Updates from Krakow

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FITS

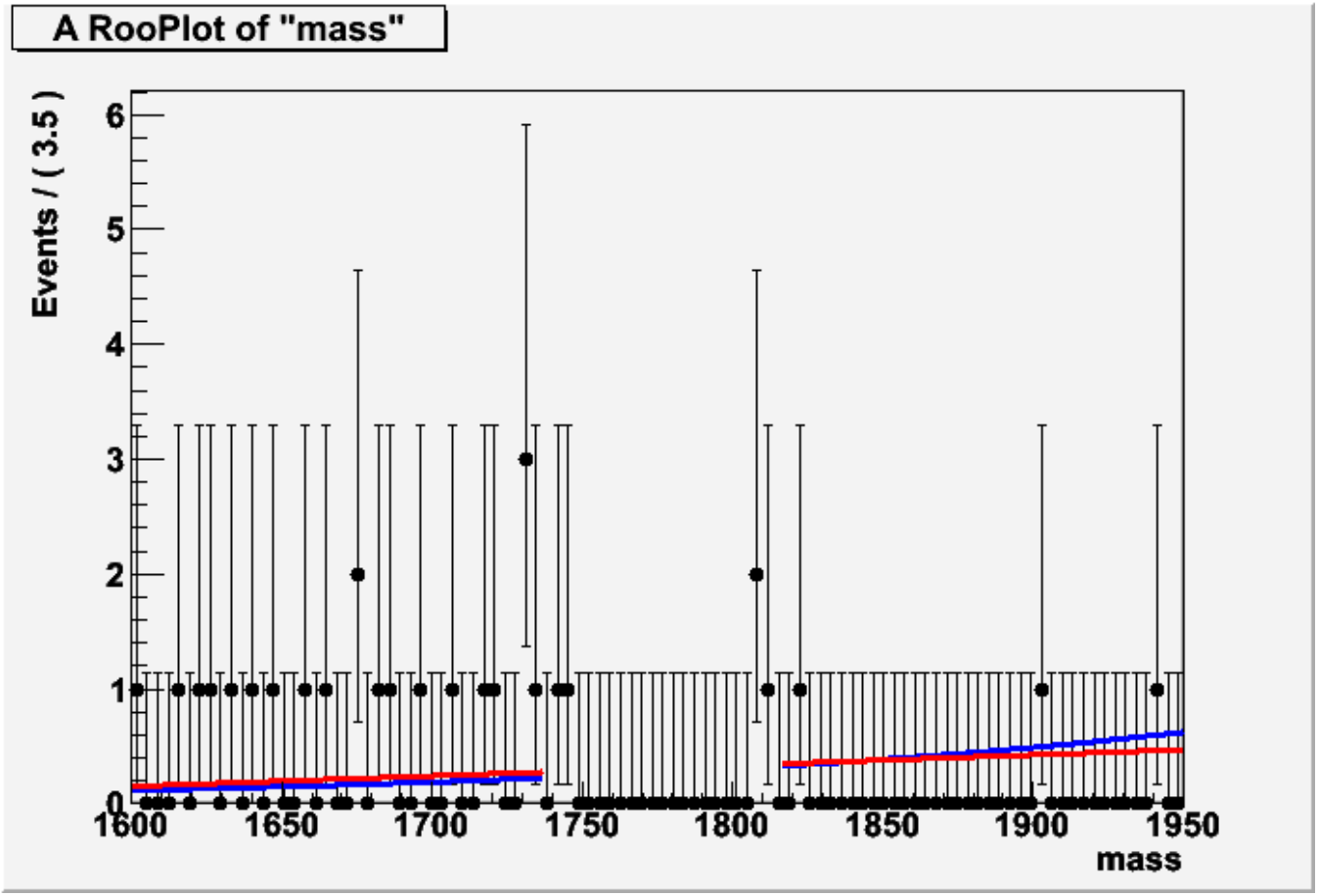
Marc sugestions:

1. Check with different strategies (RooFit::Strategy(4), etc.)
2. Change the mass window and see what happens. Mark said that if the fit will still be rising you have to prove, by changing the window get the rising fit and compare the expected number of events. If they don't change much it's ok.

