QE & t0 stability

Input: parameter derived by JFitK40

- quantum efficiency (QE)
- time offset (t0)
- transit time spread
- ….

This parameters are derived for each PMT of each DOM

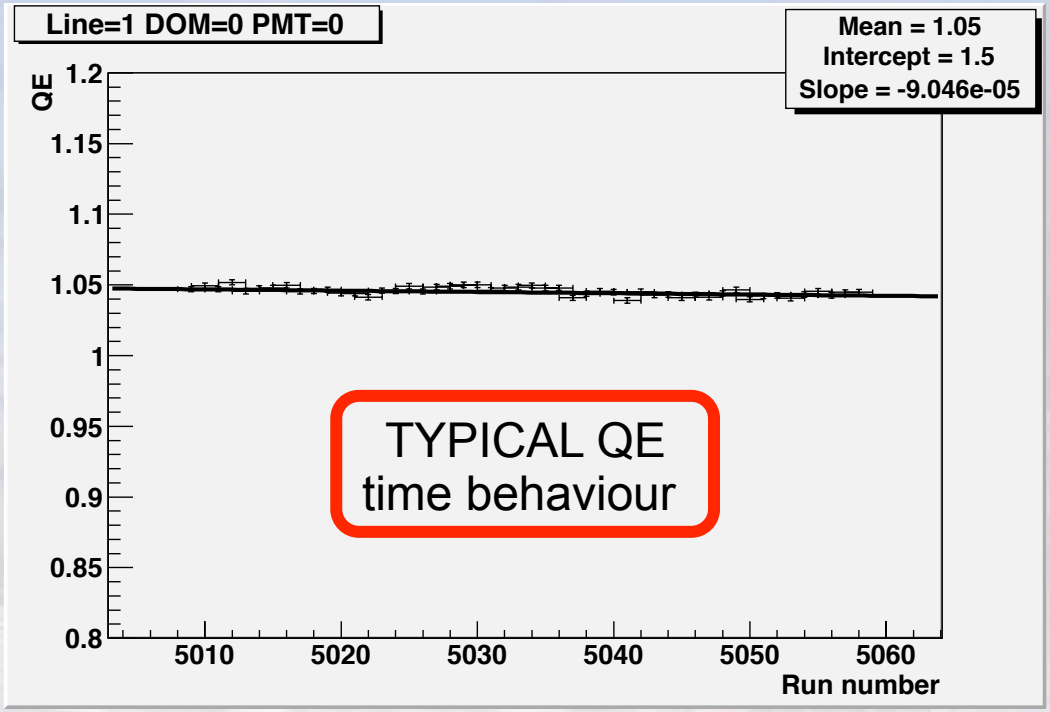
The info are organized in a TTree.

The stability is checked for each PMT.

QE & t0 stability

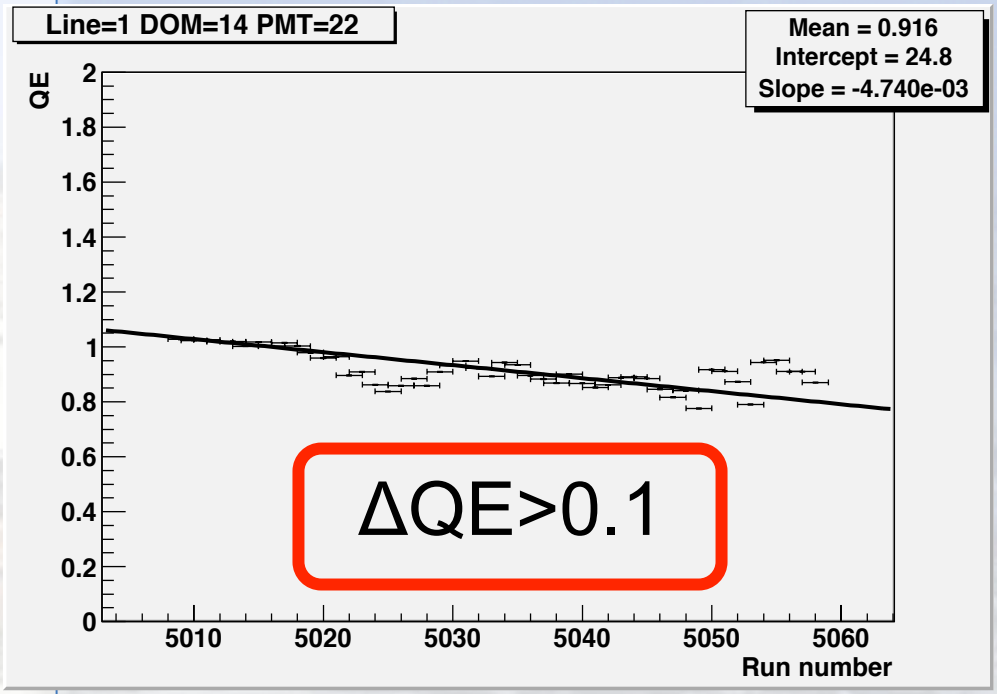
For each PMT the time behavior of QE/t0 is fitted with a linear function.

