TPOL Offline Analysis Report

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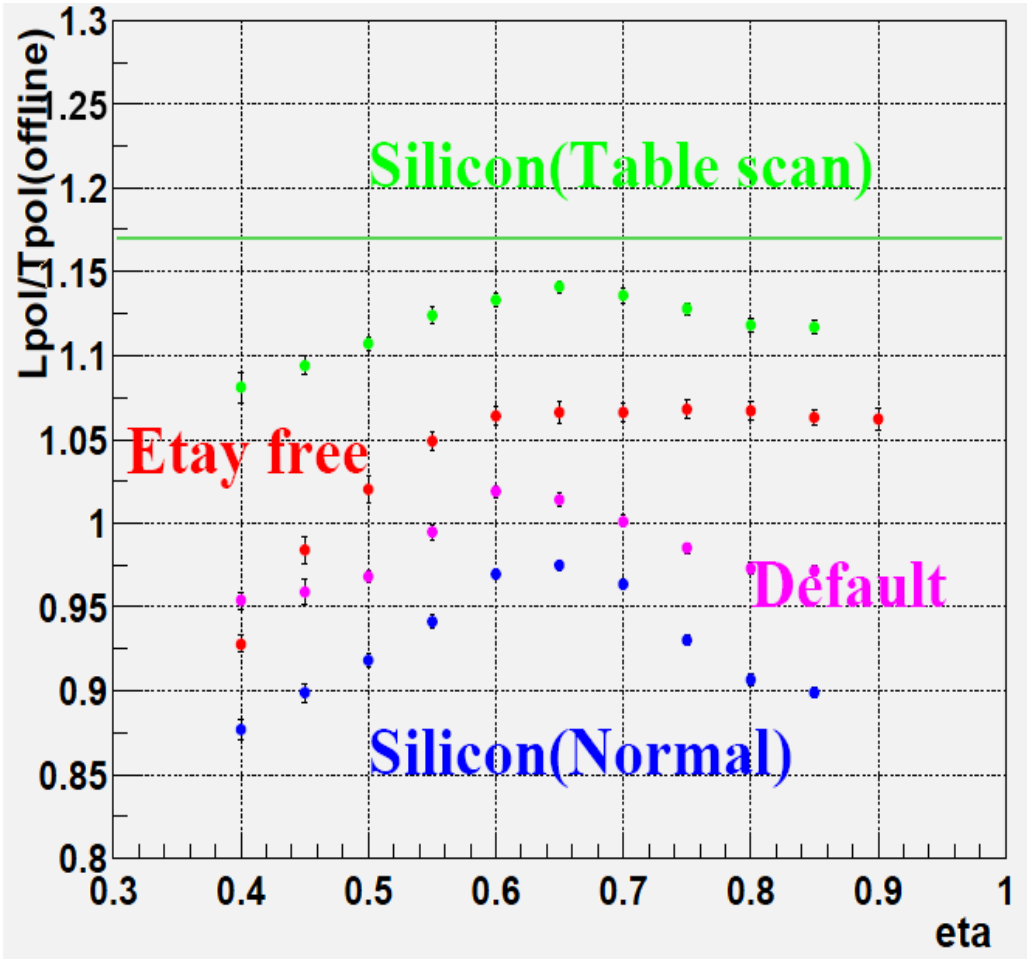
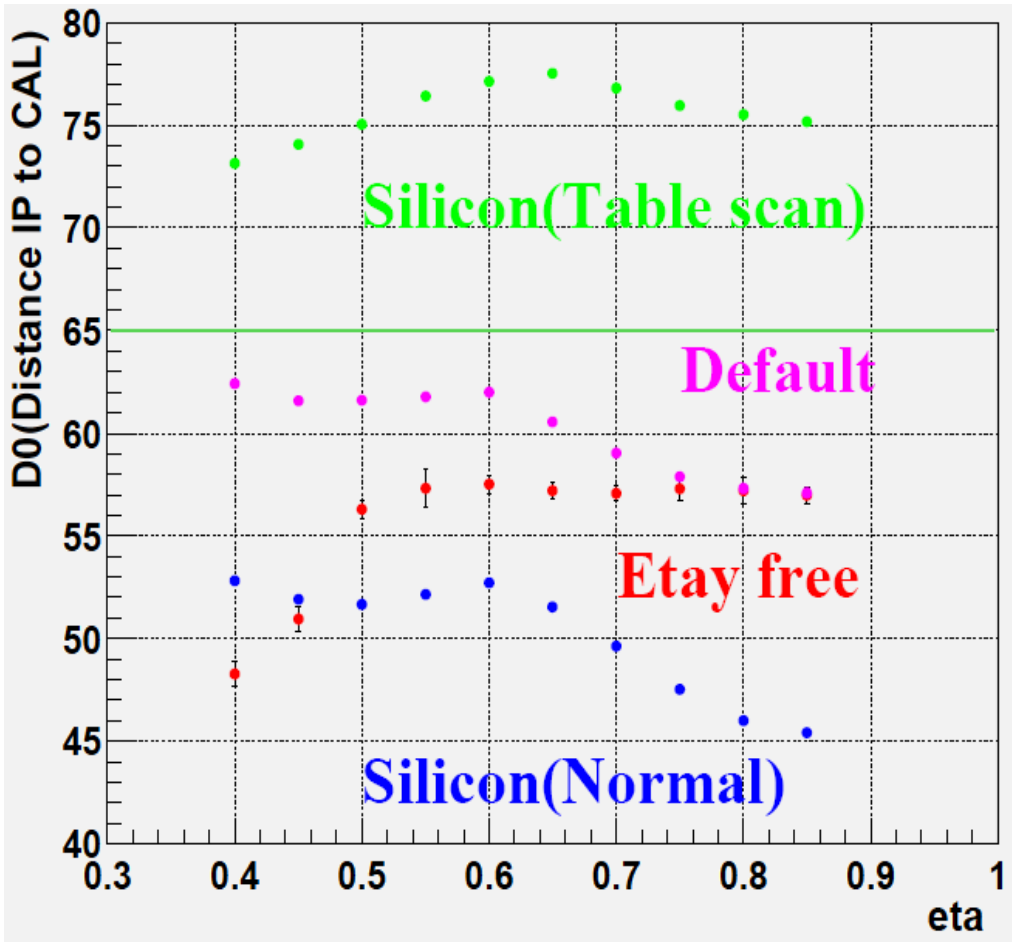
- Stability check against eta range
- Correlation
  - beam size
  - focus
- Focus correction
- Systematic uncertainty
- Summary & future