1st Point

I checked all possible strategies, with different ranges(even 100 times to big). The fit is stable as hell =)

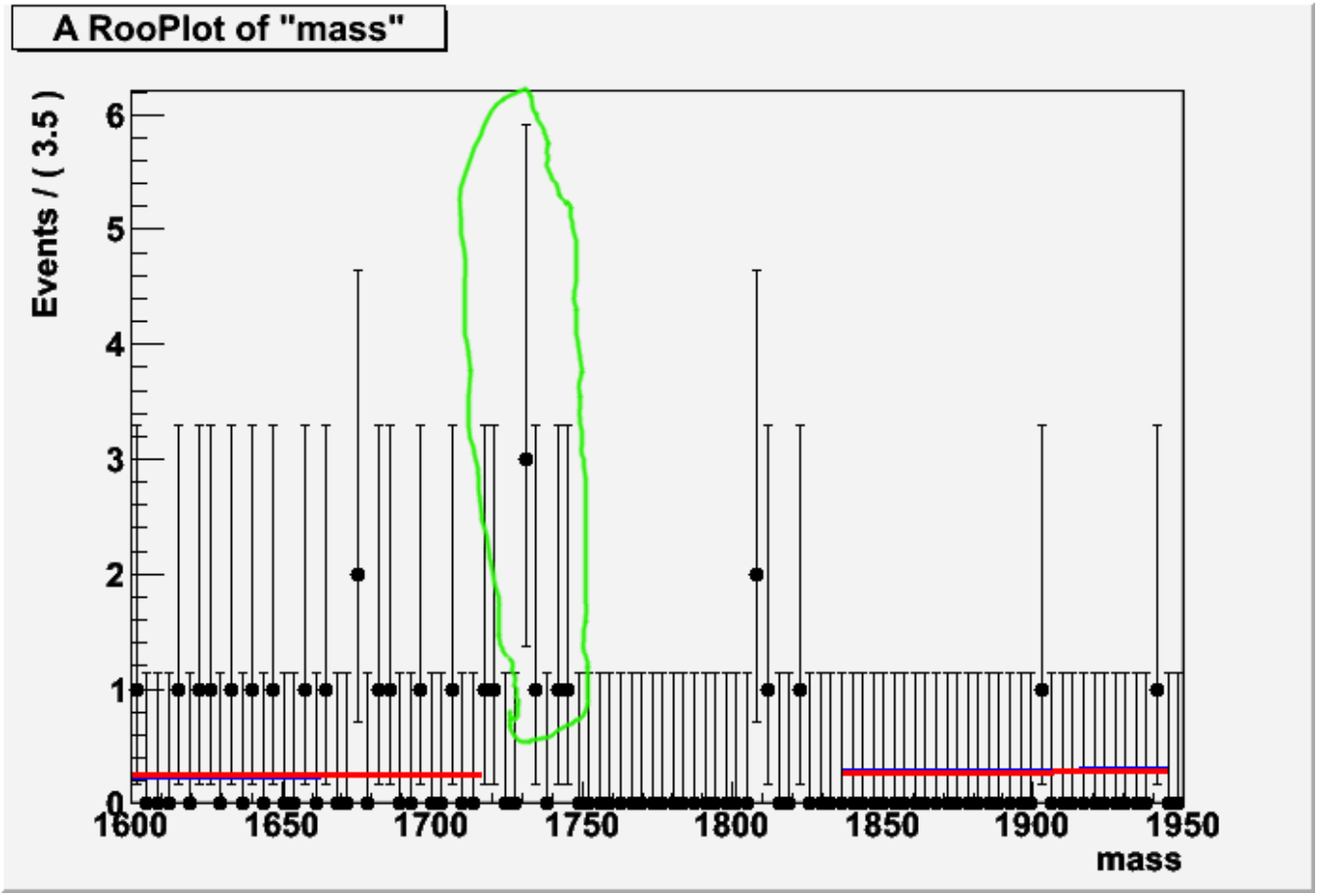
FITS



Standard fit

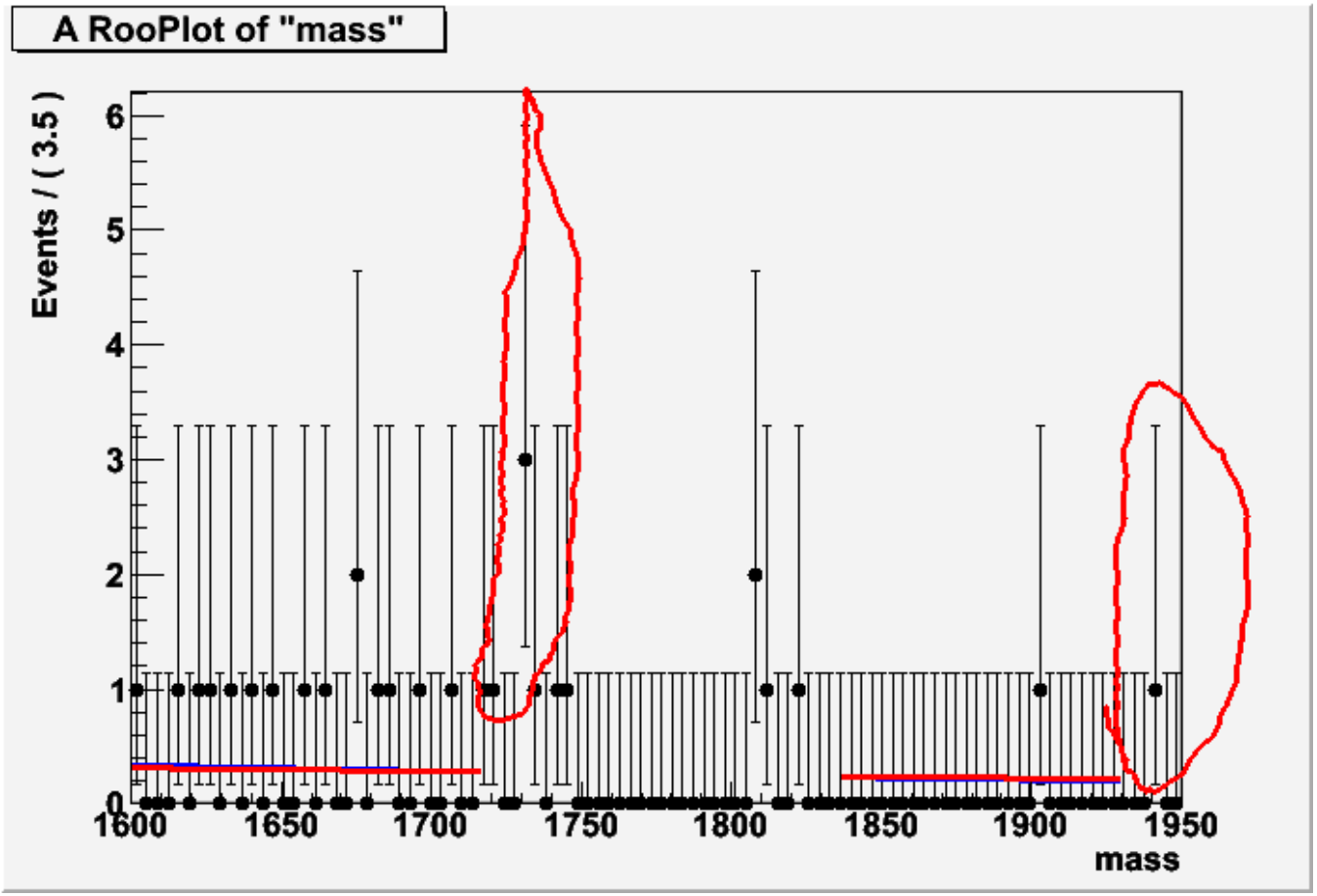
Not changed mass window

FITS



Different mass window

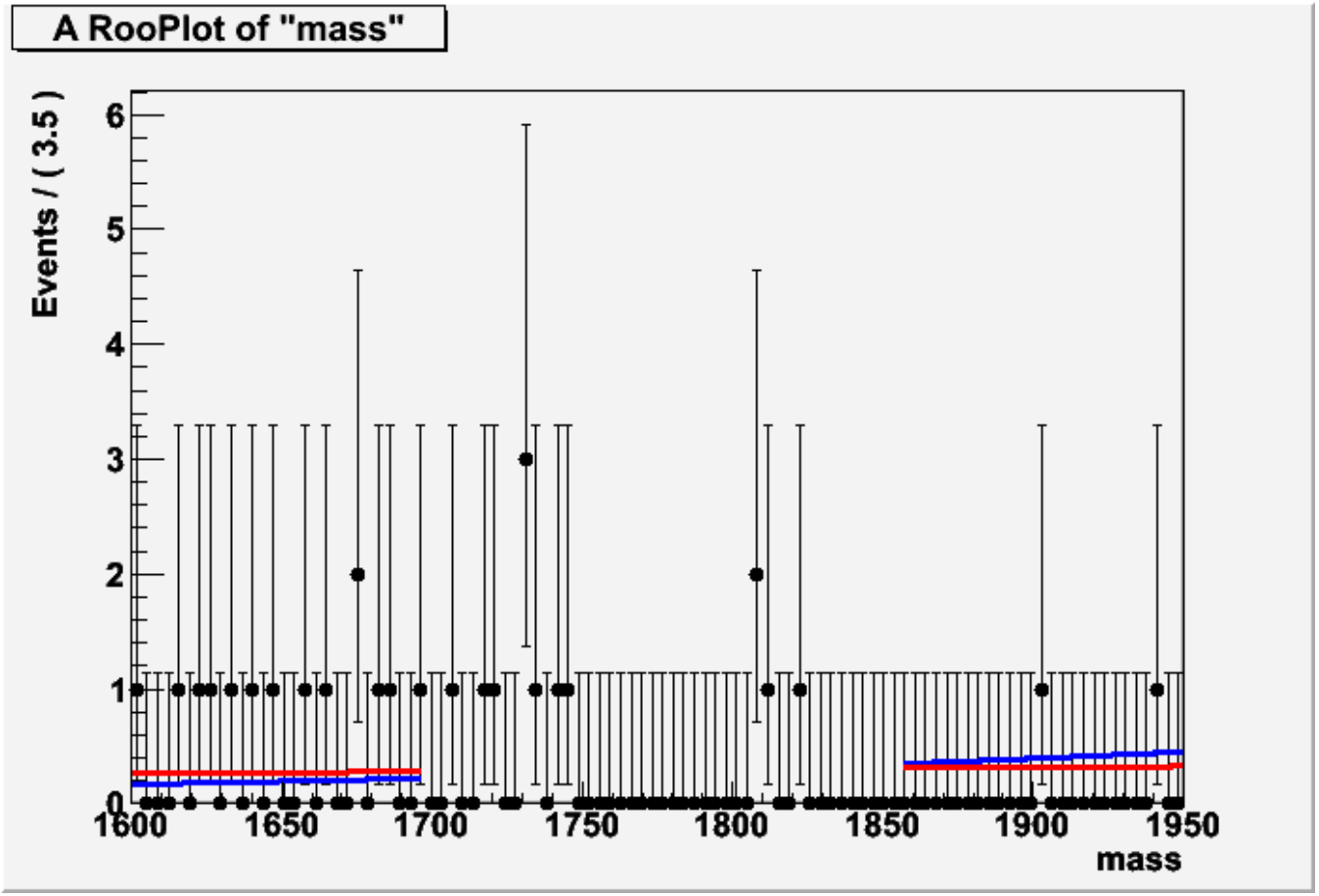
