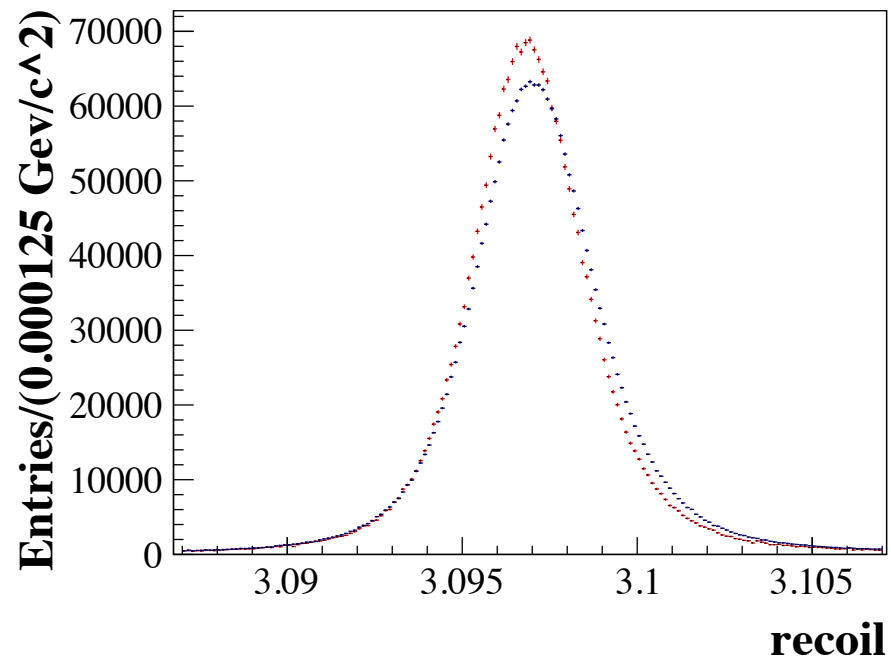


Status of the analysis of
 $J/\psi \rightarrow K^+ K^-$
via $\psi(2S) \rightarrow \pi^+ \pi^- J/\psi$

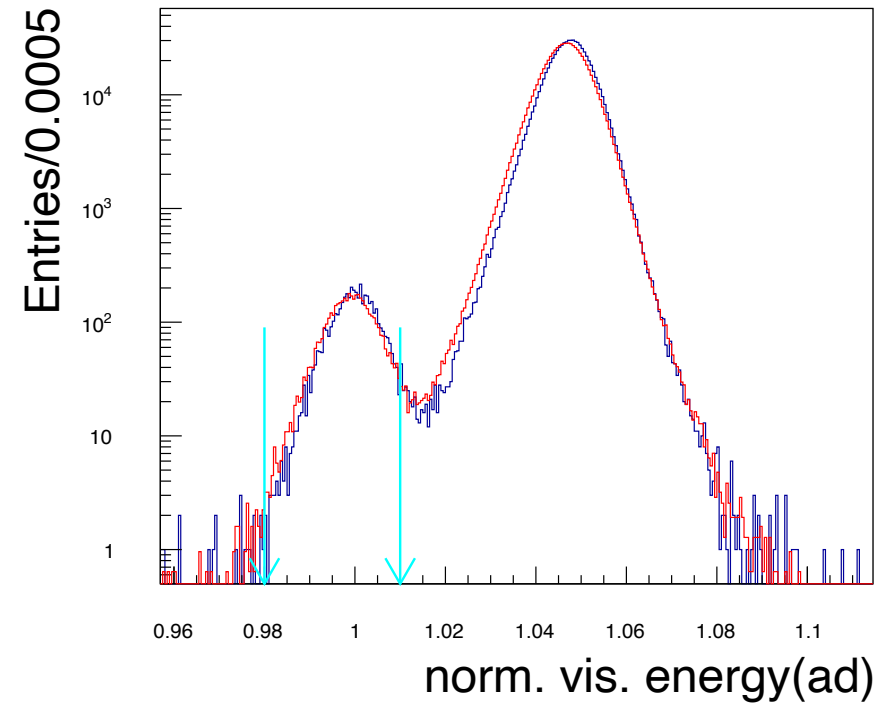
Francesca De Mori
Università degli Studi di Torino
INFN sez. Di Torino

