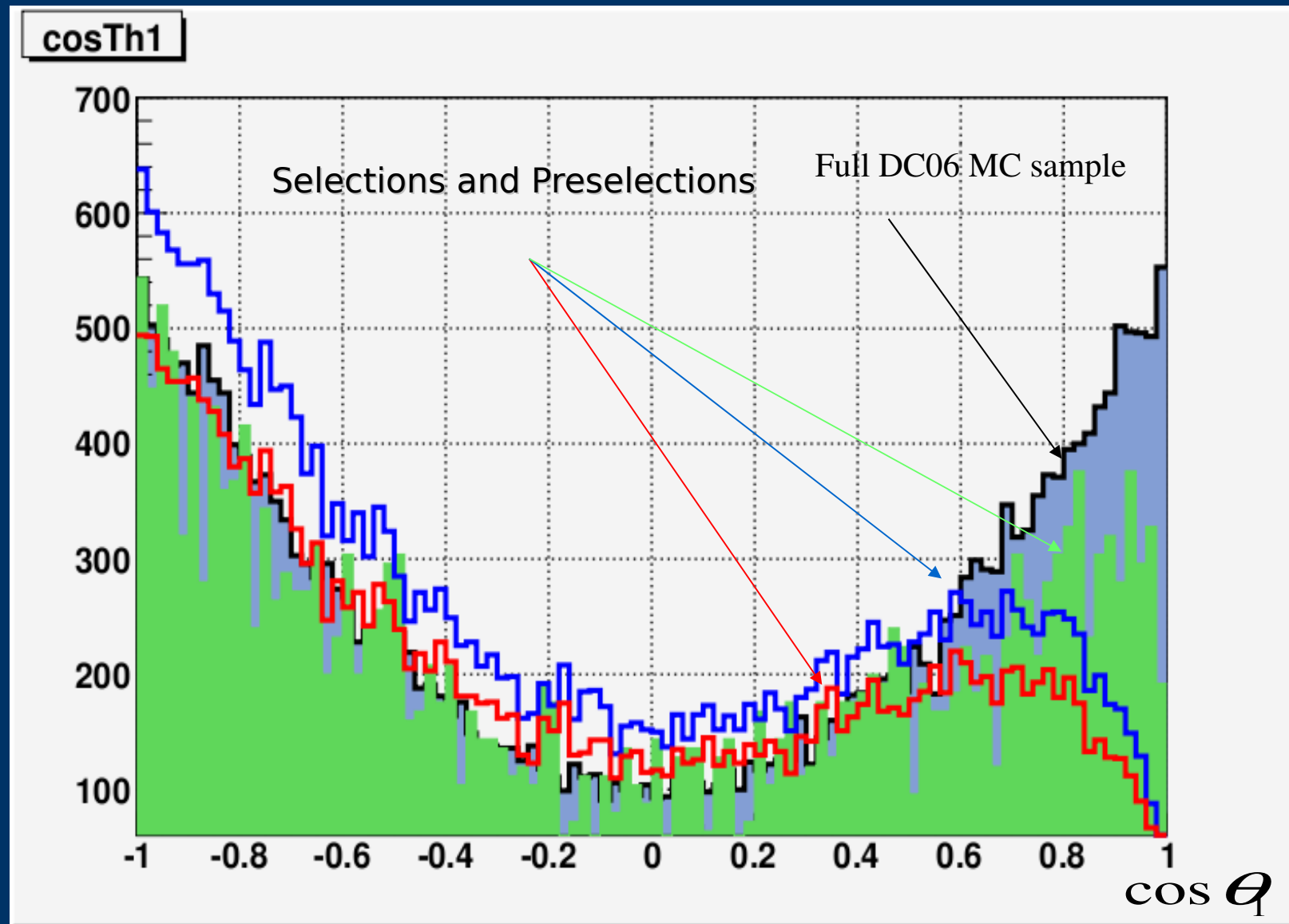


Acceptance Studies

Celestino Rodríguez Cobo

Angular Bias(backup)



