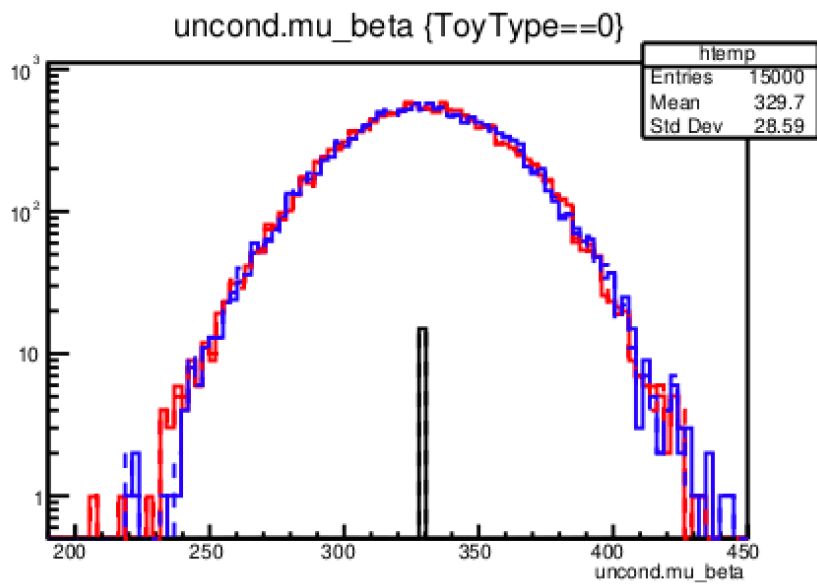


Beta Test

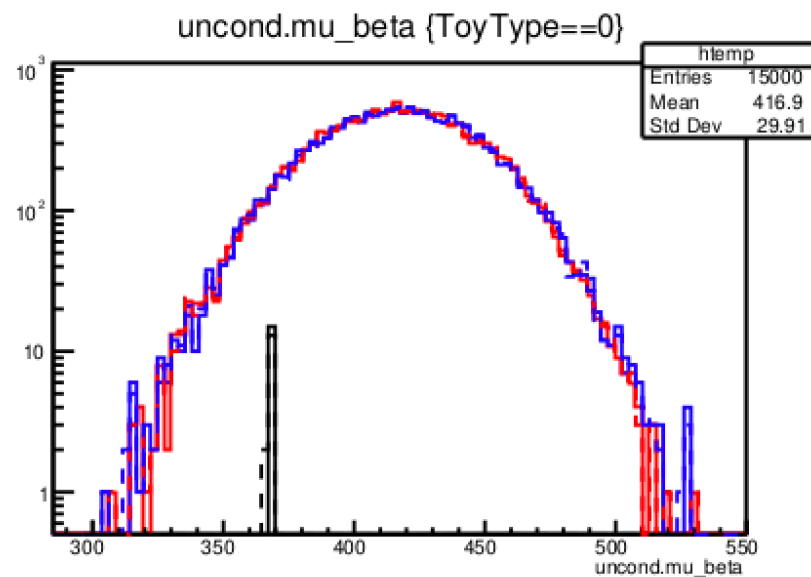
Yitong

Update

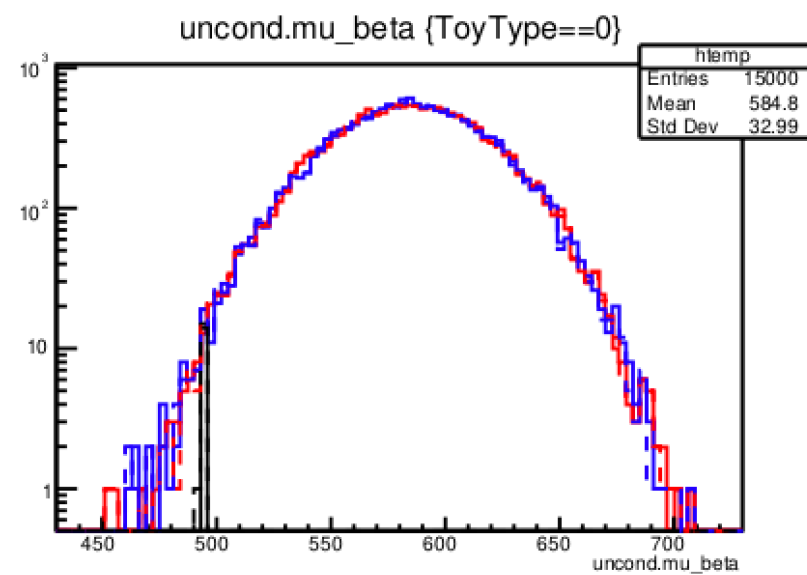
- Very high_nr value in the workspace output → the order of source was changed in my workspace
- Log scan:
 - No constraint function in fit model, but still has a constraint function in data generation model, 0%, 20%, 100% on mu_beta



