

Why this meeting?

- Everyone has to do unfolding
- It is a complicated topic for everyone
- We can work together

GOAL:

Compile a list of successive steps to set the code up and do the needed cross checks for correct results

PRELIMINARY PROPOSAL FOR CROSS CHECKS

- Install RooUnfold
- Build a perfectly diagonal matrix and try to unfold your distribution (smearing resolution ~ 0)
 - Toy MC starting from a flat input spectrum
 - Toy MC starting from a more elaborate input spectrum ($1/(x+1)$)

Repeat the same exercise by including an increasing resolution in your toy MC

Example available:

`/nfs/dust/cms/user/gunnep/ToyMC`

You find two different sets of scripts:

`Flat_Exercise.cpp`: create a response matrix with gaussian smearing starting from a flat input distribution

`Linear_Exercise.cpp`: create a response matrix with gaussian smearing starting from a input distribution going like $1/(x+1)$

Example available:

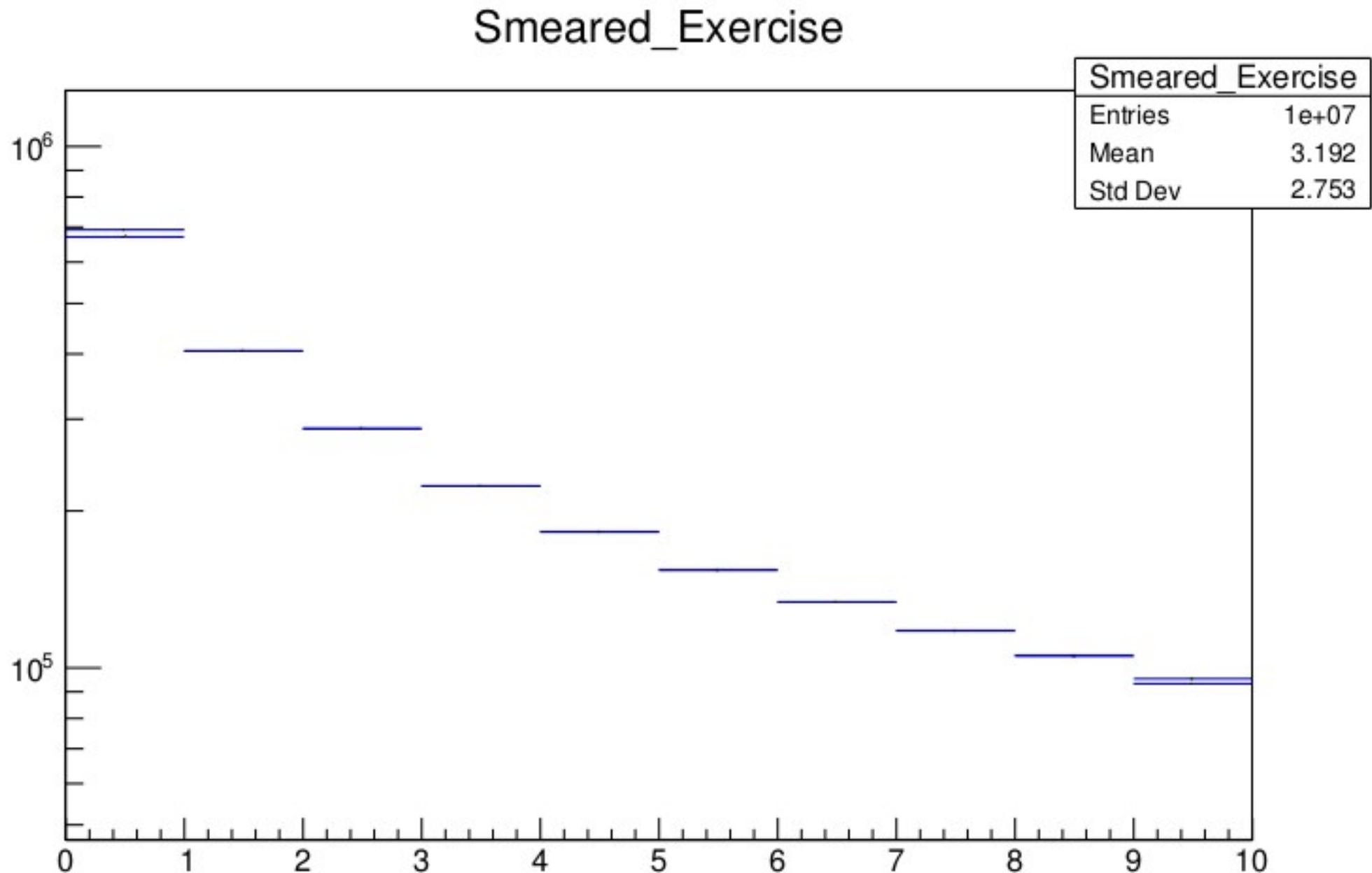
`/nfs/dust/cms/user/gunnep/ToyMC`

Script for unfolding:

