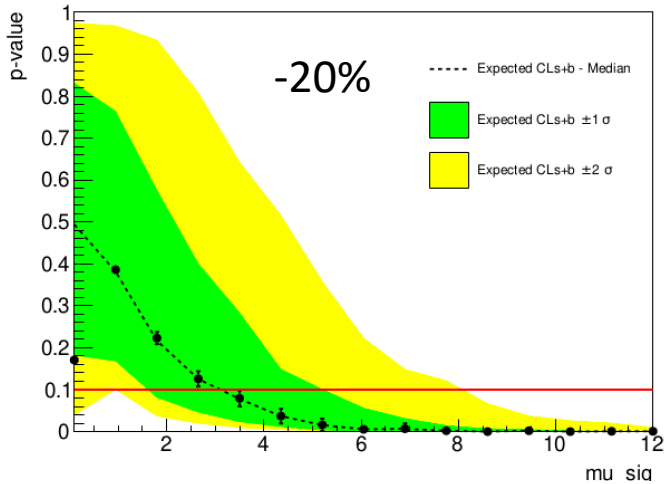
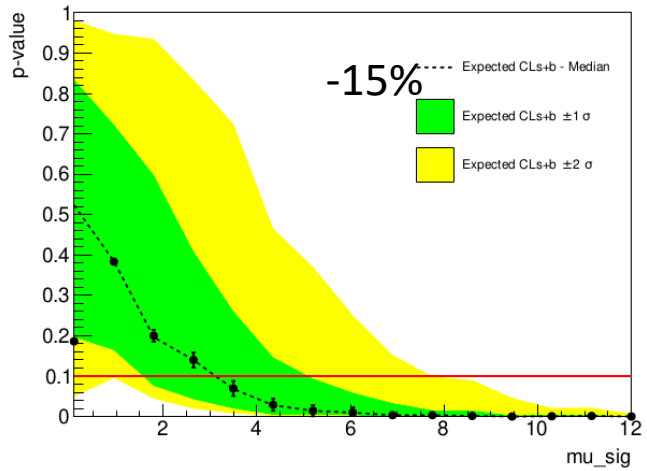
Beta Test