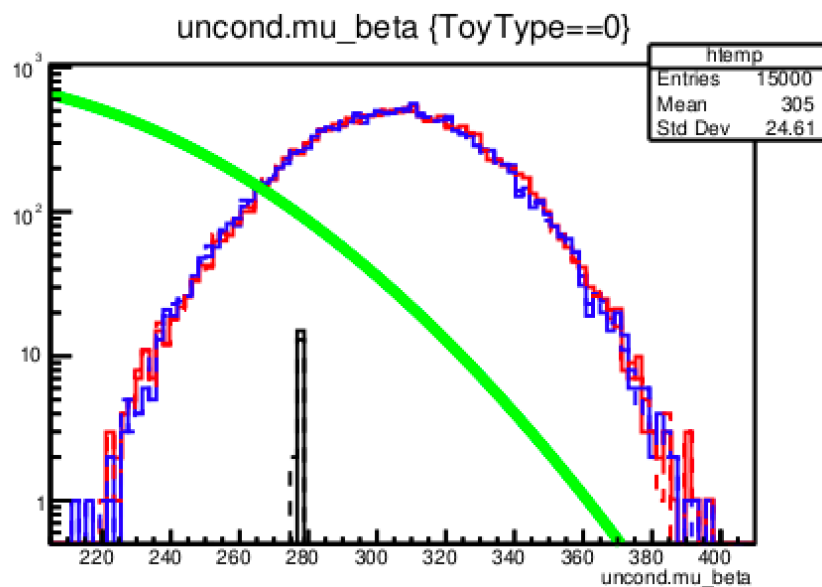
0%, no cst in fit model



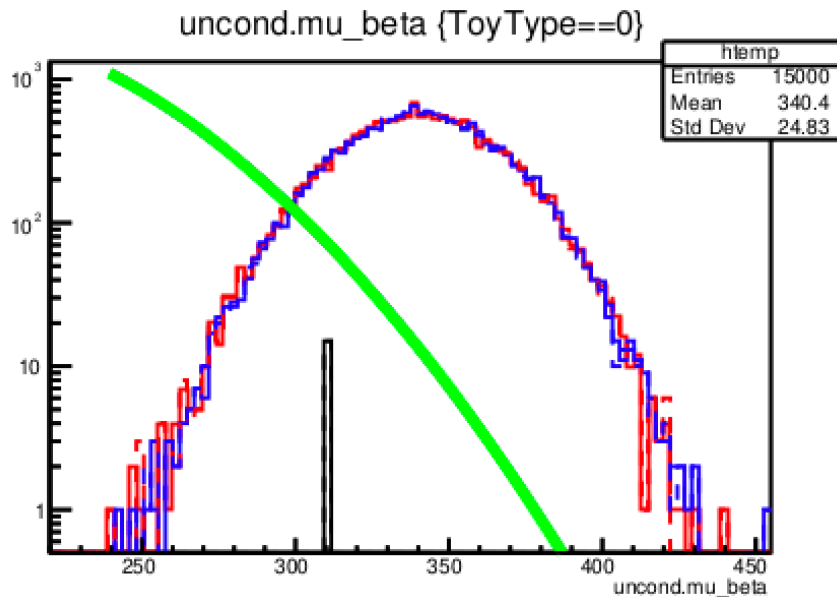
20%, no cst in fit model



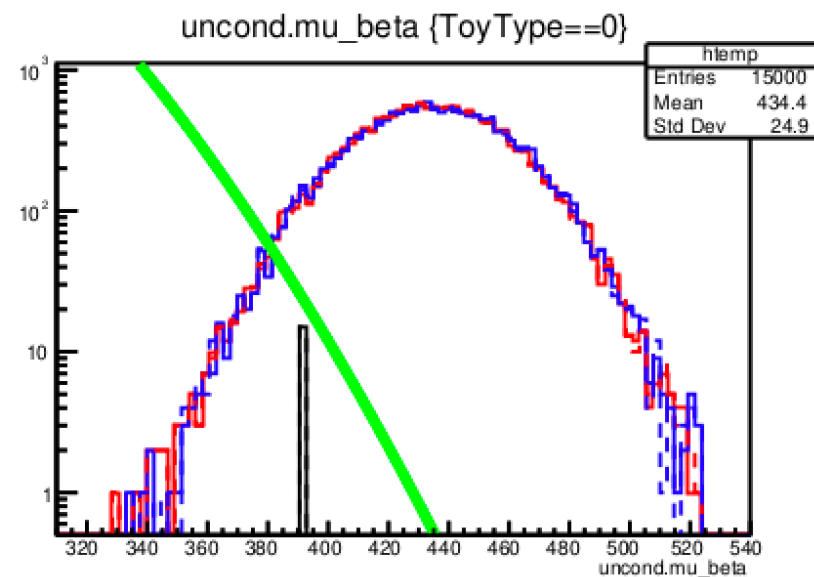
100%, no cst in fit model



0%



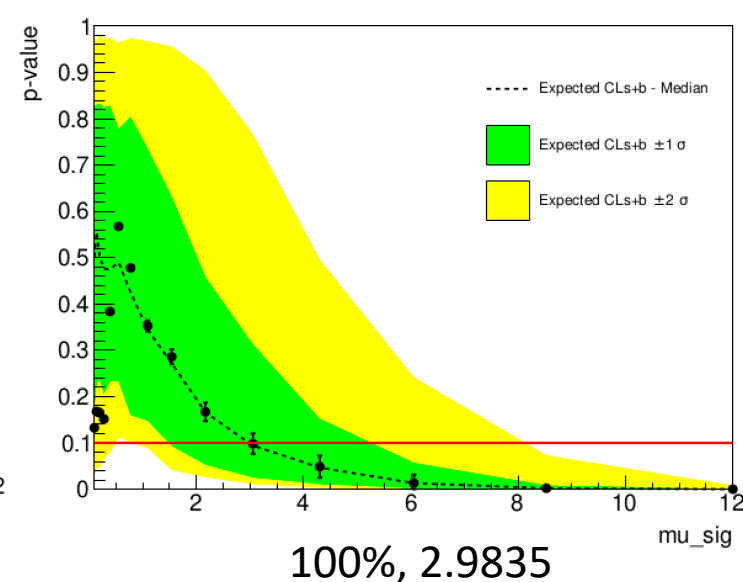
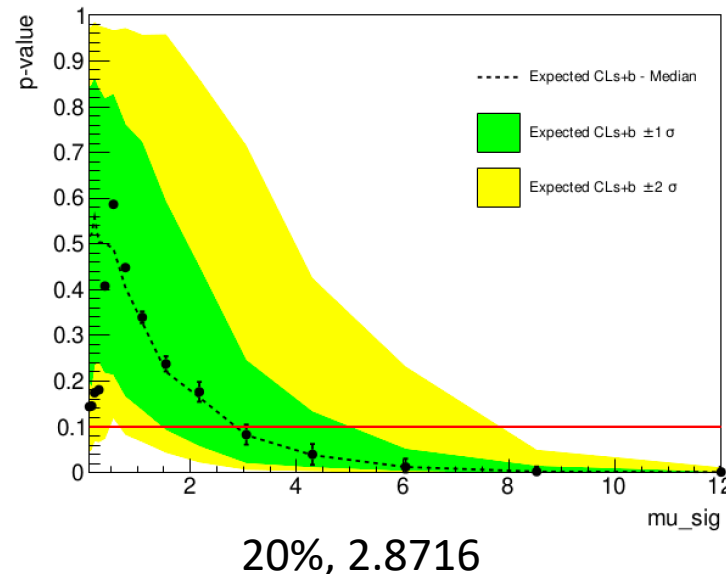
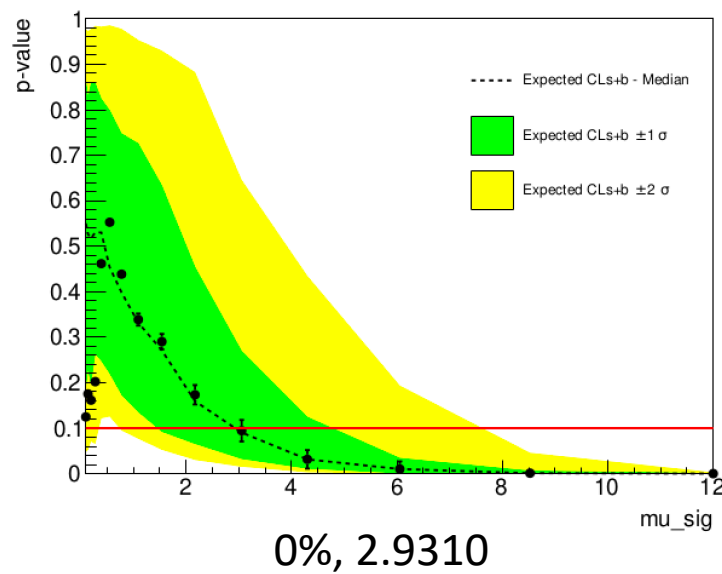
20%