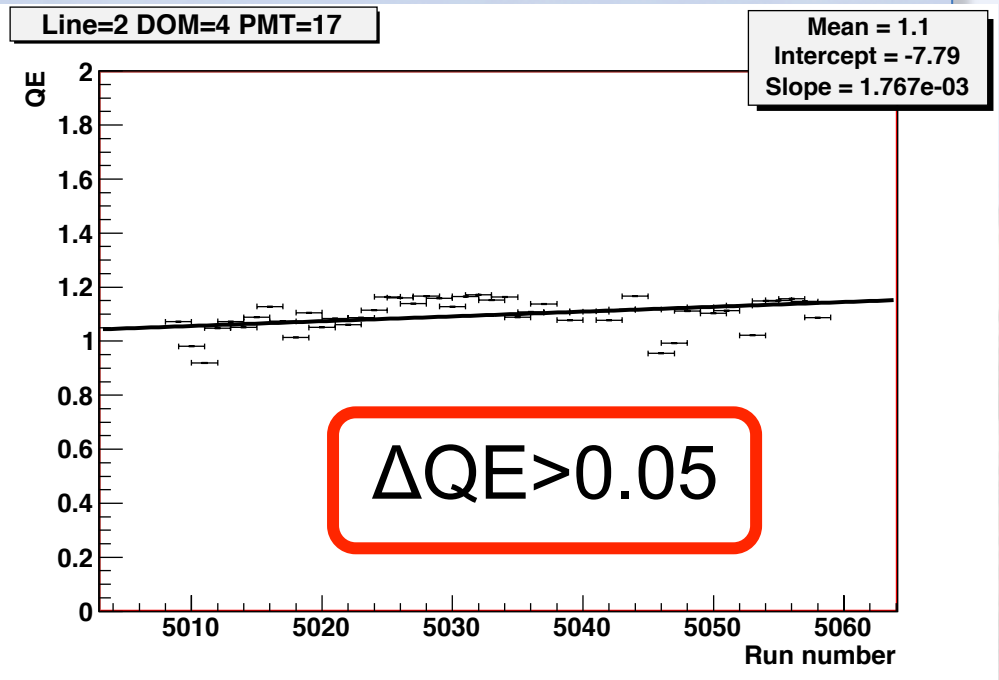
The algorithms looks for eventual drifts in the QE/t0 value and provide separate plots for PMTs which exceeded the drift tolerance (ΔQE=0.1, Δt0=0.5)



QE stability (Run 5009 - 5058)