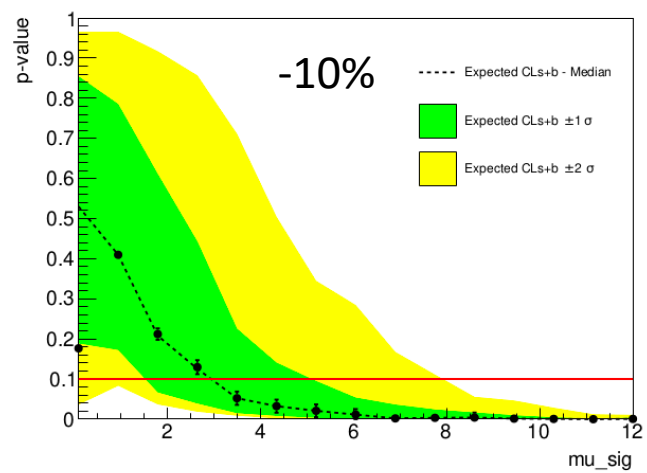
Yitong

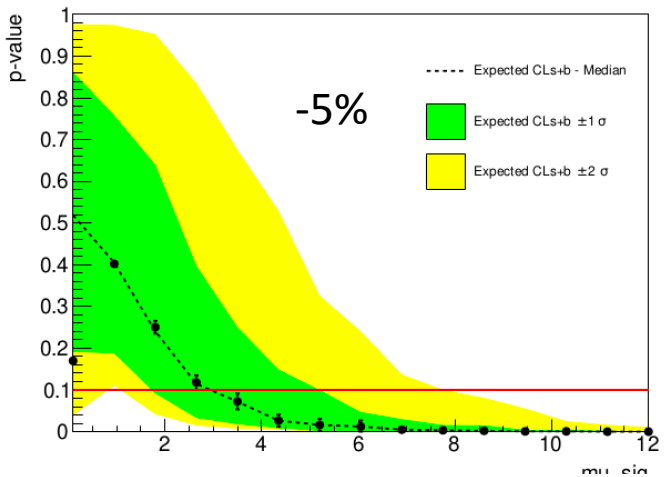
beta test

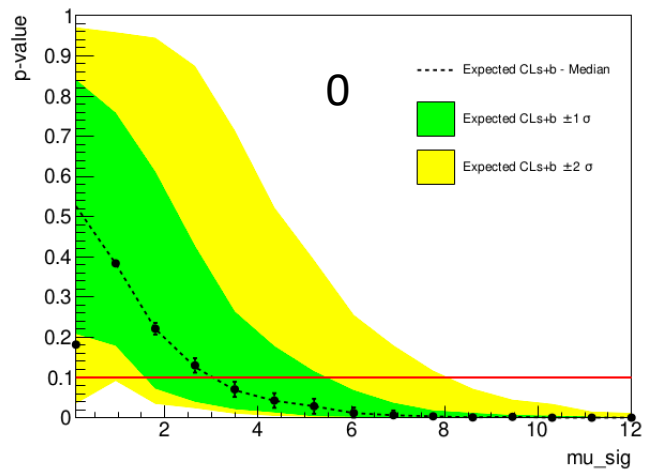
- **Data generated model:** with the beta fluctuation
- **Fitting model:** the default beta model
- **Fluctuations:** 5% (~8), 10% (~17), 15% (~25), 20% (~33) on original mu_beta ~167, a_beta & constraint function
  - 40GeV, 60d
  - #toys: 1500
  - nPOI = 15
  - Calculator type = 9
- For each case: low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