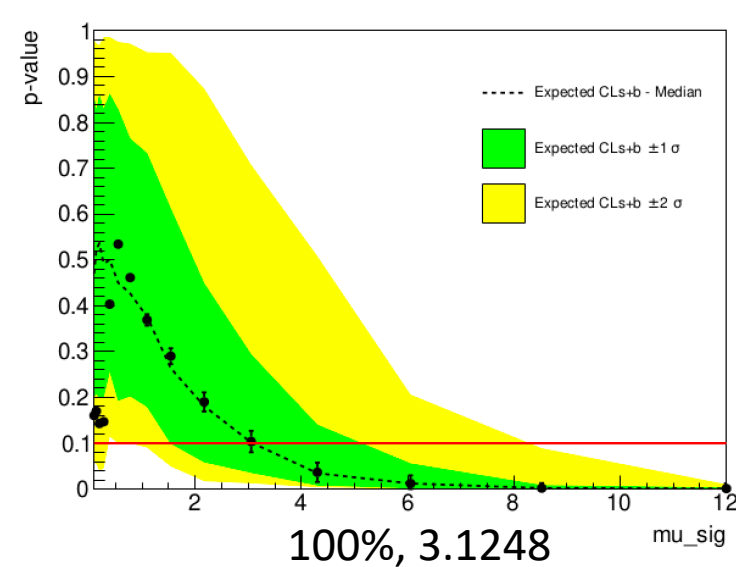
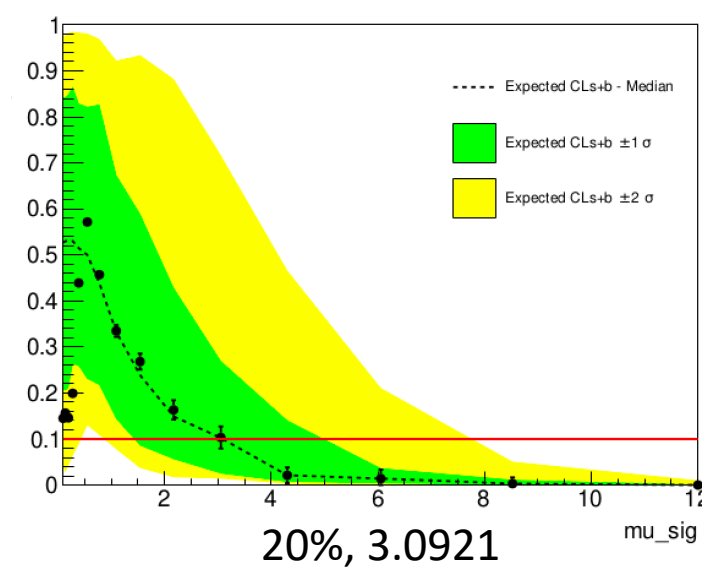
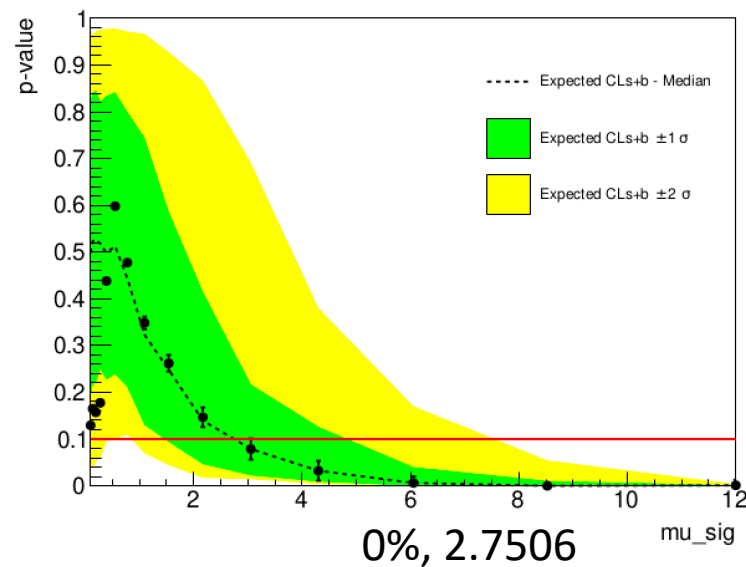
100%