Throwing away only one marked point gives flat distribution.



Different mass window

Throwing away more point gives us droping distributions.

FITS



Different mass window

$80 MeV$ Mass window.

Summary

1. I tested this in every way I could.
2. Consulted with coleagues that are doing fits all the time(they didn't find any mistake).
3. The most important: Different mass ranges change the expected number of backgrounds eventes arround 5% so it's not relewant.

Updates on the numbers

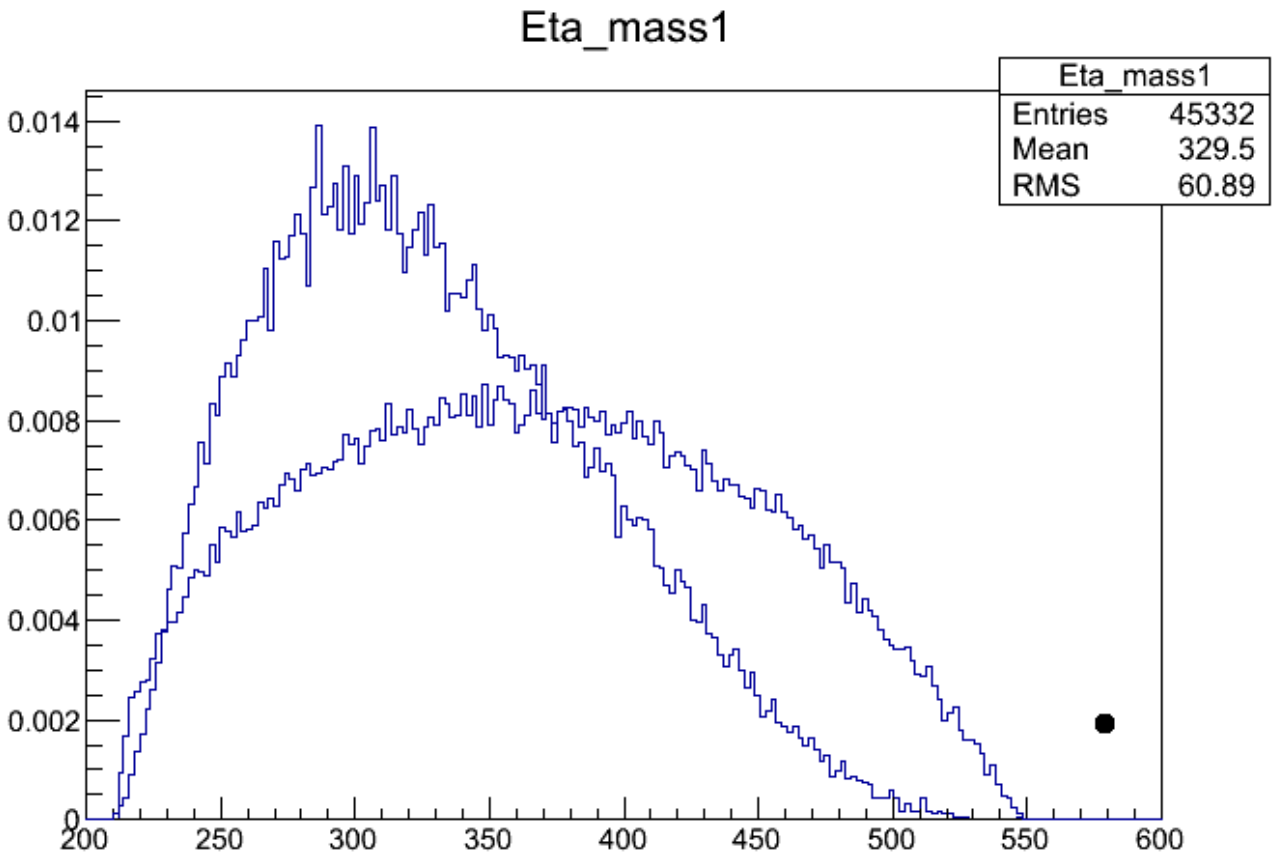
I changed the range the from which I extrapolate the number of backgorund from the same region $(1650, 1900) \setminus (1743, 1803) MeV$