Short review



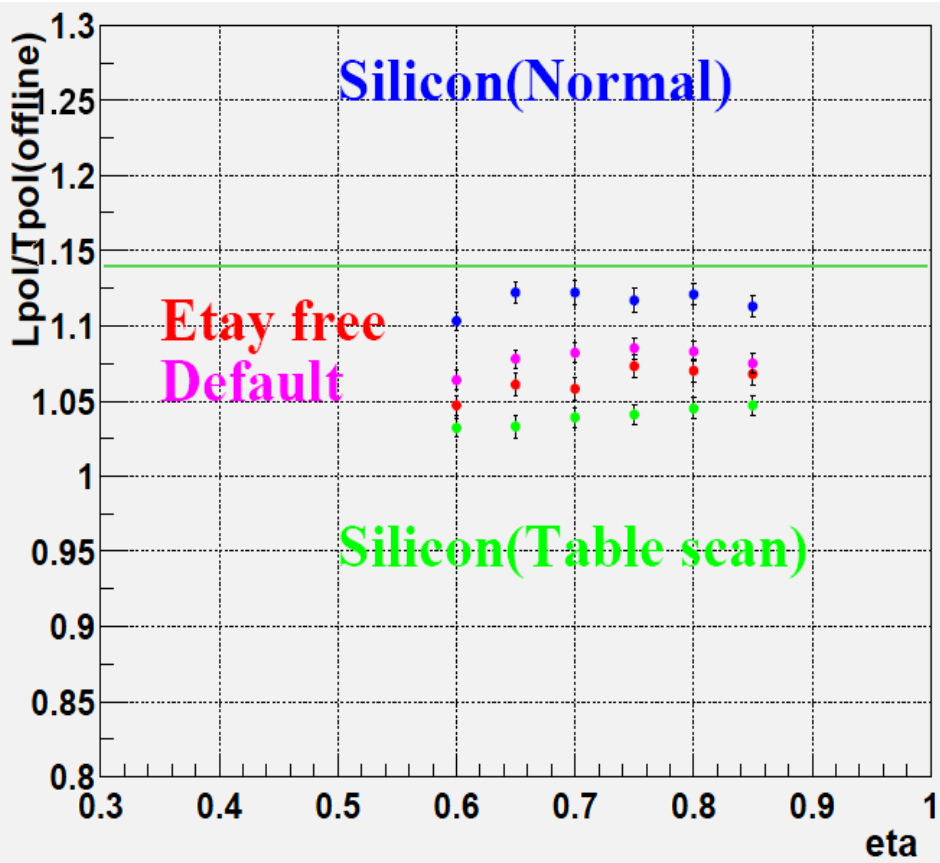
Even if in large eta region, the offline method is unstable regardless of the different etay curves.