No cst in fit model

With initial
fit in LZStats

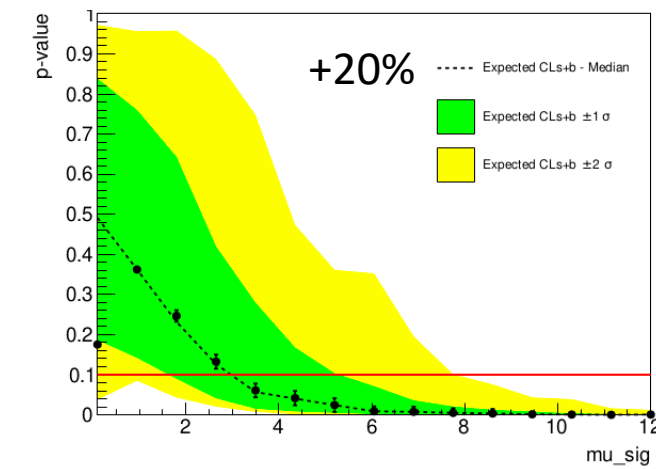
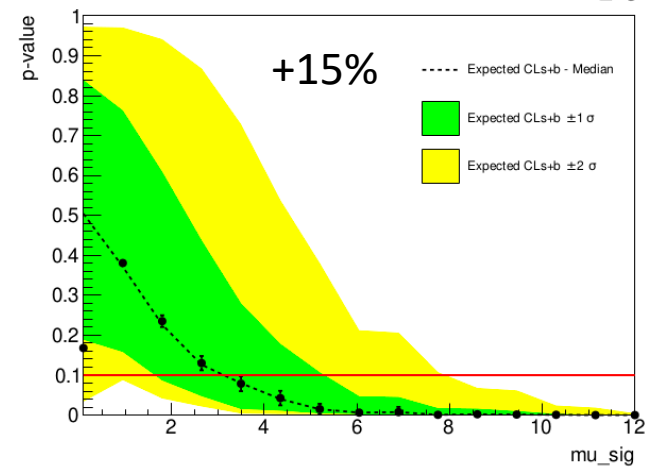
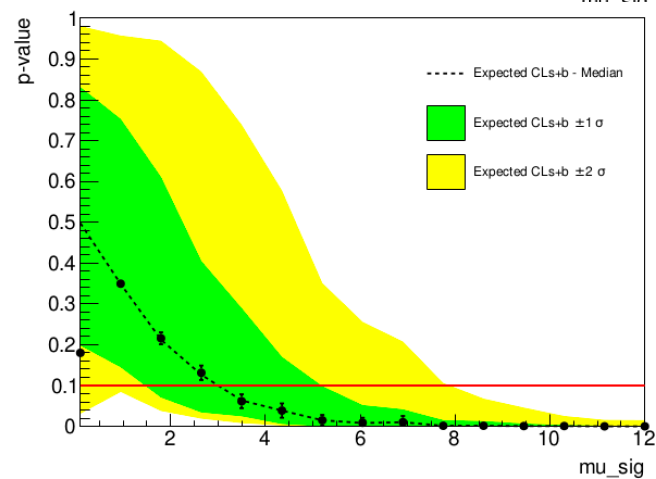
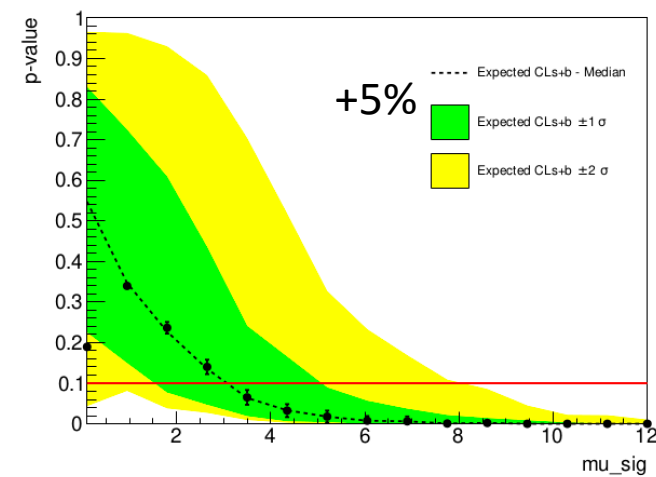
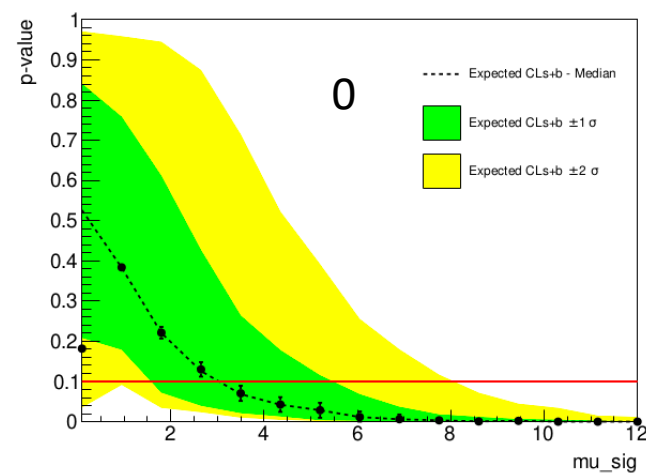
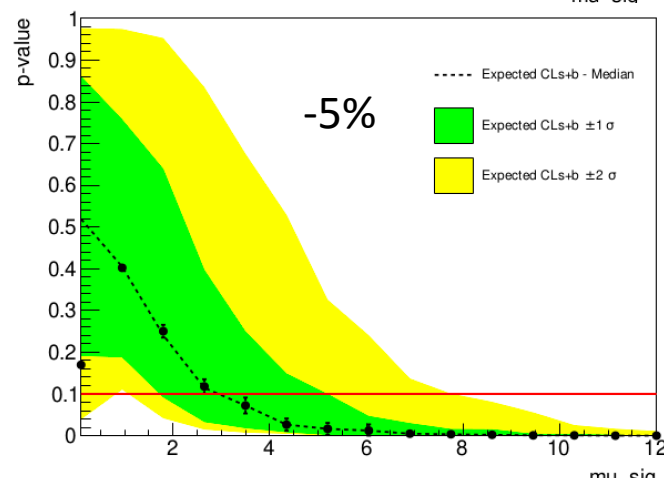
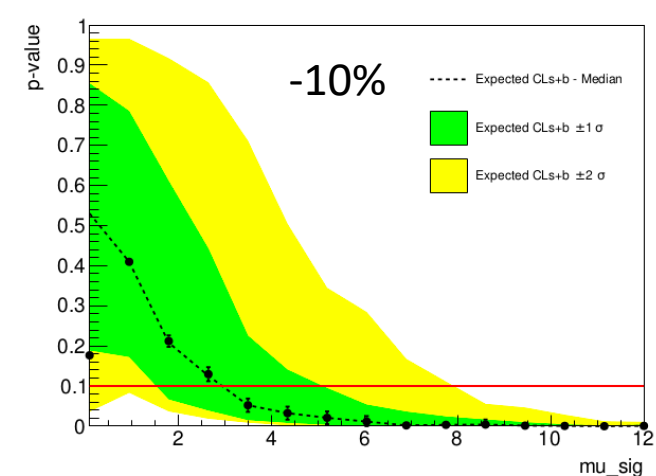
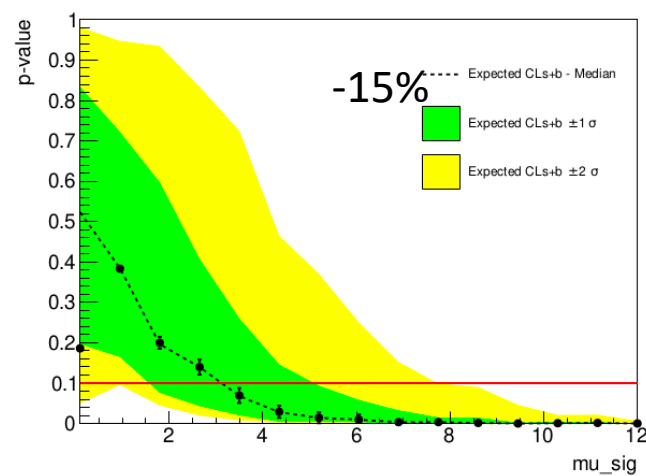
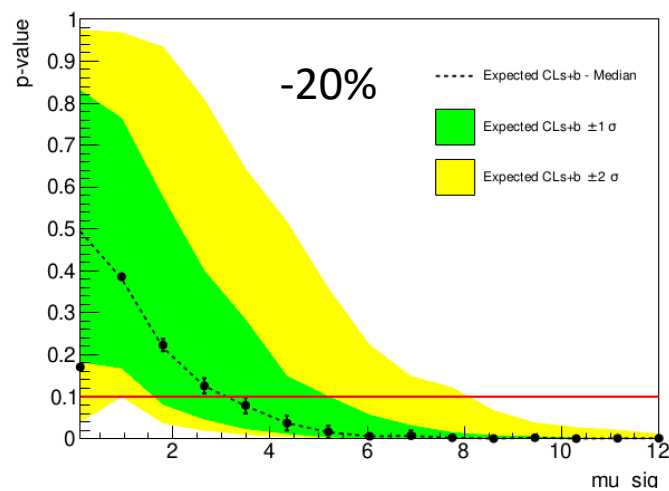