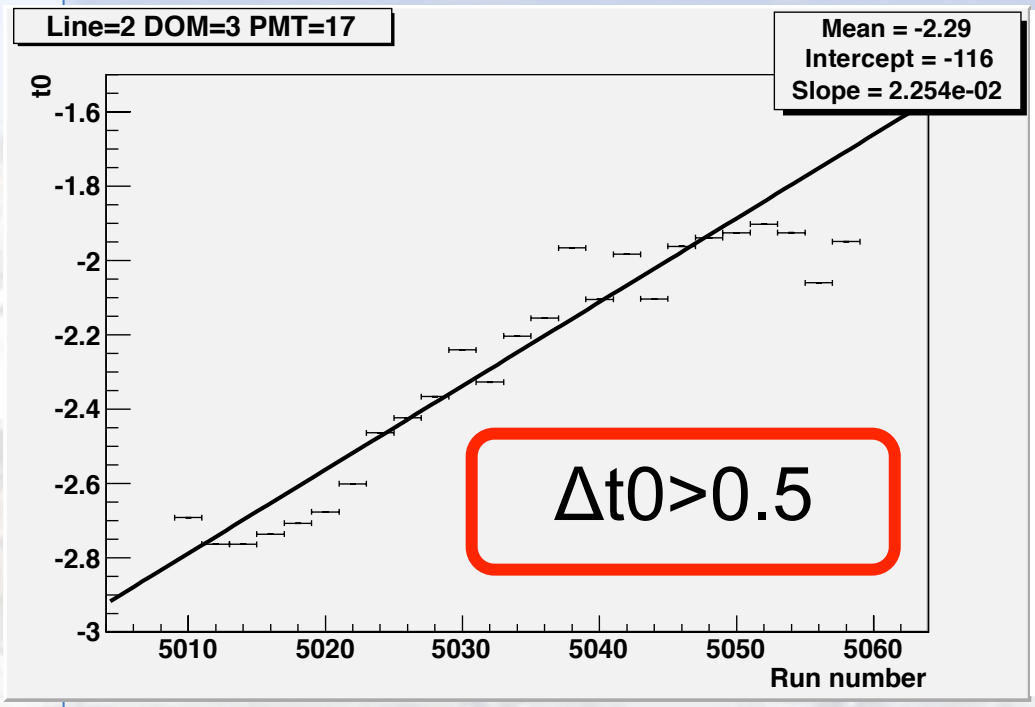
Only one PMT exceeded the drift tolerance of ΔQE=0.1.
Another one exceeded the drift tolerance of ΔQE=0.05.

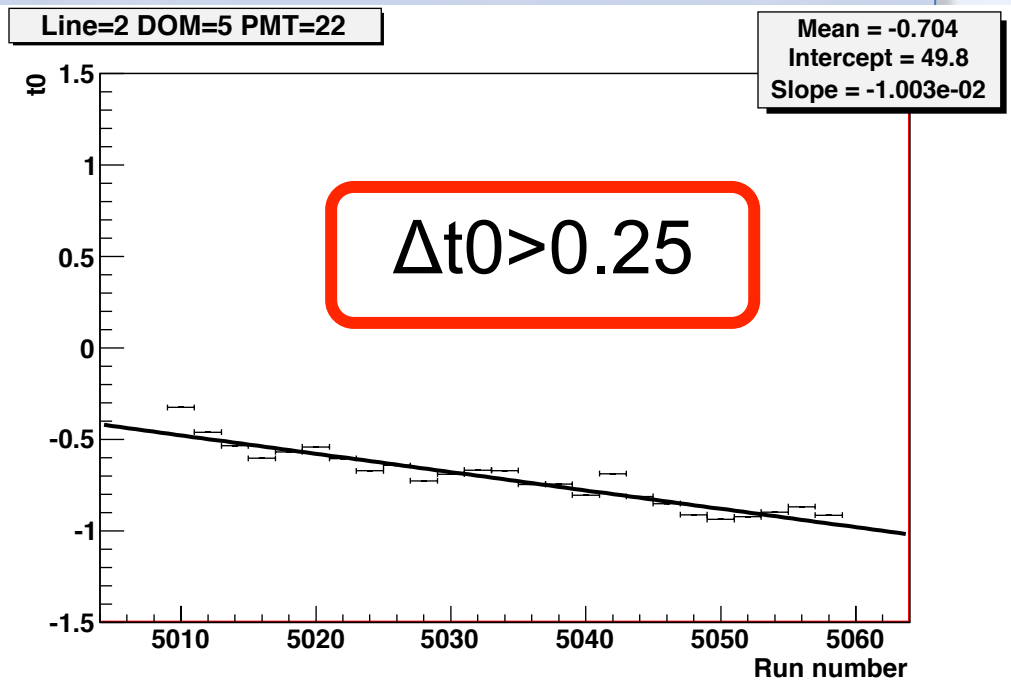




t0 stability (Run 5009 - 5058)