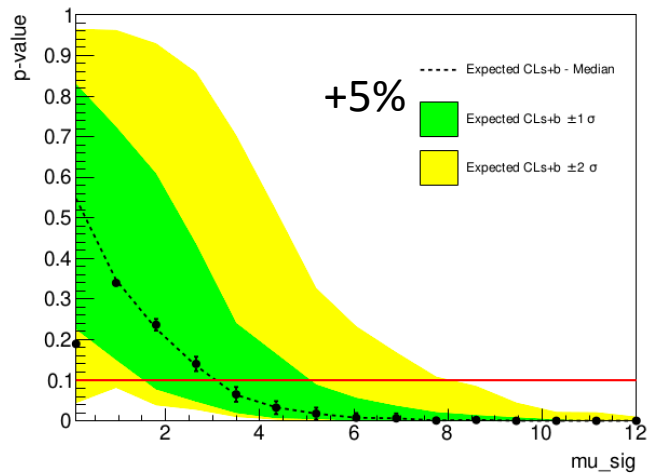

-20%
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig

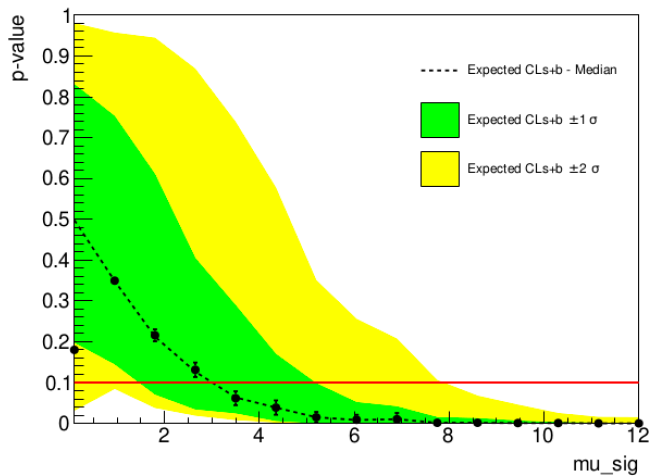

-15%
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig

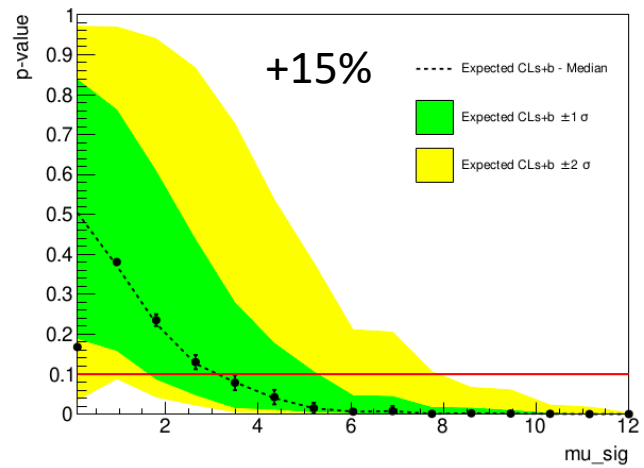

-10%
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig

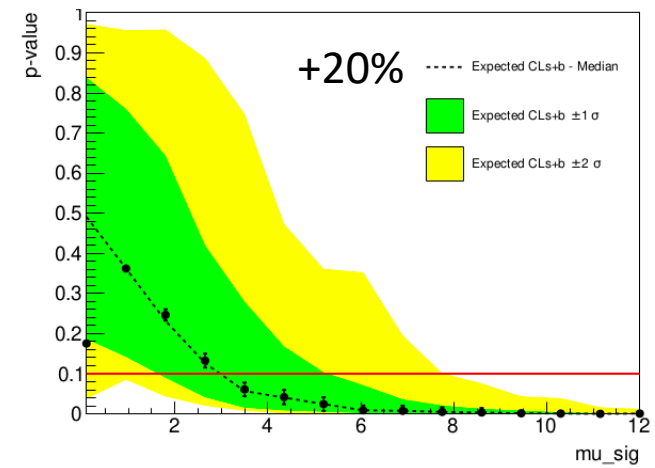

-5%
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value


0
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig


+5%