No initial fit
in LZStats

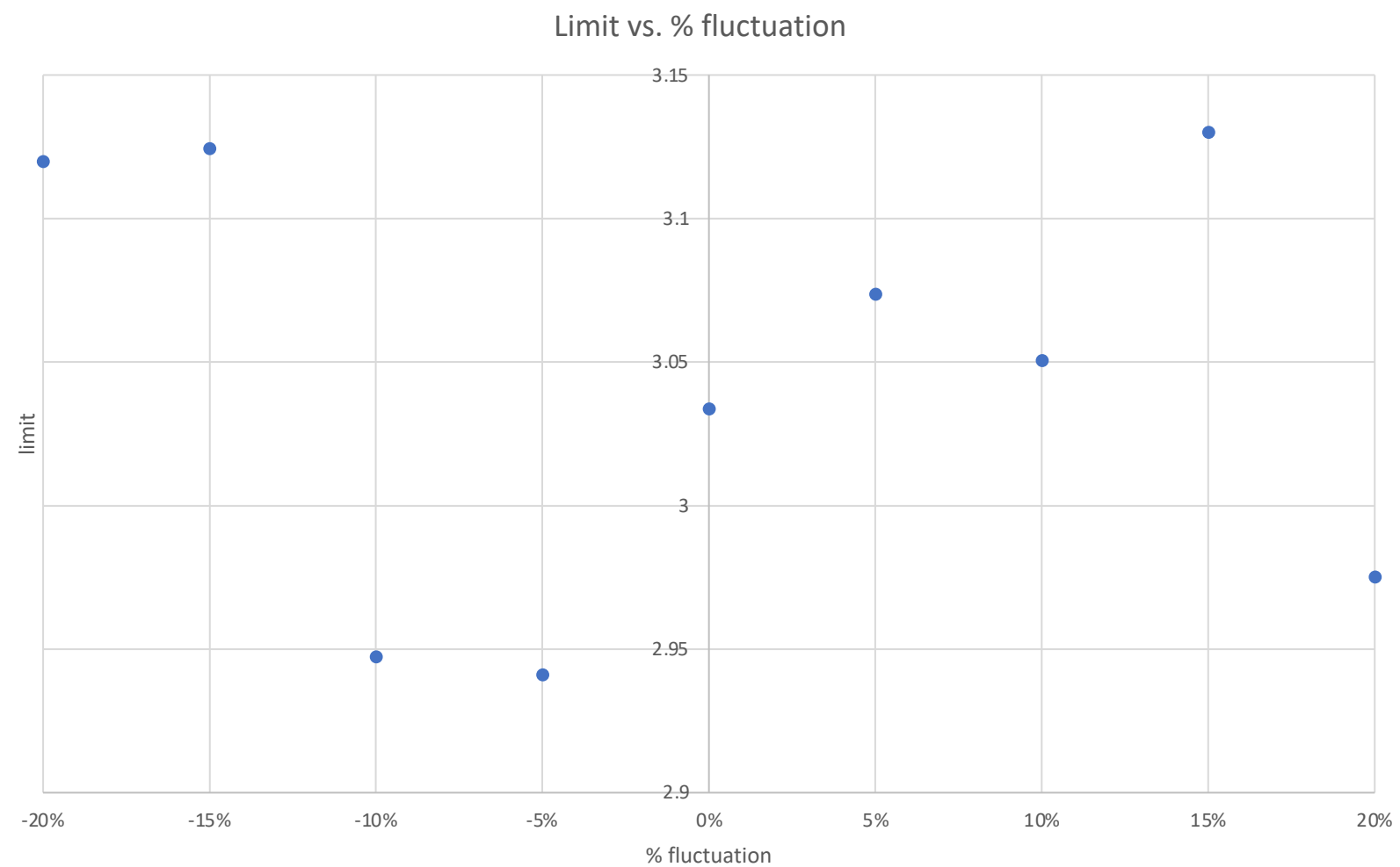


beta test

- **Data generated model:** with the beta fluctuation
- **Fitting model:** the default beta model
- **Fluctuations:** 5% (~ 8), 10% (~ 17), 15% (~ 25), 20% (~ 33) on original $\mu_{\text{beta}} \sim 167$, a_{beta} & constraint function
 - 40GeV, 60d
 - #toys: 1500
 - nPOI = 15
 - Calculator type = 9
- For each case: low failed toys; ~ 7 ; ~ 12 h running time