PID	GL	Linear	Error lin	EXP	Error. Exp
0.03, 0.07	−1.00, 0.116	223.681440	4.285854	215.951131	4.703320
0.03, 0.07	0.116, 0.44	22.170251	0.770944	20.381995	2.351677
0.03, 0.07	0.44, 0.616	6.432532	0.685642	6.389303	0.297094
0.03, 0.07	0.616, 1.0	1.863888	0.980816	1.379745	0.967495
0.07, 1.0	−1.0, 0.116	112.765871	3.022240	106.582612	4.852854
0.07, 1.0	0.116, 0.44	13.728065	0.462664	10.022689	2.584259
0.07, 1.0	0.440, 0.616	6.042397	0.299367	5.315554	1.423532
0.07, 1.0	0.616, 1.0	3.691082	1.955345	3.329173	1.026430

Updates on the numbers

PID	GL	Linear	Error lin	EXP	Error. Exp
$-0.03, -0.005$	$-1.0, 0.116$	612.515740	5.517984	608.152648	3.209168
$-0.03, -0.005$	$0.116, 0.44$	48.887154	2.455029	48.605891	1.225935
$-0.03, -0.005$	$0.44, 0.616$	12.568007	0.880412	10.282640	2.259703
$-0.03, -0.005$	$0.616, 1.0$	4.898097	1.134637	2.879837	1.518258
$-0.005, 0.03$	$-1.0, 0.116$	388.613829	4.015244	385.164540	3.033609
$-0.005, 0.03$	$0.116, 0.44$	37.193932	0.995706	32.771010	3.456820
$-0.005, 0.03$	$0.44, 0.616$	8.976528	0.847767	8.533797	1.034161
$-0.005, 0.03$	$0.616, 1.0$	5.757810	0.896886	5.176158	1.295585

EvtGen model, without Geant



Looks much better. On on "eye test" it very similar to the one found in Martas Paper.

News about the production

I assume that the binning is well described in aboved chapters.
For each bin mention in previous chepter we calculate the expected background events, by fitting to the real data with cutten mass window exponential and linear function. The fitting mass range of τ is $(1600, 1747) \cap (1807, 1950) MeV$. The expected number of backgrounds with errors are showned in below table.

PID	GL	Linear	Error lin	EXP	Err
0.03, 0.07	−1.00, 0.116	223.681440	4.285854	215.951131	4.
0.03, 0.07	0.116, 0.44	22.170251	0.770944	20.381995	2.
0.03, 0.07	0.44, 0.616	6.432532	0.685642	6.389303	0.
0.03, 0.07	0.616, 1.0	1.863888	0.980816	1.379745	0.
0.07, 1.0	−1.0, 0.116	112.765871	3.022240	106.582612	4.
0.07, 1.0	0.116, 0.44	13.728065	0.462664	10.022689	2.
0.07, 1.0	0.440, 0.616	6.042397	0.299367	5.315554	1.
0.07, 1.0	0.616, 1.0	3.691082	1.955345	3.329173	1.