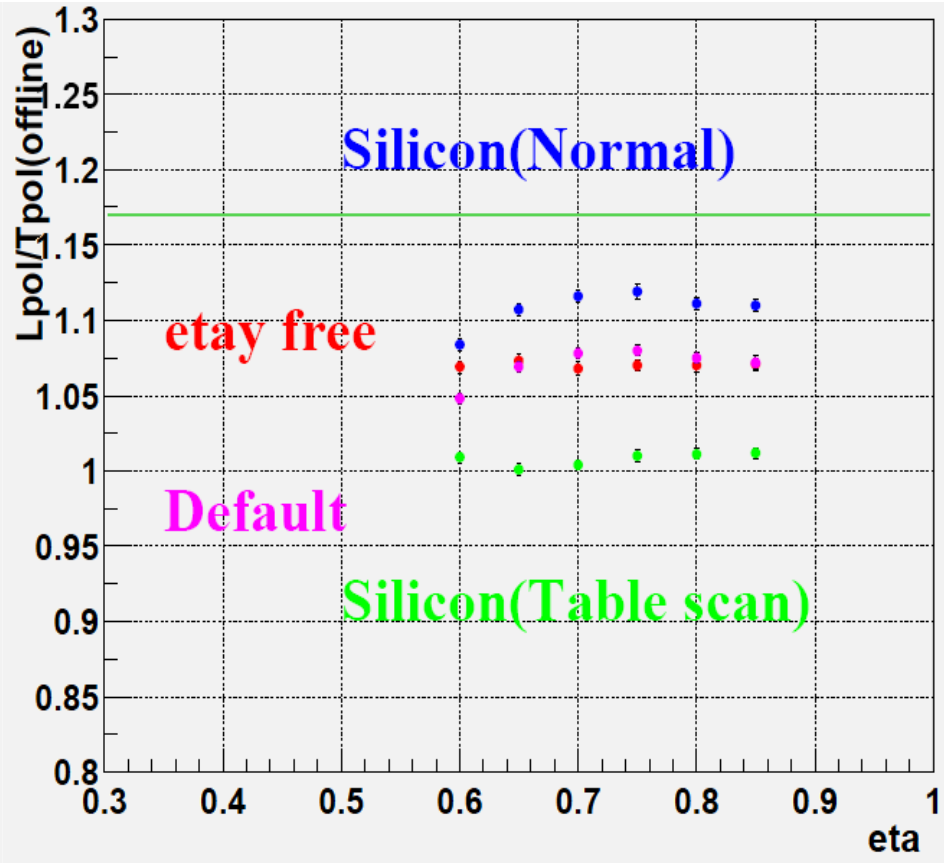
Should have been fixed!?



The distance from IP to CAL which offline returns has quite strange fluctuation.