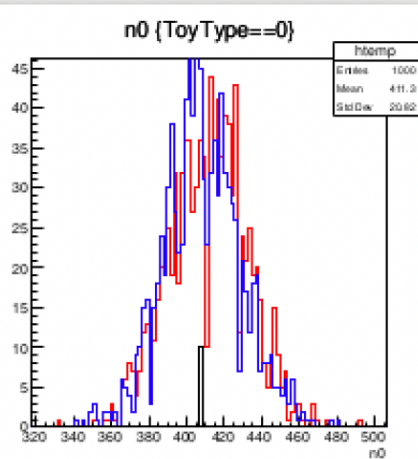
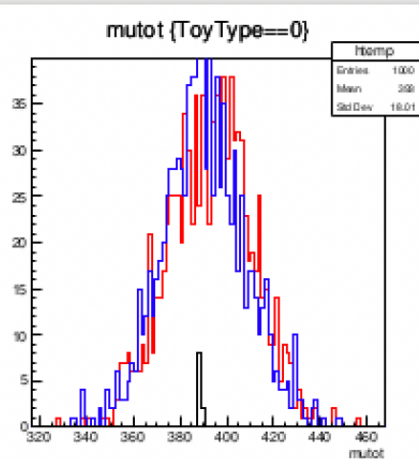


%	-20%	-15%	-10%	-5%	0	5%	10%	15%	20%
limit	3.120	3.124	2.947	2.941	3.034	3.074	3.051	3.130	2.975

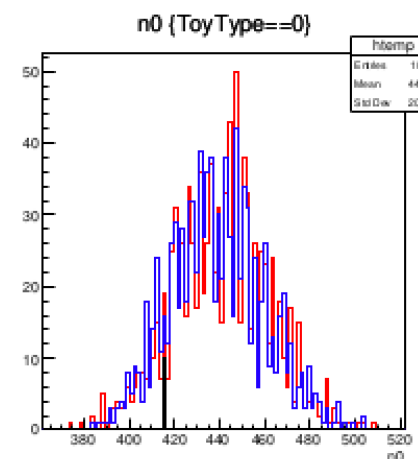
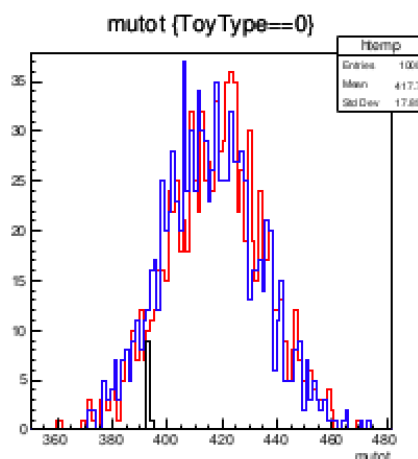


STD = 0.075

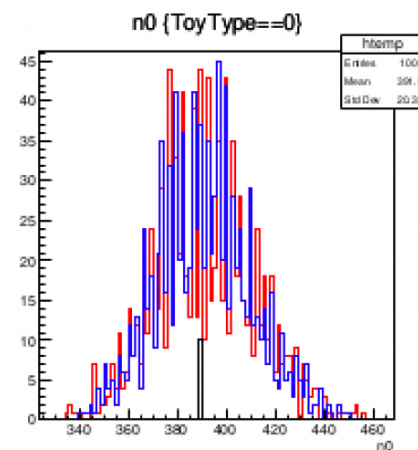
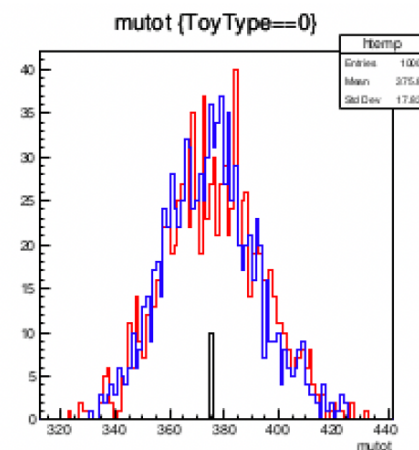
0



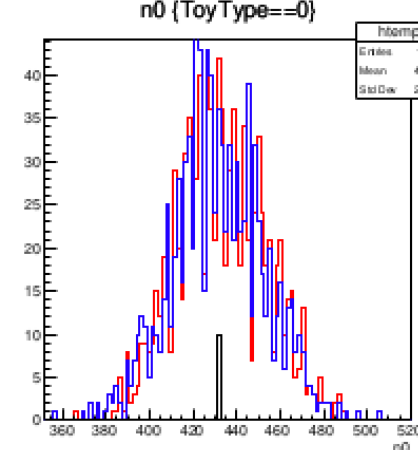
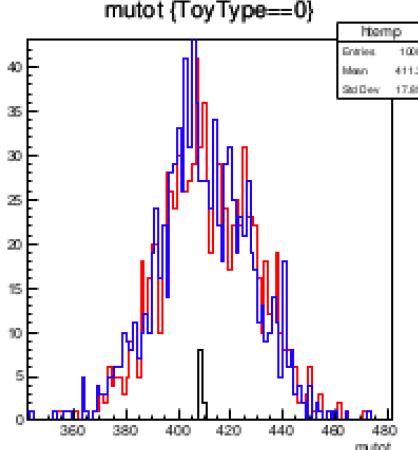
+5%
~8