Acceptance effect

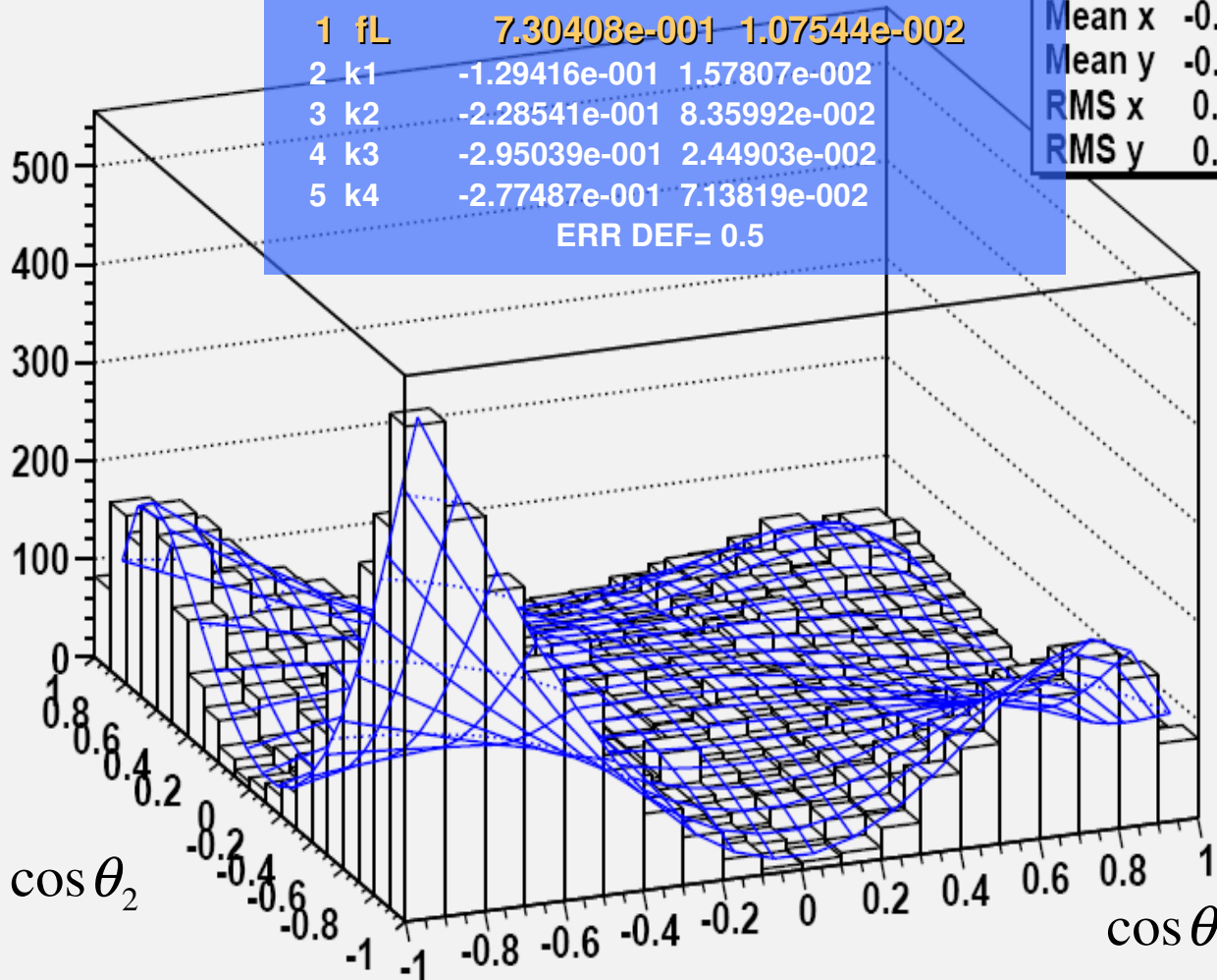
dataH

NO.	NAME	VALUE	ERROR
1	fL	7.30408e-001	1.07544e-002
2	k1	-1.29416e-001	1.57807e-002
3	k2	-2.28541e-001	8.35992e-002
4	k3	-2.95039e-001	2.44903e-002
5	k4	-2.77487e-001	7.13819e-002

ERR DEF= 0.5

dataH

Entries	26308
Mean x	-0.1967
Mean y	-0.1916
RMS x	0.6144
RMS y	0.6135



Acceptance has to be taken in account!

But...

Even with unknown acceptance (pol4)x(pol4) gives us the right answer

When studying ratios $B_s/B_d \rightarrow$ acceptance uncertainties are \sim cancelled

Method also works with 1-D evaluation

$$\int \{5/2 * (\cos \theta_1)^2 - 1/2\} d \cos \theta_1$$

Previous Studies

- Acceptance modeled with a pol3 xpol 3 model
- No Chi2 was calculated
- Revision of the model in progress

Acceptance Fit

- Same description.
- Selection sample ~ 14K events , MC sample ~306K
- 20 Bins per each angle (400 Bins total)