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig

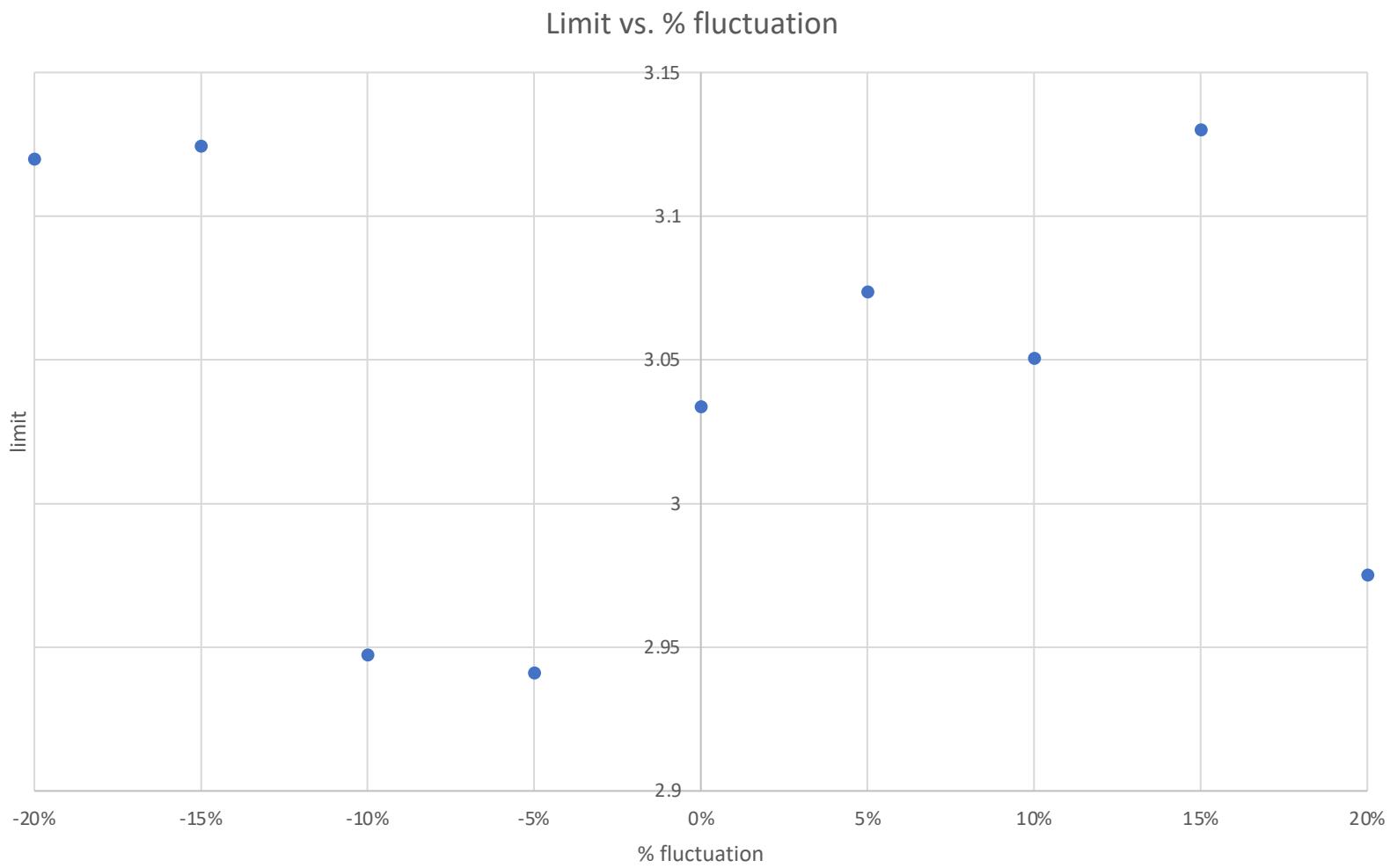

Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig


+15%
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig

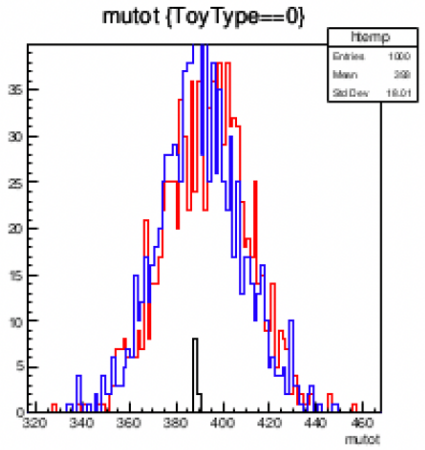

+20%
Expected CLs+b - Median
Expected CLs+b ±1 σ
Expected CLs+b ±2 σ
p-value
mu_sig

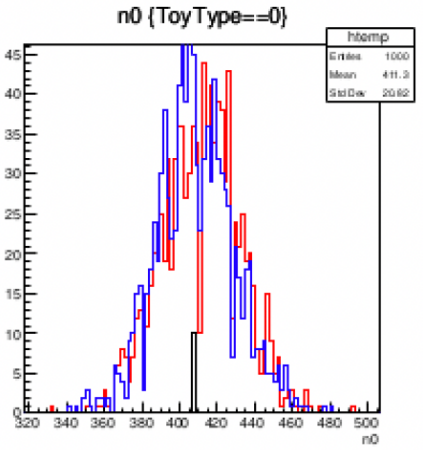
%	-20%	-15%	-10%	-5%	0	5%	10%	15%	20%
limit	3.120	3.124	2.947	2.941	3.034	3.074	3.051	3.130	2.975