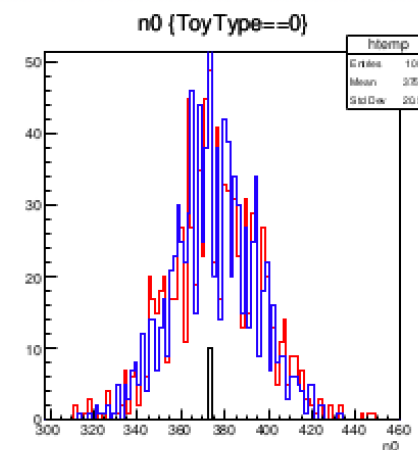
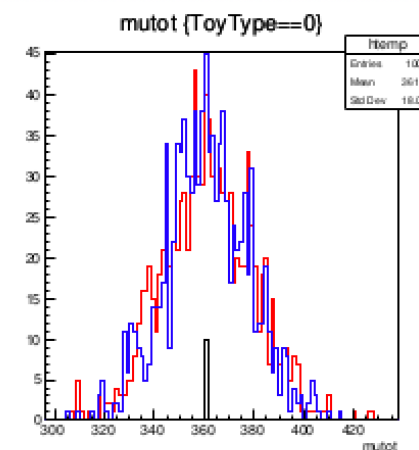
-10%
~16



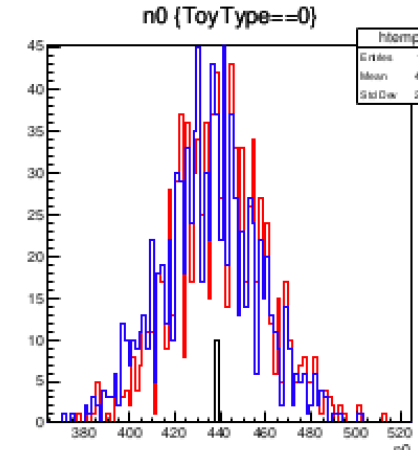
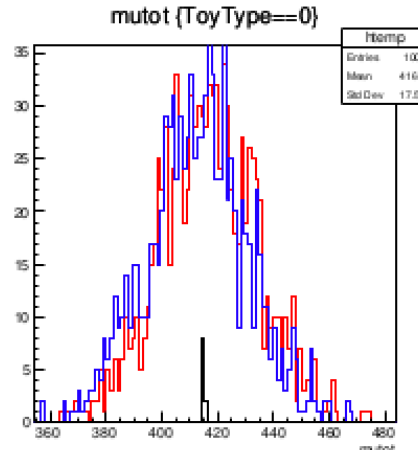
+15%
~25