** 23 **MINOS 1500

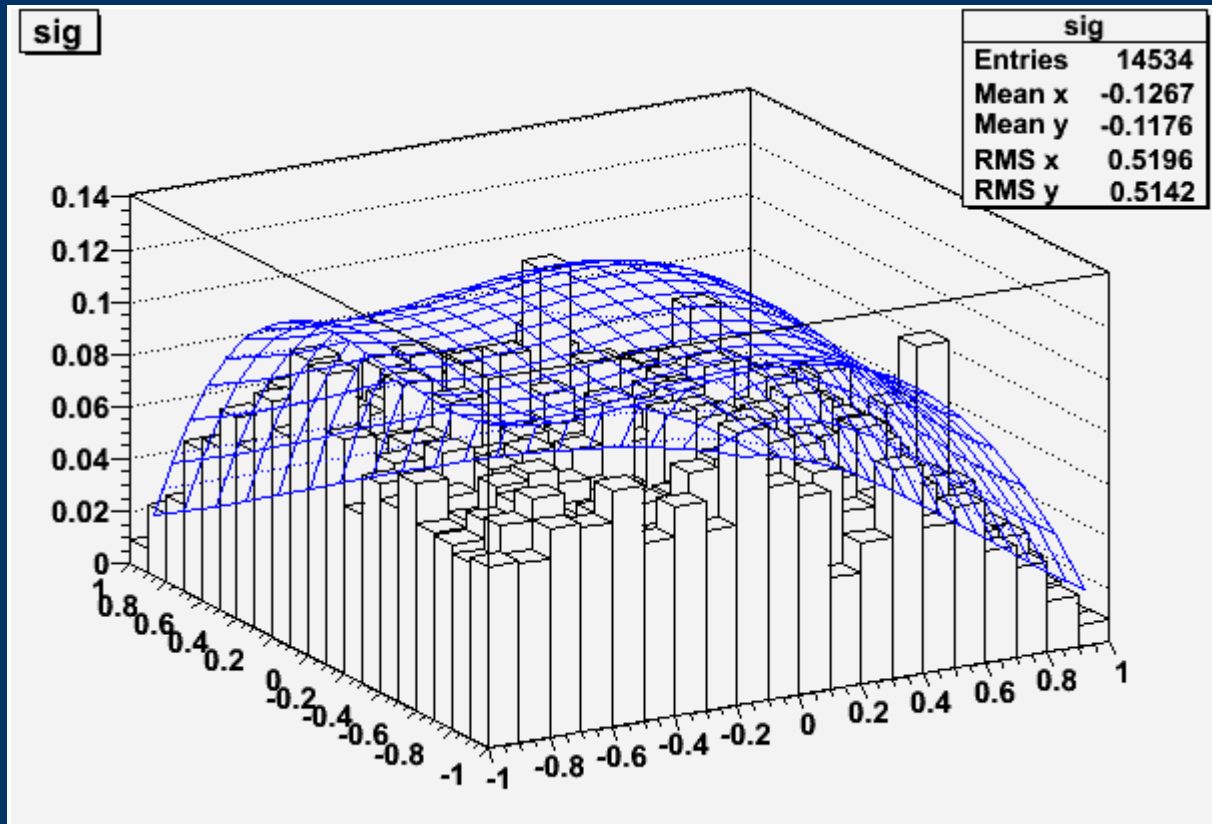
FCN=29.5626 FROM MINOS STATUS=SUCCESSFUL 261 CALLS 407 TOTAL

EDM=0.000707392 STRATEGY= 1 ERROR MATRIX ACCURATE

EXT	PARAMETER	PARABOLIC	MINOS ERRORS		
NO.	NAME	VALUE	ERROR	NEGATIVE	POSITIVE
1	k1	-6.13642e-02	5.07750e-01	-5.16323e-01	5.16523e-01
2	k2	-4.84333e-01	3.18428e-01	-2.66918e-01	3.83959e-01
3	k3	-4.09896e-01	7.39385e-01	-7.84163e-01	7.49949e-01