- NOW we have a result for 2012+2009 (preliminary, should be refined)
- Is this the end of the story?
- Memo almost ready, draft in preparation

2009/2012 comparison



+0.0002 GeV/c²

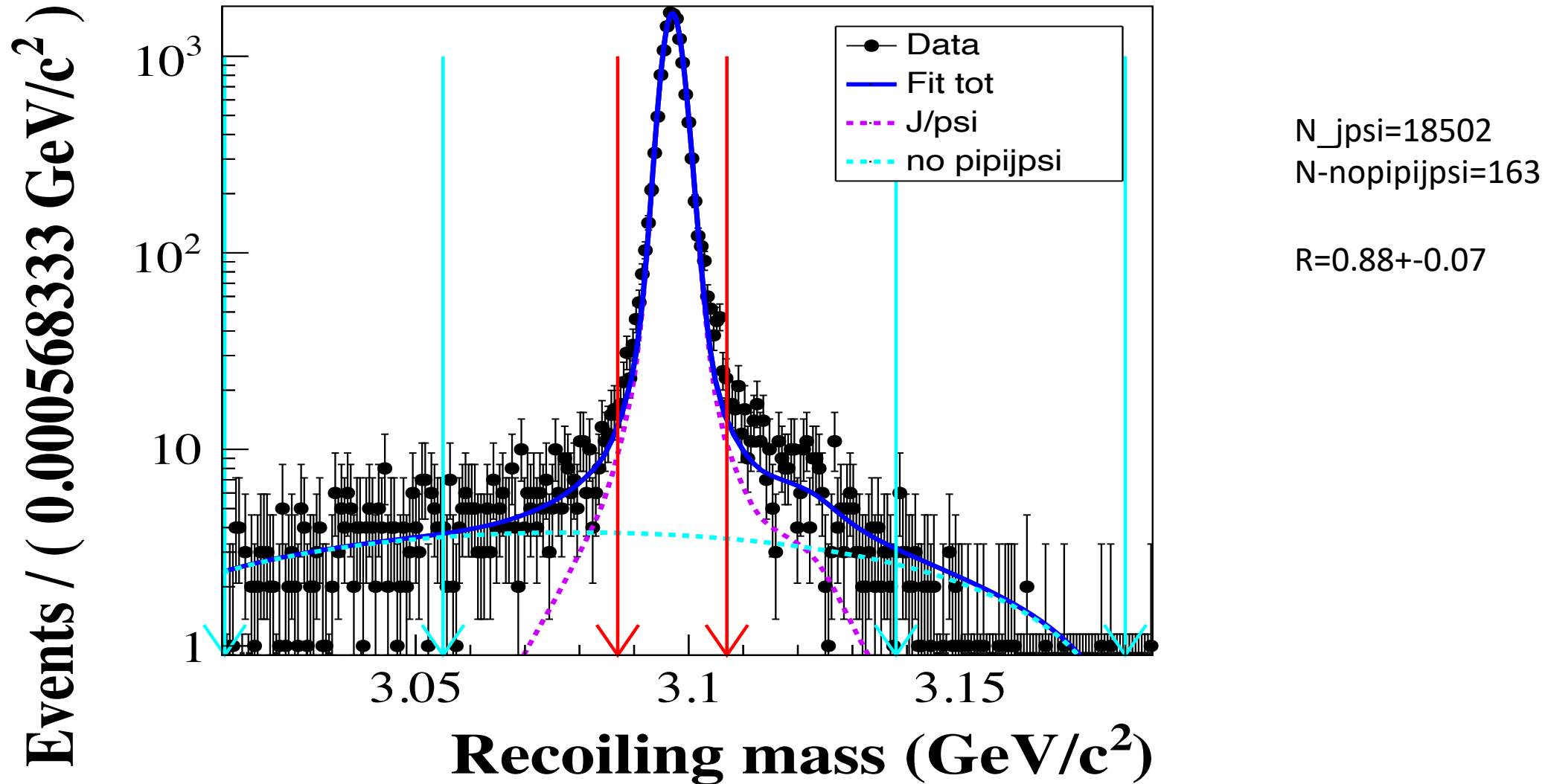


-0.0009 (as expected opposite sign)