UnfoldingData.C: unfold the smeared spectrum with a certain number of iterations with D'Agostini method and save the results in a root file along with the true input distribution

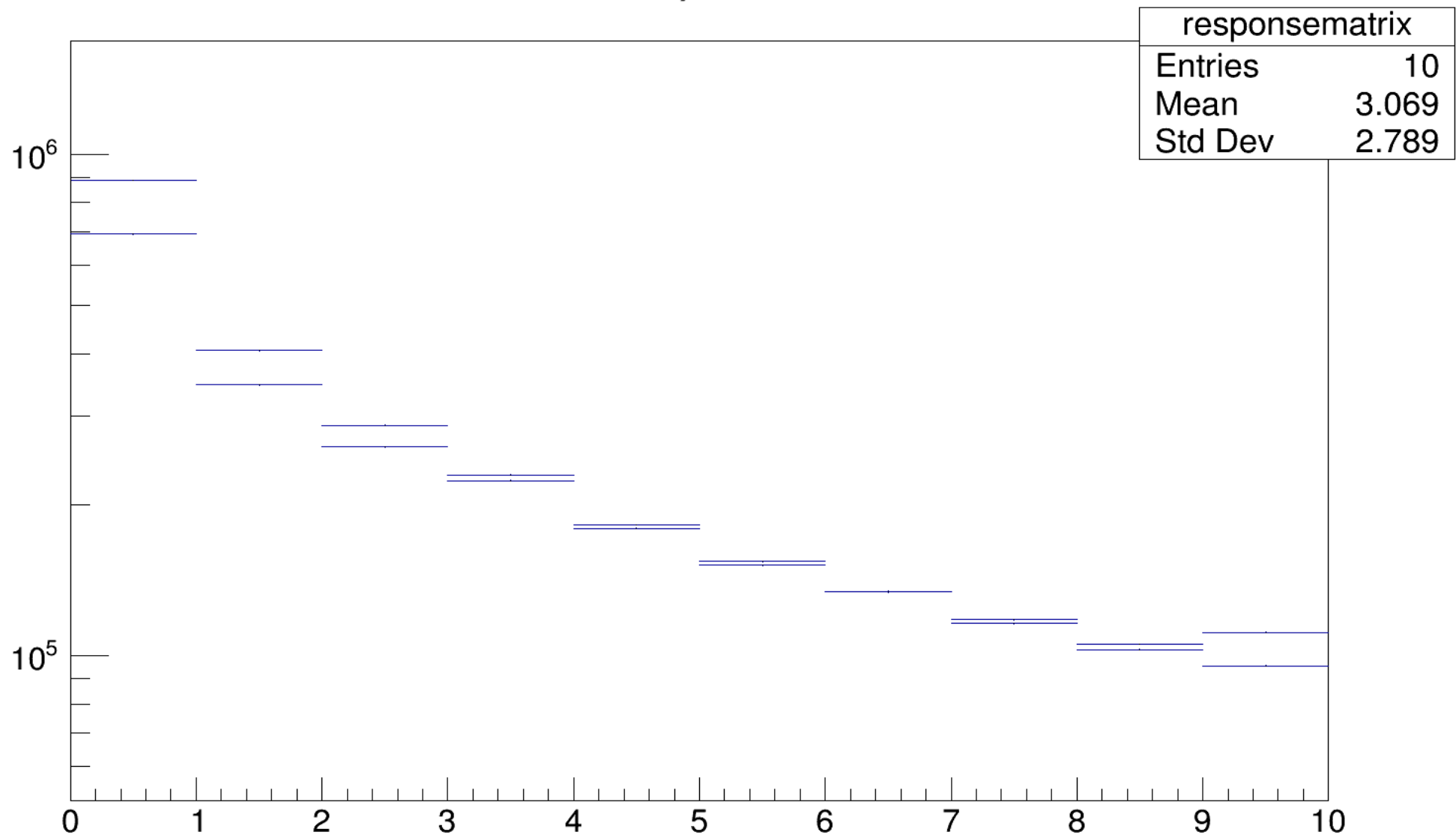
To run it: `root -l run_unfoldData.C`

Unfolding with flat response matrix and $\sigma = 0.01$



Unfolding with flat response matrix and sigma = 0.6

Unfold responsematrix



When we understand what is going on with these simple exercises, we can start to consider distributions from MC and try to unfold them:

- with a diagonal matrix
- with an increasing resolution
- with the response matrix from the MC itself
 - data and backfolding