ERR DEF= 0.5

Acceptance Fit model

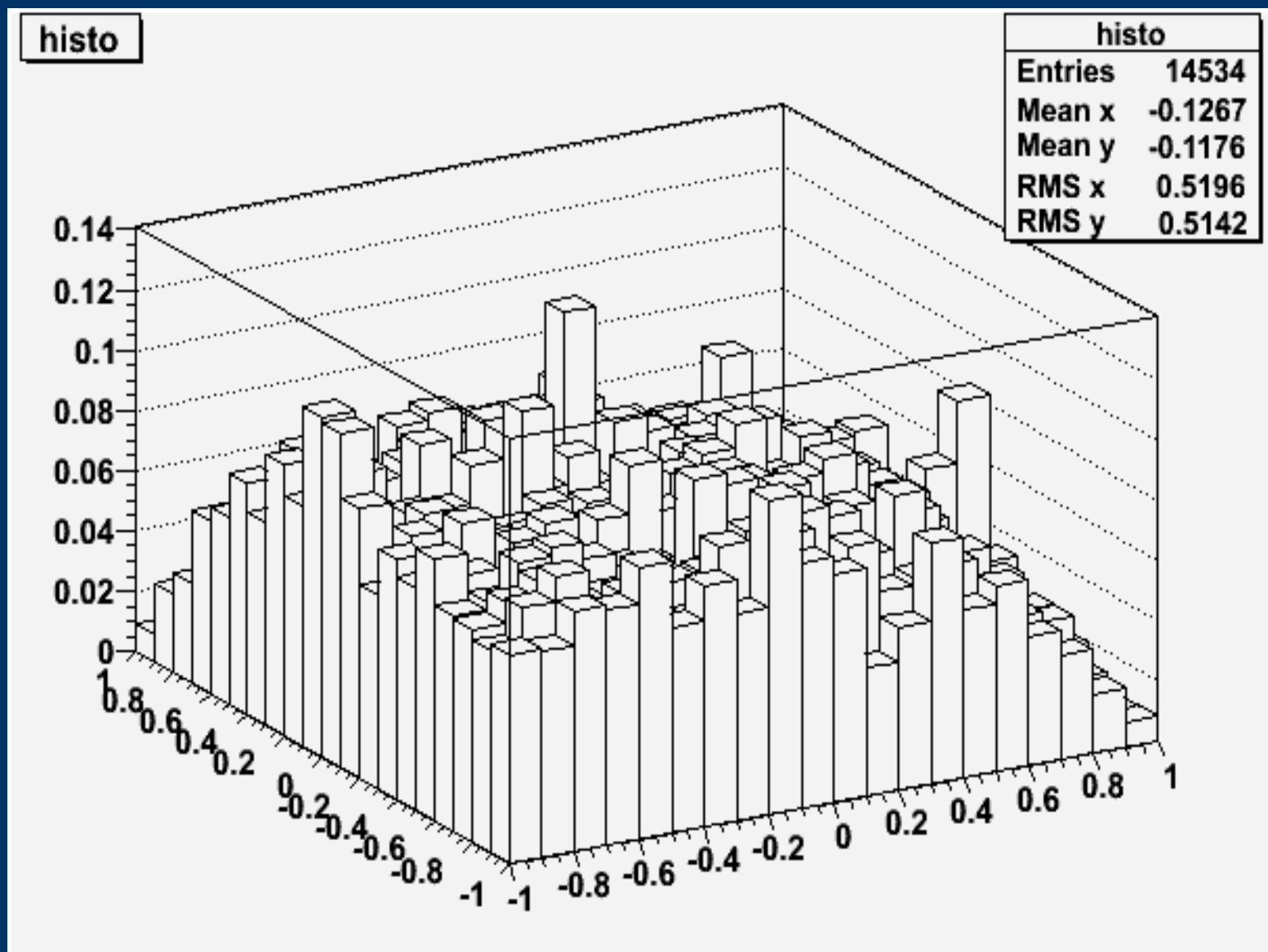


- $\text{Chi}^2 = 5.7395177902855208$
- 20 x 20 Bins

Angular acceptance model: Issues

- It was proposed as a simple Toy MC approximation
- Needs Further tweaking in order to properly describe data (and without it we cannot)
- It may not be valid after all
- It will be contemplated with a toy MC analysis on the works.

Angular acceptance model: Issues



Root instead of RooFit.

- Same description.
- Selection sample ~ 14K events , MC sample ~306K
- 20 Bins per each angle (400 Bins total)

		EDM=1.16976e-07	STRATEGY= 1	ERROR MATRIX ACCURATE	
EXT PARAMETER			STEP	FIRST	
NO.	NAME	VALUE	ERROR	SIZE	DERIVATIVE
1	p0	-3.24550e-01	2.31021e-03	2.26324e-04	-8.14834e-02
2	p1	-1.40430e+00	1.05580e-03	2.71960e-04	-4.68620e-01
3	p2	5.55969e-01	3.20662e-03	2.95921e-04	-1.82639e-01

Root instead of RooFit.

- It is even worse... in terms of Chi square.
- $\text{Chi}^2/\text{nDoF} = 4.825 \cdot 10^5 / 394$
- Not so with parameter errors

		EDM=1.16976e-07	STRATEGY= 1	ERROR MATRIX ACCURATE	
EXT PARAMETER			STEP	FIRST	
NO.	NAME	VALUE	ERROR	SIZE	DERIVATIVE
1	p0	-3.24550e-01	2.31021e-03	2.26324e-04	-8.14834e-02
2	p1	-1.40430e+00	1.05580e-03	2.71960e-04	-4.68620e-01
3	p2	5.55969e-01	3.20662e-03	2.95921e-04	-1.82639e-01

Temporal acceptance model: Issues

- Low statistic at high times
- Curve behaves poorly in numerical integration.
- Still working on it.