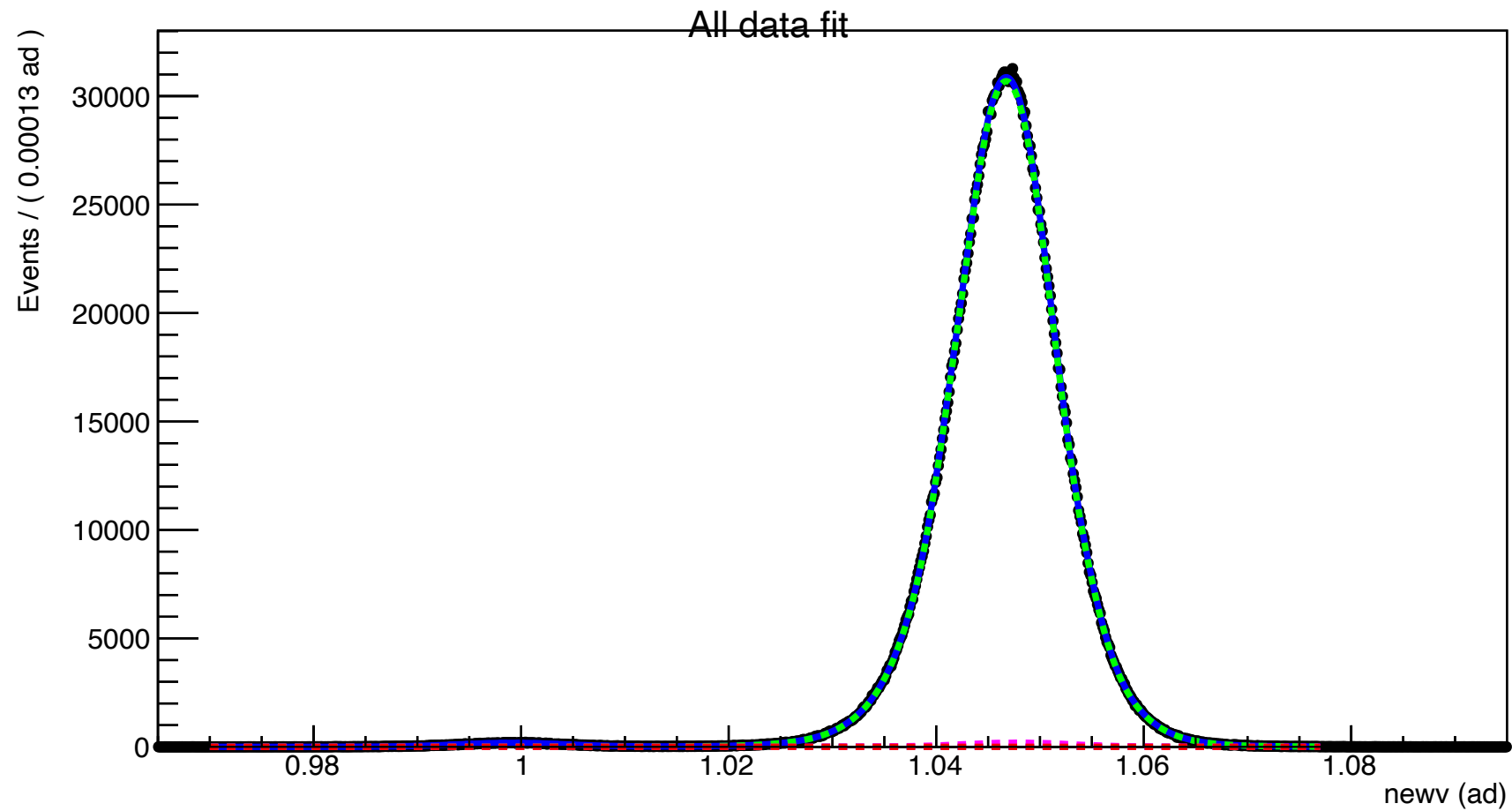
How?

