

Updates on activities.

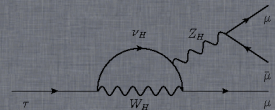
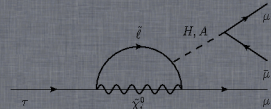
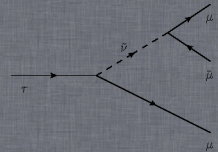
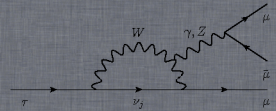
Marcin Chrzęszcz^{1,2}, Nicola Serra¹

¹ University of Zurich, ² Institute of Nuclear Physics, Krakow,

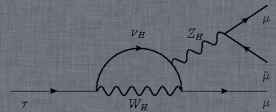
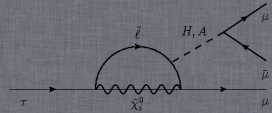
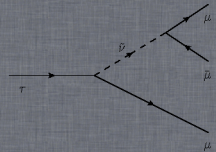
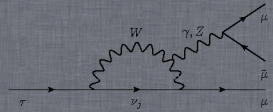
April 15, 2014



University of
Zurich^{UZH}



$K^* \mu\mu$ toy MC results.



Reminder

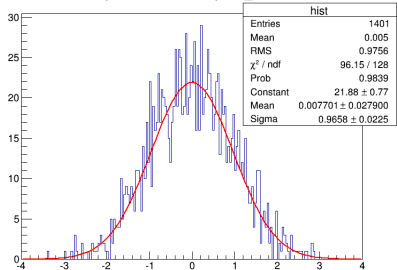
- Chris Langenburgh prepared a "official TOY MC" <- LOL
- With unfolding of the angles done by him.
- on the 1st of April I showed the results for full sample(10M) in 1 GeV q^2 bins.
- Now the rest of this stupidity.

MM - Strategy

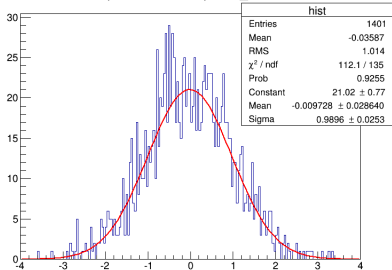
- 10M events(signal+background) were dived in small ntuples to match the number of events in the real data.
- Each sample is then fitted(to get signal+bck n. of events).
- Then we calculate background moments from sidenads and signal window.
- and extract the signal moments by subtracting the background.

MM - Strategy

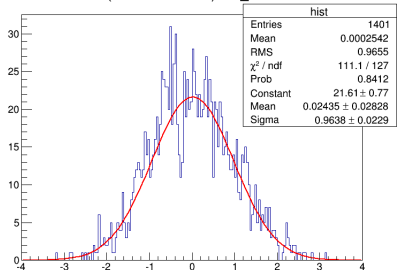
(S3 - 0.00108811)/ S3_err



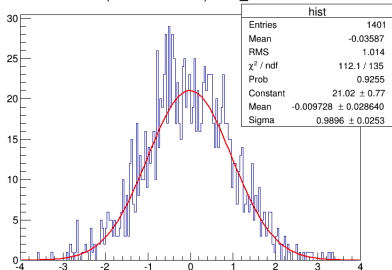
(FL1 - 0.237352)/ FL1_err



(S4 - 0.0846881)/ S4_err



(FL2 - 0.237352)/ FL2_err



MM - Strategy 2

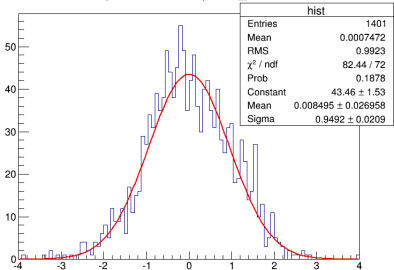
- Now we need to test unfolding.
- The simplest way is weight events $\frac{1}{\epsilon}$.
- Results are again beautiful.