→fixed to 65m

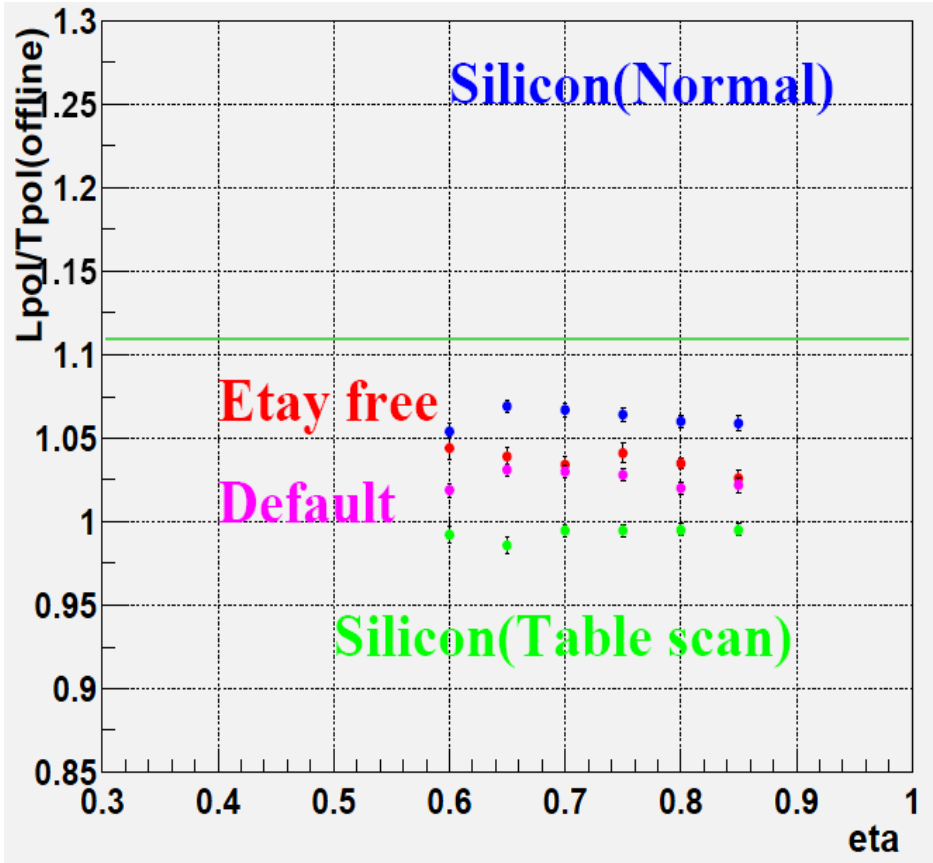




31st.Jan.2004

25th.Feb.2004

Offline method is stable in eta range with any curve.

