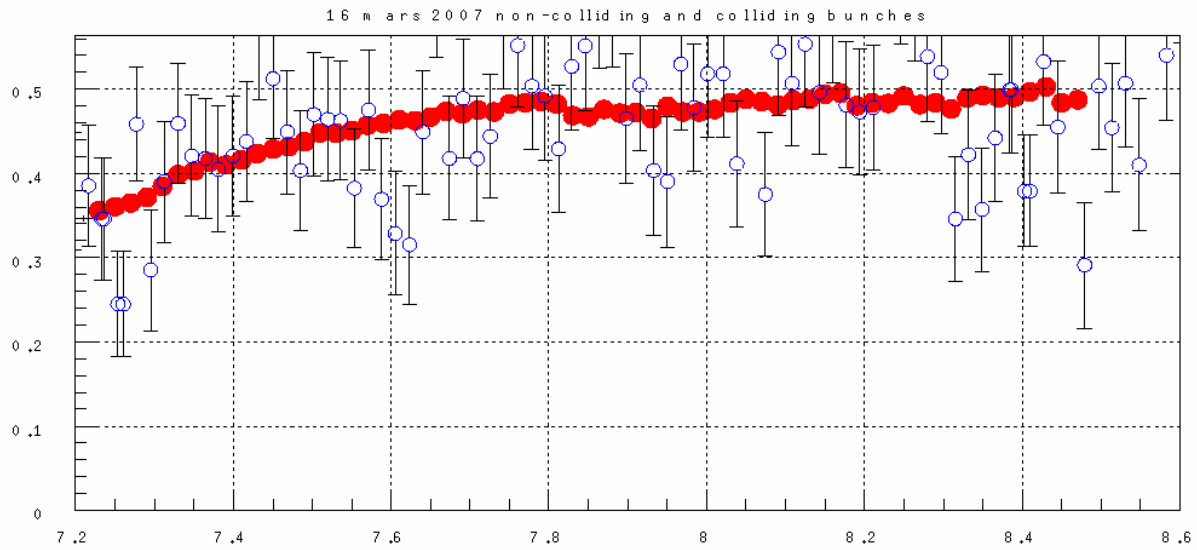
The long run of march 18



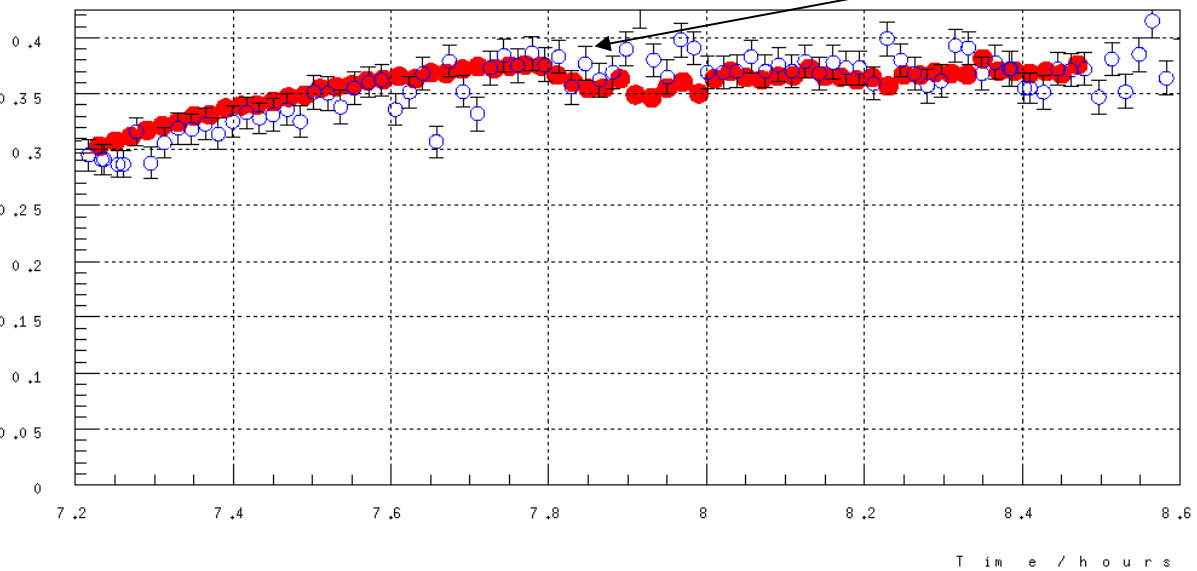
Polarisation change



March 16



Polarisation change



Future

- 10 X faster fits will be provided
- Processing of the existing data sets:
 - Simplification of the fitting procedure (→reduction of correlations)
 - Determination of Synch rad energy out of the fit minimisation
 - Blackbody flux determined for the 'clean bunches' and then scaled by the current bunches for the other bunches
 - Global jobs will be sent
- Systematic studies
 - Already checked that the following have no significant effects on the polarisation measurements:
 - Change the e-beam position
 - Change the laser beam degree of circular polarisation
 - Change the laser power
 - Main systematics [to be finalised with the final fitting code version]
 - Pill-up effect
 - Effects of the fitting model on the Polarisation:
 - Signal&backgrounds model
 - Detector response model
 - e-beam variations model(→background&signal fluctuations)
 - Compute the correlation between the detector model and the polarisation (eigenvector study of the Hessian matrix)

Manpower

- For the offline analysis
 - Marie 100%
 - Christian 100%
 - Fabian <50%> (~teaching activities)
 - Zhiqing <50%>
 - Violette <20%>