MM - Strategy 2

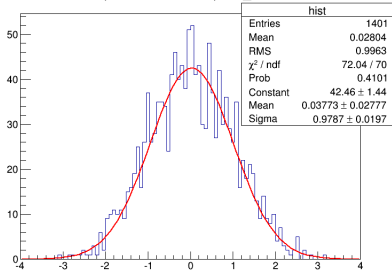
- Now we need to test unfolding.
- The simplest way is weight events $\frac{1}{\epsilon}$.
- Results are again beautiful.

MM - Strategy 2

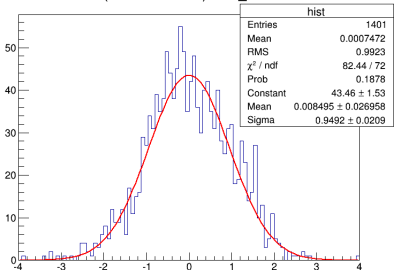
(FL1 - 0.236025) / FL1_err



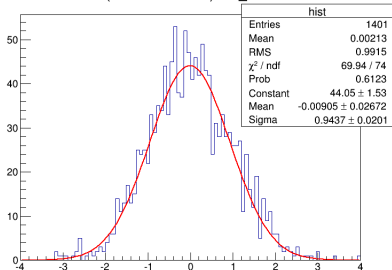
(S3 - -0.00446158) / S3_err



(FL2 - 0.236025) / FL2_err



(S4 - -0.0824323) / S4_err



M.Chrząszcz, N.Serra 2014

Appologies

When I am typing this presentation it's already 2am. So will skip the table with all the errors, if you are interested you can see it tmr on $K^* \mu\mu$ meeting.

Fitting - Strategy

- For comparison I investigated how the fit behaves in the same toys.
- Started with the folded PDFs.
- PDF is as follows:

$$PDF = sig(m) \times sig(\cos \theta_l, \cos \theta_k, \phi) + bck(m) \times bck(\cos \theta_l, \cos \theta_k, \phi) \quad (1)$$

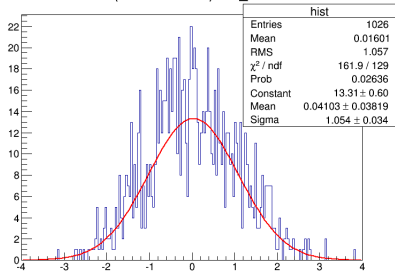
- For angles in background case second order cheb. polynomials were chosen.

Fitting - Results

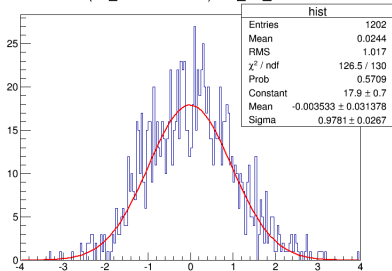
- Again will skip the table, cuz it's late
- Pools plots look ok.
- Have problems with convergence of the fit in some bins (eff drops down even to 70%).

MM - Strategy 2

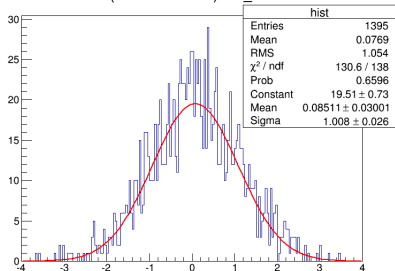
(S5 - 0.165933)/ S5_err



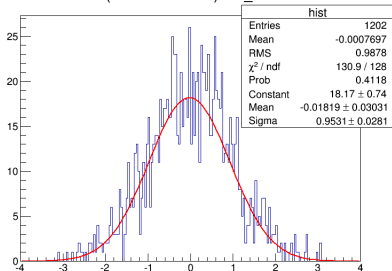
(FL_S5 - 0.777024)/ FL_S5_err



(S7 - 0.0262211)/ S7_err



(S5 - -0.0307482)/ S5_err



Plans

- Work flat today to finish all things for presentation on Wed.
- Would love to have also unfolded fits.