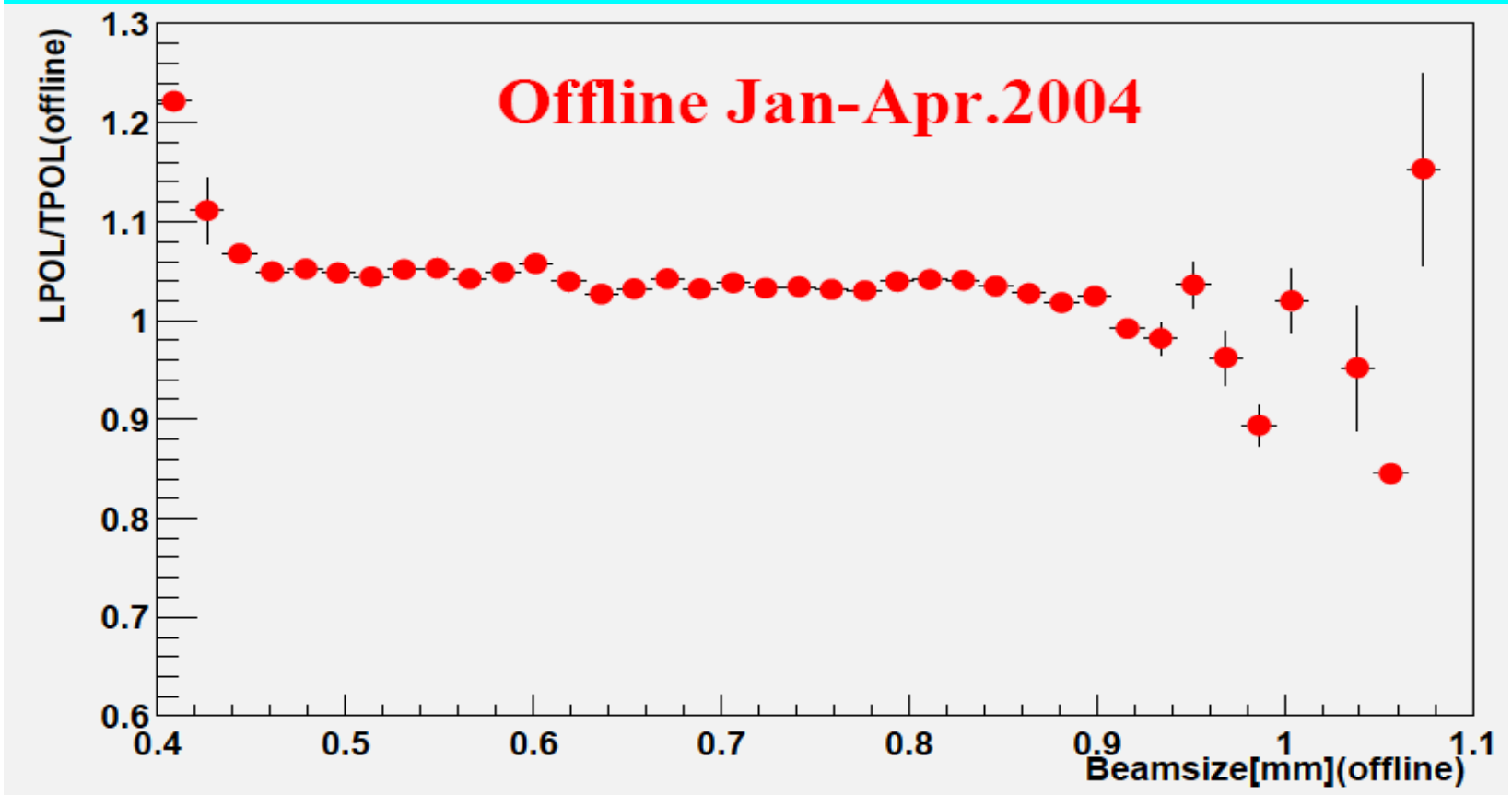


With etay and d0 fixed, offline is stable.

Also, with table scan, L/T is close to 1.