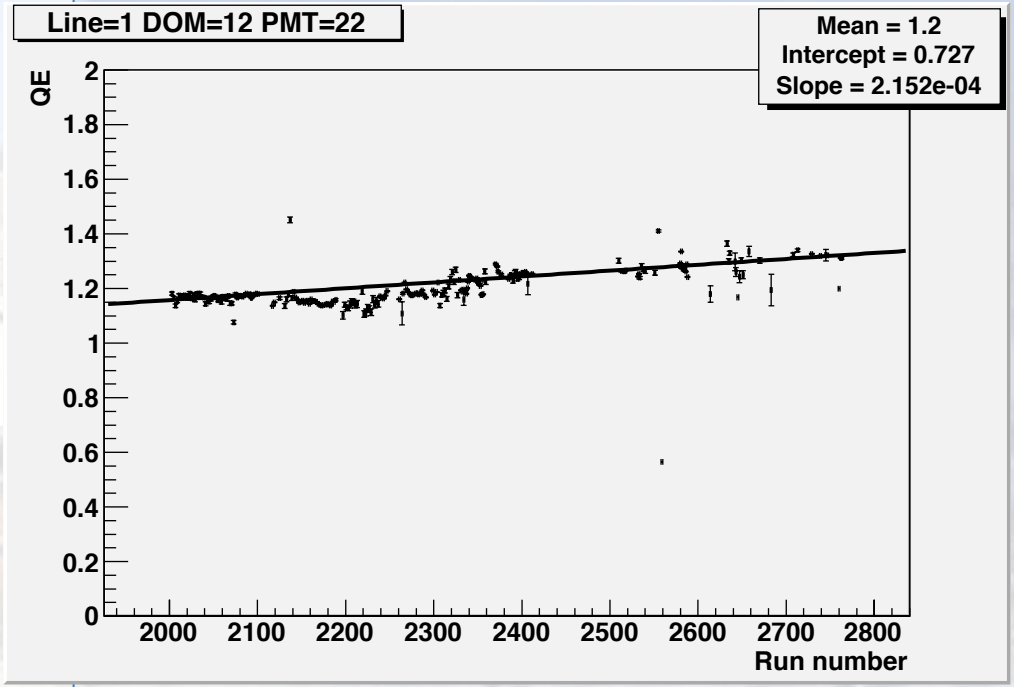
Only one PMT exceeded the drift tolerance of Δt0=0.5.
30 PMTs exceeded the drift tolerance of Δt0=0.25.

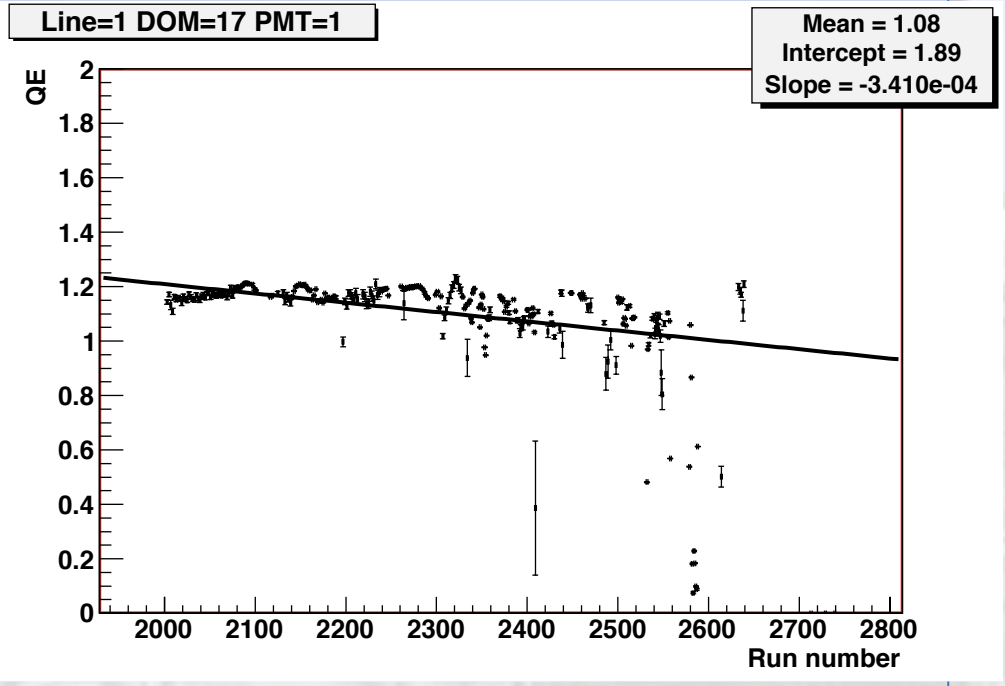




QE stability (Run 2003 - 2763)