STD = 0.075

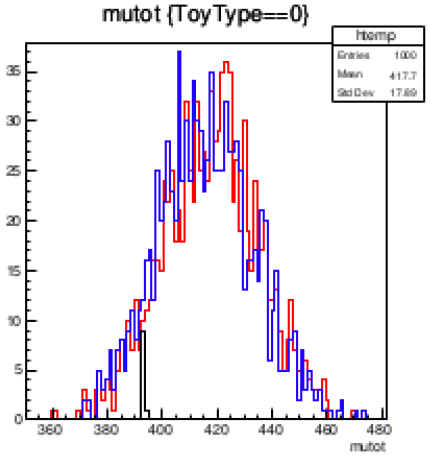


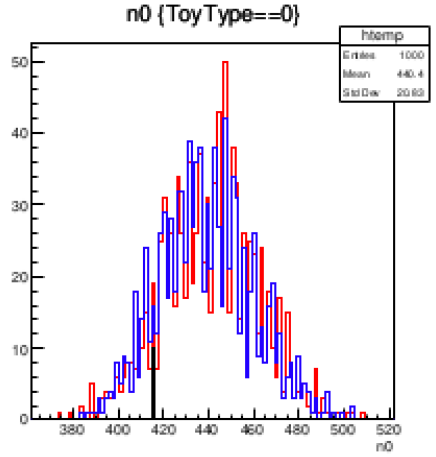
0



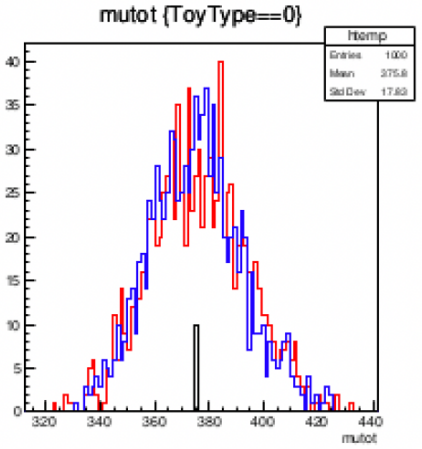


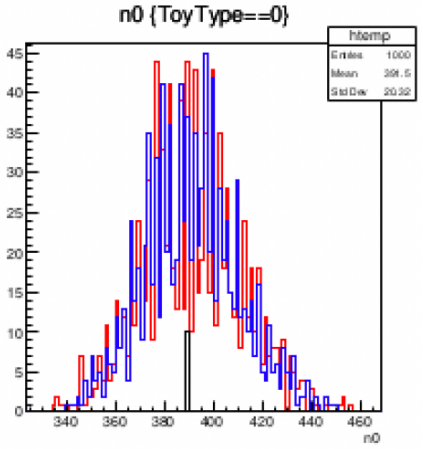
+5%
~8



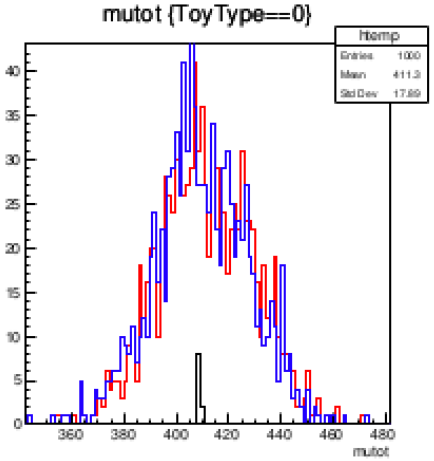


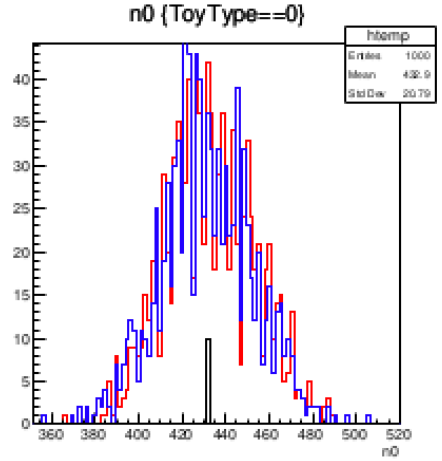
-10%
~16