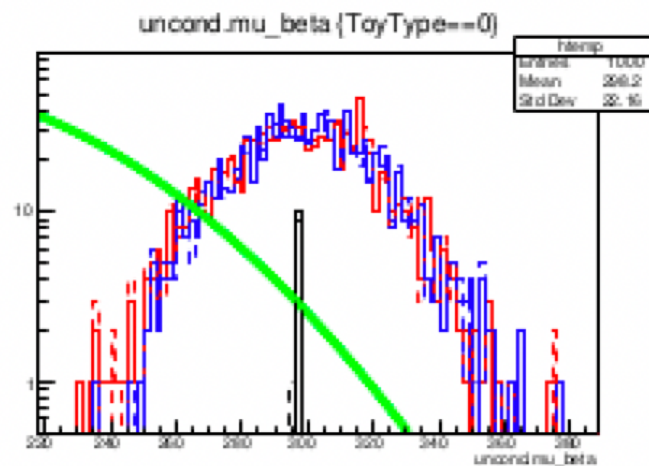


-20%
~33

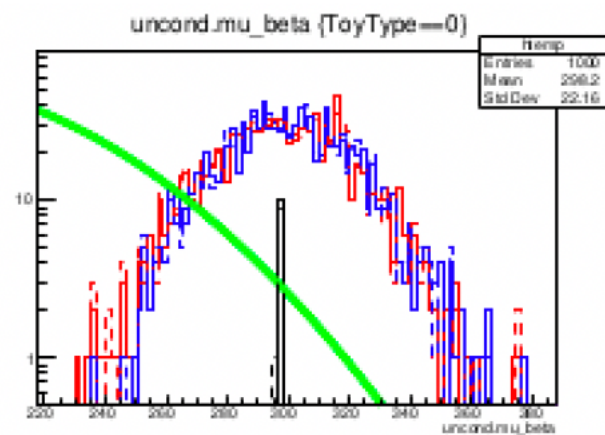


+20%
~33

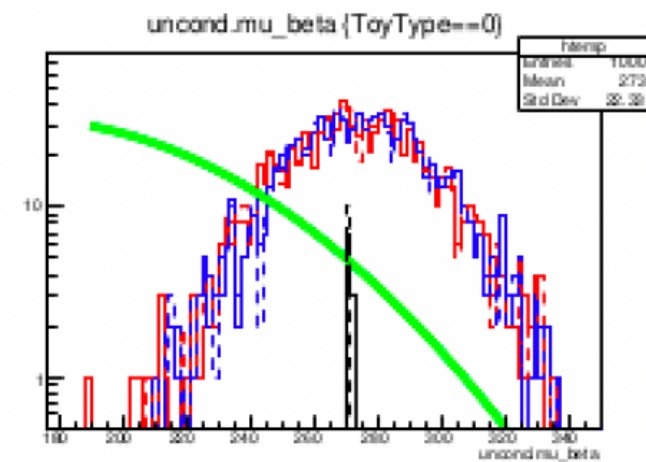




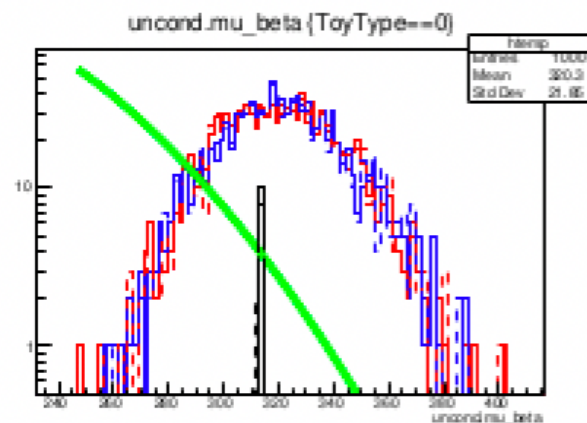
0



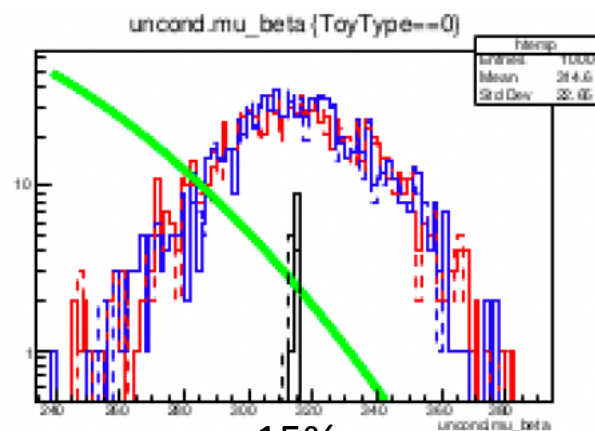
-10%
~16



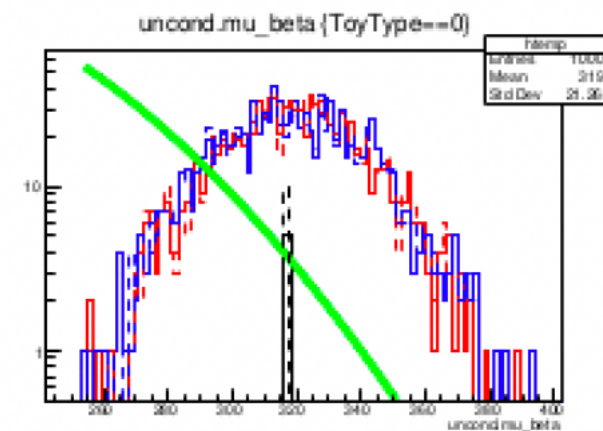
-20%
~33



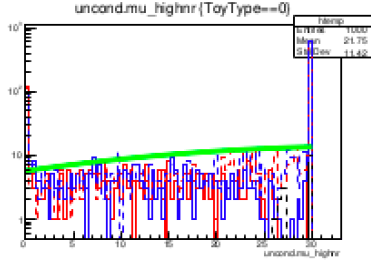
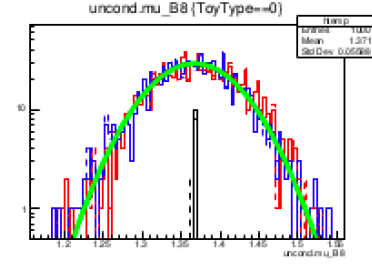
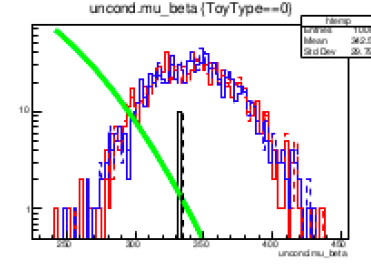
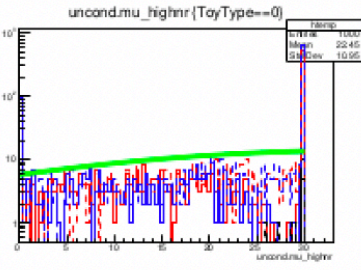
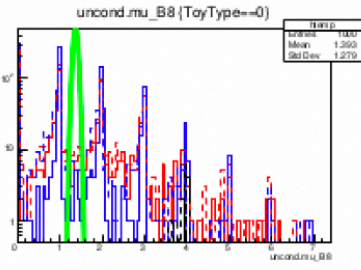
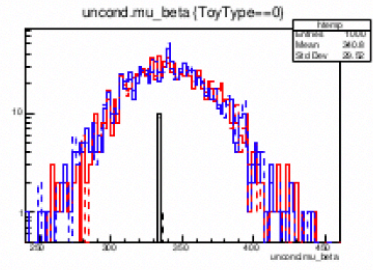
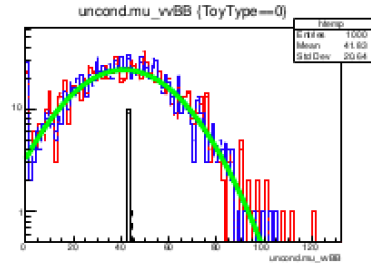
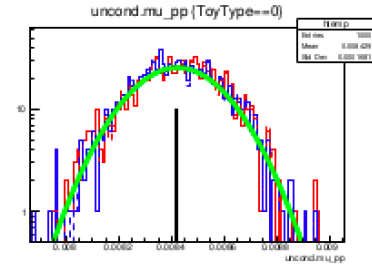
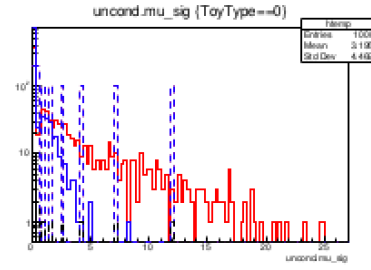
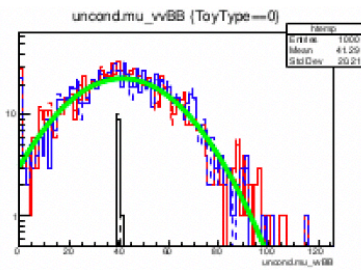
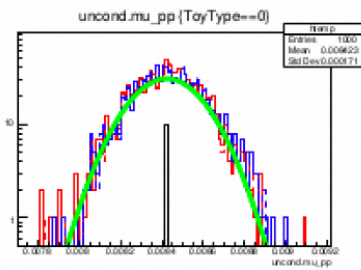
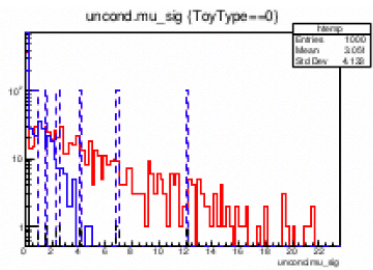
+5%
~8



+15%
~25



+20%
~33



Constraint in data generation model
No Constraint in fit model

Constraint in both data generation
model & fit model

To do

- Higher fluctuation, $\sim 100\%$ increase in μ_{beta}
- Constraint function