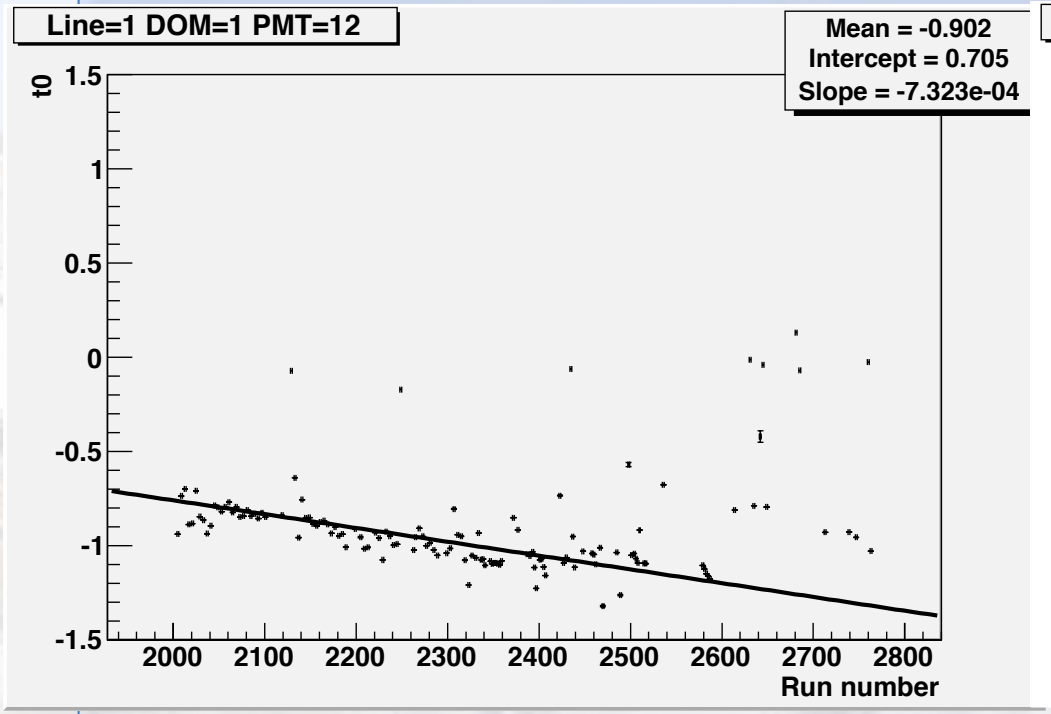
50 PMTs exceeded the drift tolerance of ΔQE=0.1.
Mostly are PMTs of DOM 15 and DOM 17 (Line 1).