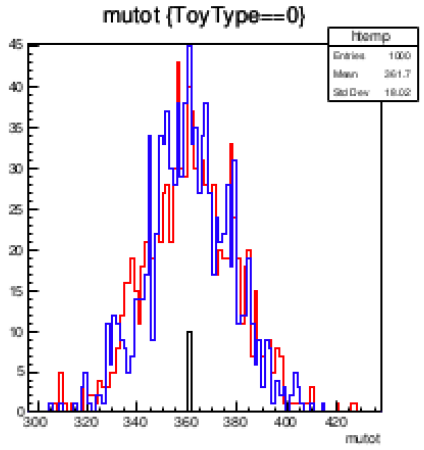


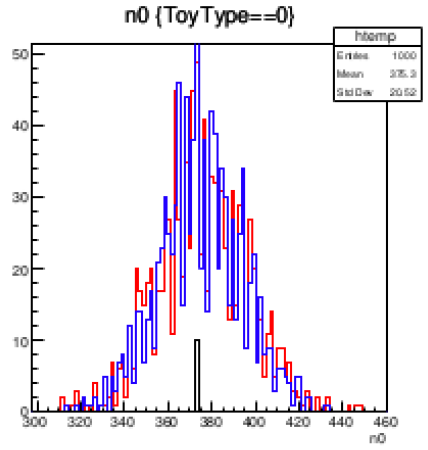
+15%
~25



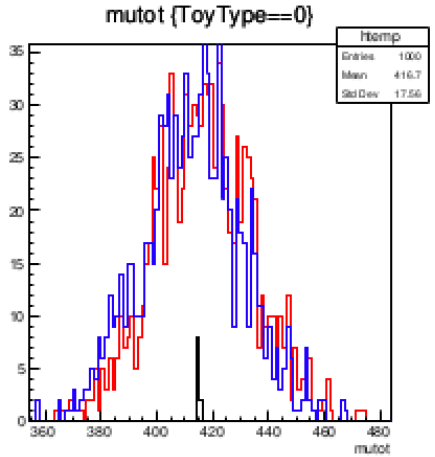


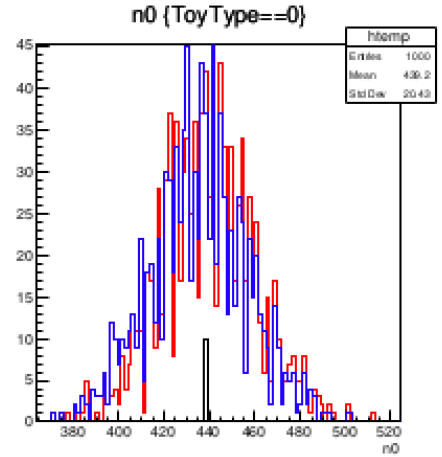
-20%
~33

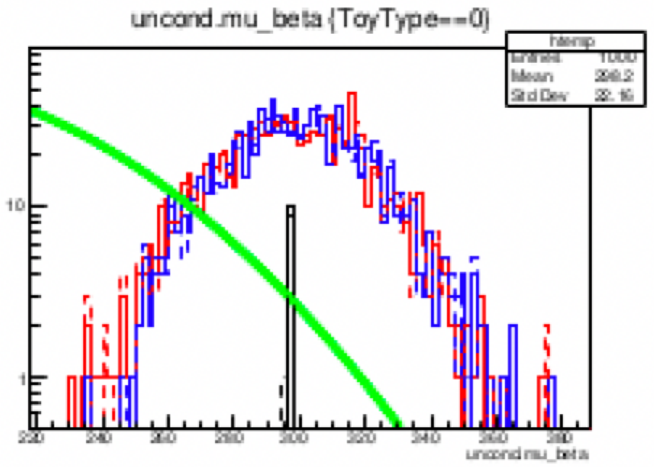




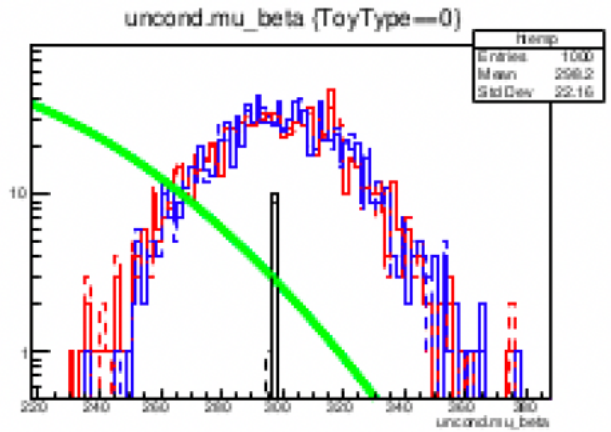
+20%
~33