1st.Mar.2004

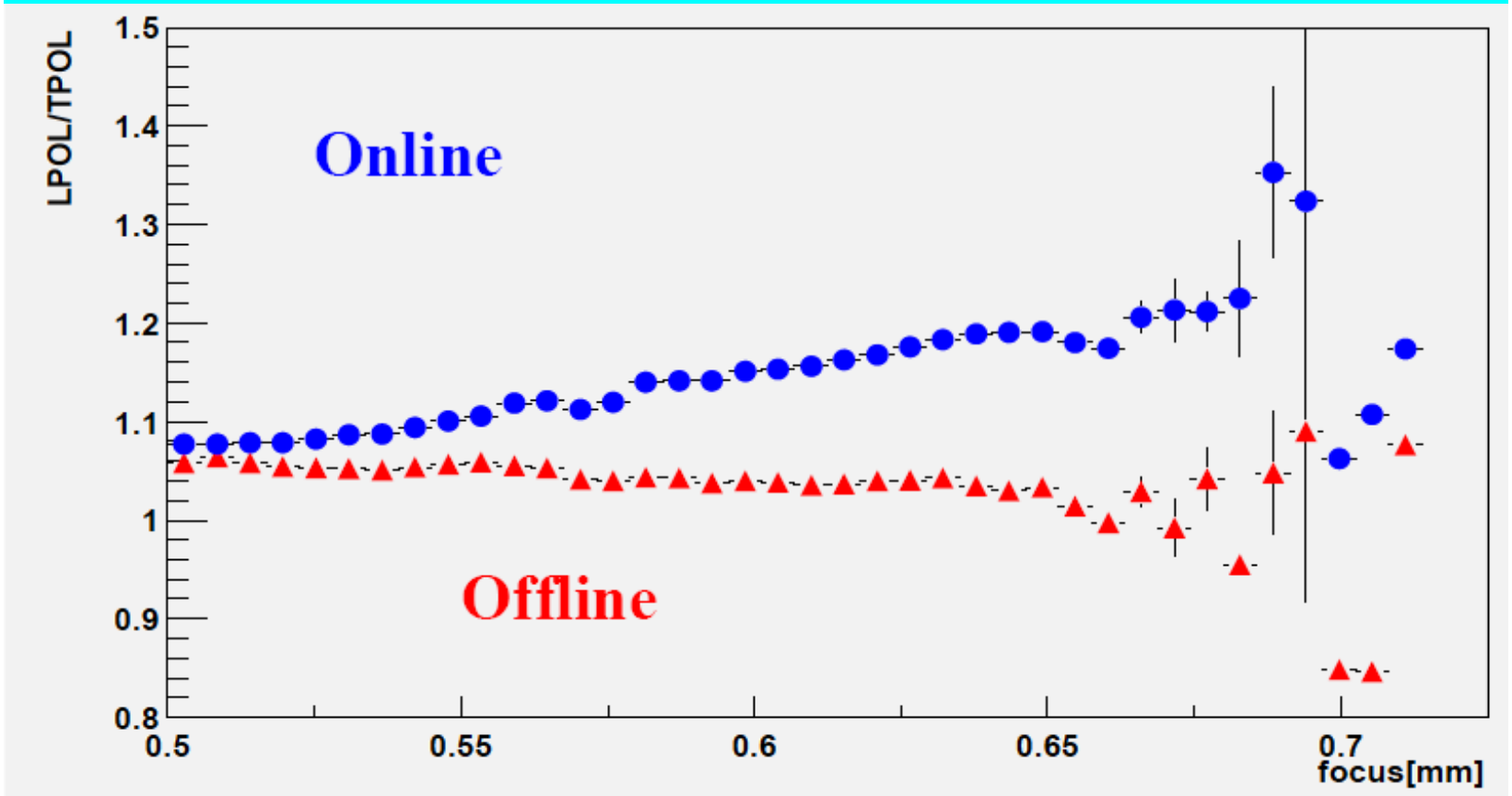
Correlation 1--beam size



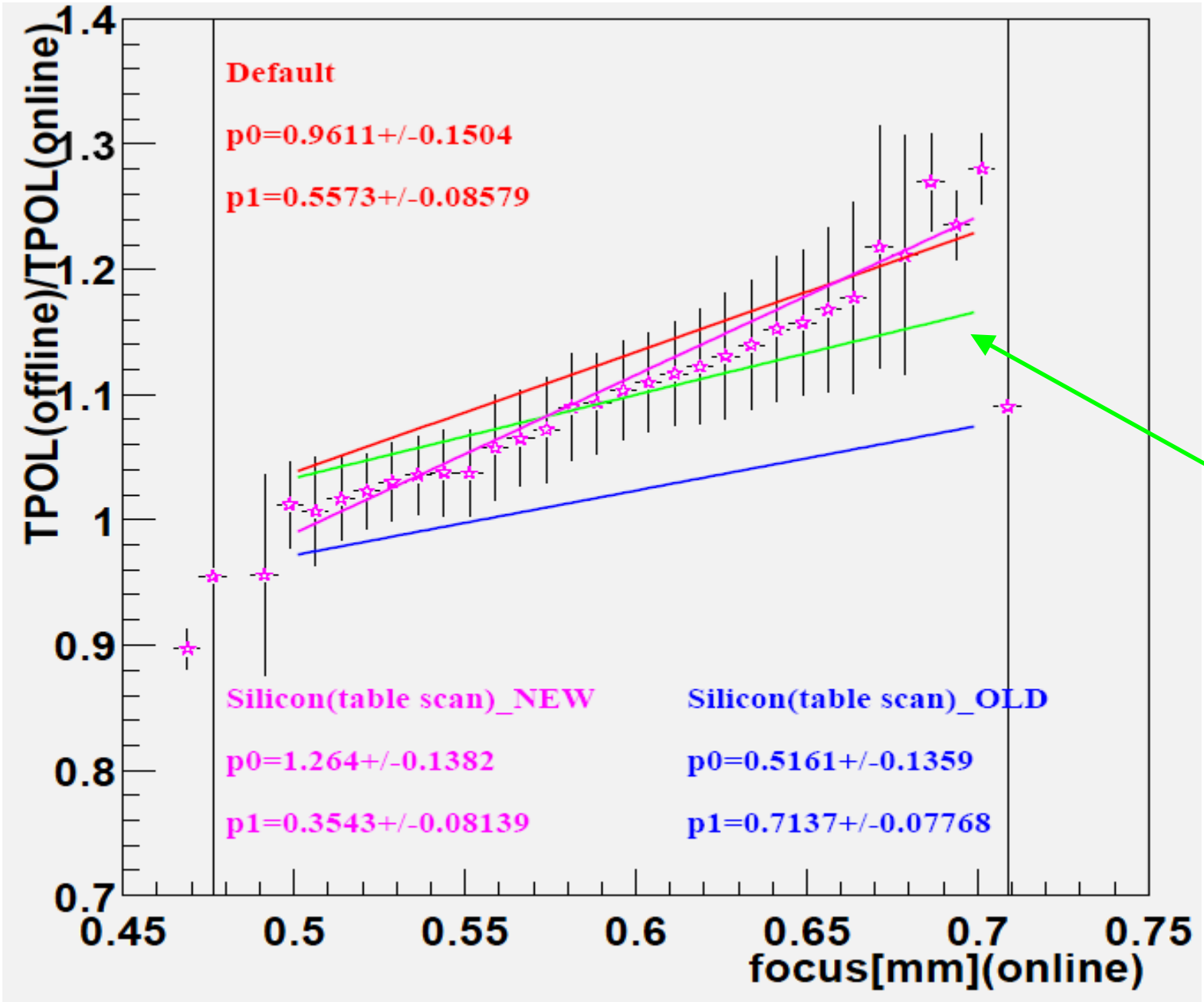
Still weak dependence to beam size,

though the method is stable.