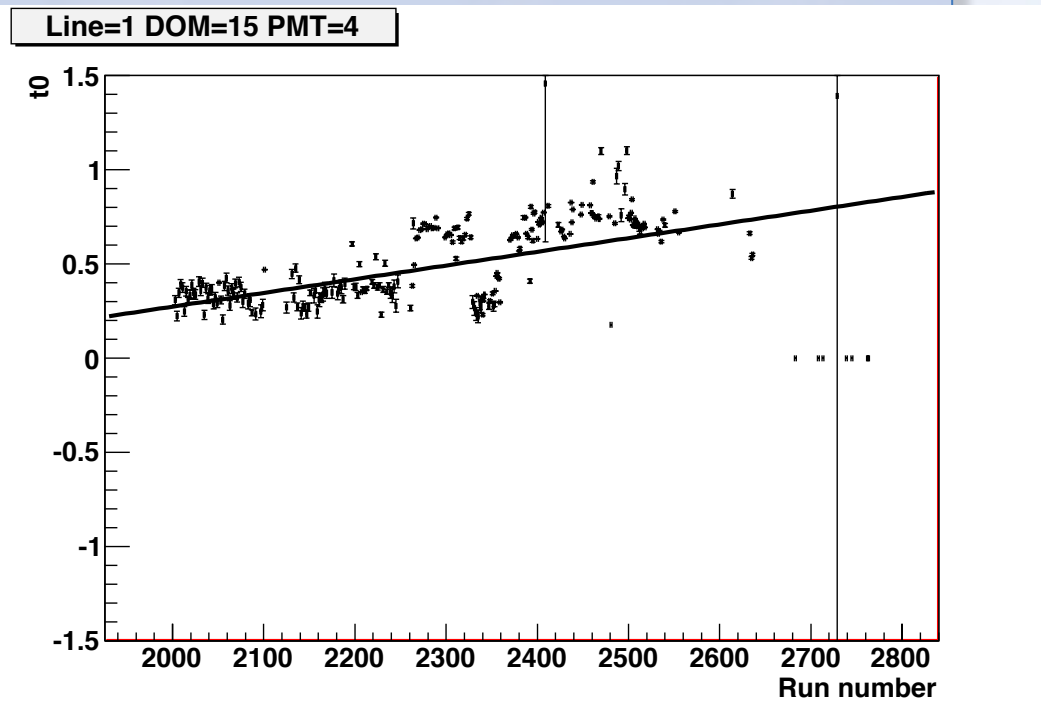




t0 stability (Run 2003 - 2763)

8 PMTs exceeded the drift tolerance of Δt0=0.5.
6 PMTs belong to DOM15 (Line 1)





QE & t0 stability

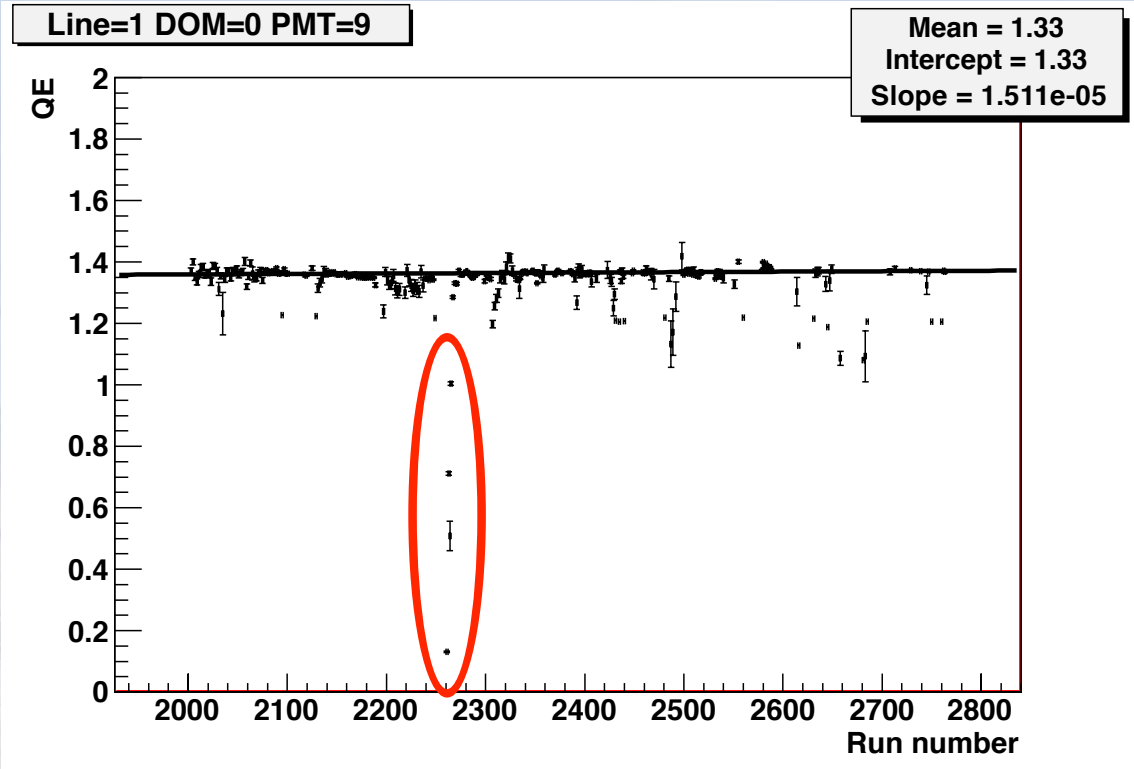
All the plots of QE and t0 for each PMTs are available:

Runs 2003-2763:
/sps/km3net/users/msanguin/out/2003-2763/

Runs 5009-5046:
/sps/km3net/users/msanguin/out/5009-5046/

Things to do… (M. Sanguineti)

Tag which runs have values of QE/t0 not compatible with the standards in order to give the possibility to exclude them in analyses or MC simulations



Things to do…(A. Domi)

1) Add to the BurstFraction code the mean PMT rate of the whole detector.

2) Coincidences in $\Delta T=20$ ns between 2,3,4,5 different PMTs in the same DOM to monitor K40.