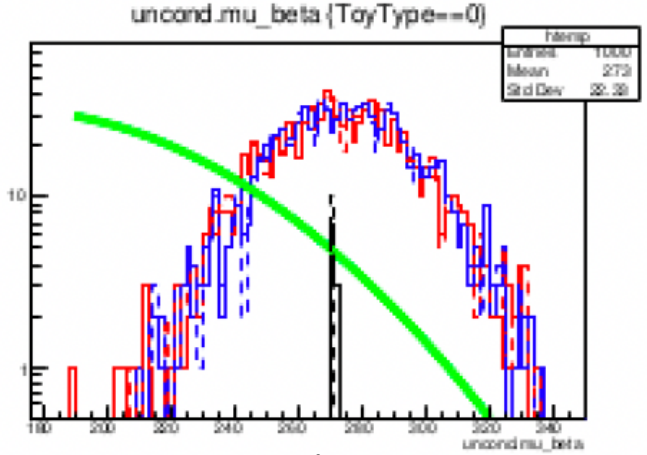




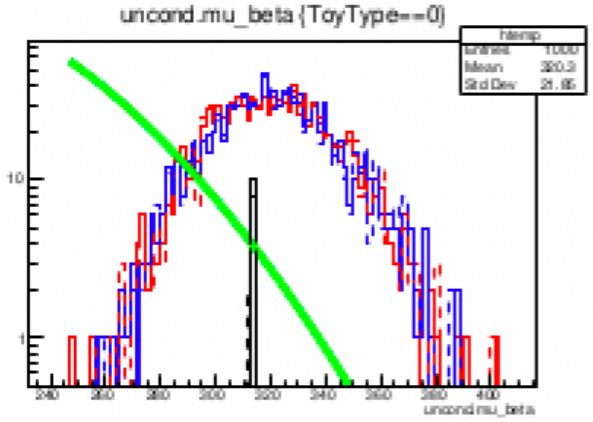
0



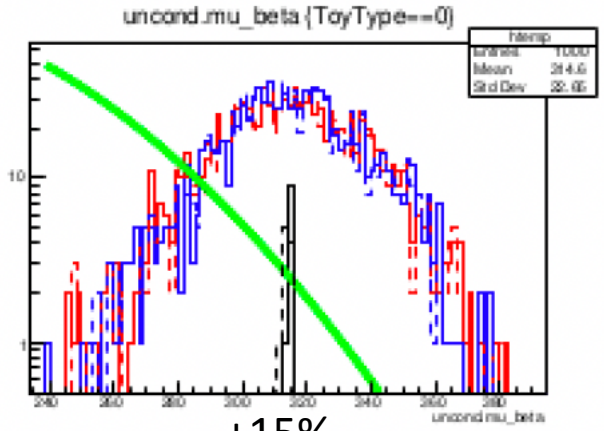
-10%
~16



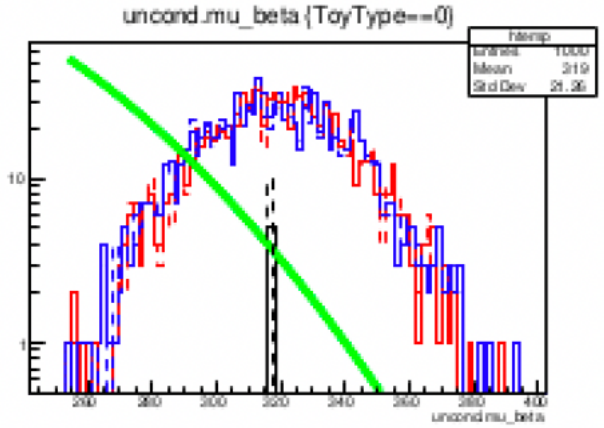
-20%
~33



+5%
~8



+15%
~25



+20%
~33

To do

- Higher fluctuation, ~100% increase in mu_beta
- Constraint function