Correlation 2--focus



Besides, offline can not absorb focus dependence completely.



Monte Carlo
by Vahagn

Systematic uncertainty

- Estimation of systematic errors by fixing/releasing these parameters;
  - Eta range (0.6~0.85, 0.05step)
  - Beam y offset
  - Calibration of calorimeter
  - Energy resolution

Eta range	Y off	D0 (distance)	Fe, Feta (calibration)	Resolution	L/T	Error (%)
Fix 0.6	Free	Fix 65m	Free	Free	1.023	-0.68
Fix 0.65	Free	Fix 65m	Free	Free	1.026	(-0.39)
Fix 0.7	Free	Fix 65m	Free	Free	1.030	(0.00)
Fix 0.75	Free	Fix 65m	Free	Free	1.032	(0.19)
Fix 0.8	Free	Fix 65m	Free	Free	1.032	(0.19)
Fix 0.85	Free	Fix 65m	Free	Free	1.032	(0.19)
Fix 0.7	Fix 0.0	Fix 65m	Free	Free	1.032	0.19
Fix 0.7	Free	Fix 64.5m	Free	Free	1.026	(-0.39)
Fix 0.7	Free	Fix 65.5m	Free	Free	1.035	0.49
Fix 0.7	Free	Fix 65m	Fix 1.0,0.0	Free	1.027	-0.29
Fix 0.7	Free	Fix 65m	Fix 1.021,0.003461 (Offline)	Free	1.030	(0.00)
Fix 0.7	Free	Fix 65m	Free	Fix 0.2377 (cern)	1.012	-1.75
Fix 0.7	Free	Fix 65m	Free	Fix 0.2474 (Offline)	1.020	(-0.97)
						1.97

Table scan

Eta range	Y off	D0 (distance)	Fe, Feta (calibration)	Resolution	L/T	Error (%)
Fix 0.6	Free	Fix 65m	Free	Free	1.096	-1.17
Fix 0.65	Free	Fix 65m	Free	Free	1.108	(-0.09)
Fix 0.7	Free	Fix 65m	Free	Free	1.109	(0.00)
Fix 0.75	Free	Fix 65m	Free	Free	1.107	(-0.18)
Fix 0.8	Free	Fix 65m	Free	Free	1.103	(-0.19)
Fix 0.85	Free	Fix 65m	Free	Free	1.102	(-0.54)
Fix 0.7	Fix 0.0	Fix 65m	Free	Free	1.111	0.18
Fix 0.7	Free	Fix 64.5m	Free	Free	1.103	(-0.19)
Fix 0.7	Free	Fix 65.5m	Free	Free	1.116	0.63
Fix 0.7	Free	Fix 65m	Fix 1.0,0.0	Free	1.109	(0.00)
Fix 0.7	Free	Fix 65m	Fix 1.021,0.003463 (Offline)	Free	1.110	0.09
Fix 0.7	Free	Fix 65m	Free	Fix 0.2377 (cern)	1.105	(-0.36)
Fix 0.7	Free	Fix 65m	Free	Fix 0.2474 (Offline)	1.114	0.45
						1.41

Summary & Future

- The offline method could get stability. Also with using etay curve from table scan, L/T is close to 1.
- Large discrepancy between Normal and Table scan.
  - L/T~1.03(Table scan) ,L/T~1.11(Normal)
  - Investigation needed to understand this difference.
- Still beam size and focus dependence,but weak.
- At present, systematic uncertainty except due to difference of etay curve is very small, ~2.0%!!
  - 1.91%(Table scan) 1.26%(Normal)

Summary and Future

- What we have to do is estimating beam size and the (true) etay curve.

  →fixed to the value, what will be happening?!
- In this study, used data sample amount to about 450 hours.
- It takes around 1.5 minutes for fitting 1 minute data (Intel(R) Xeon(TM) CPU 2.80GHz)

  →needed 18 CPU for getting 10 times data in a week.

  ->>will check if the fitting program can run on ZEUS batch machine.