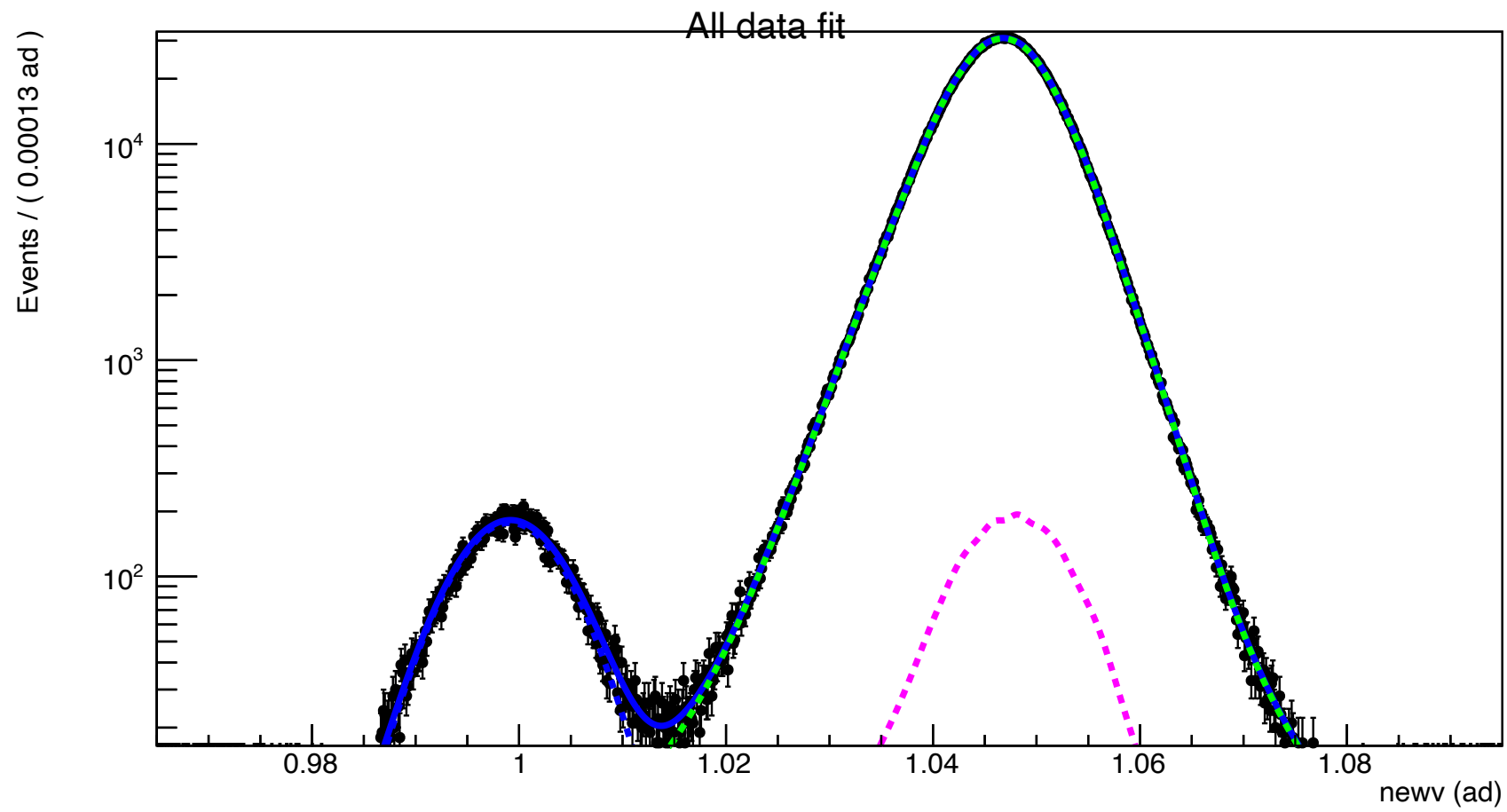
- MC samples for keyspdf chosen with a merge of 2012 and 2009 ones
- New sample with “evis” and recoil shifted for 2009

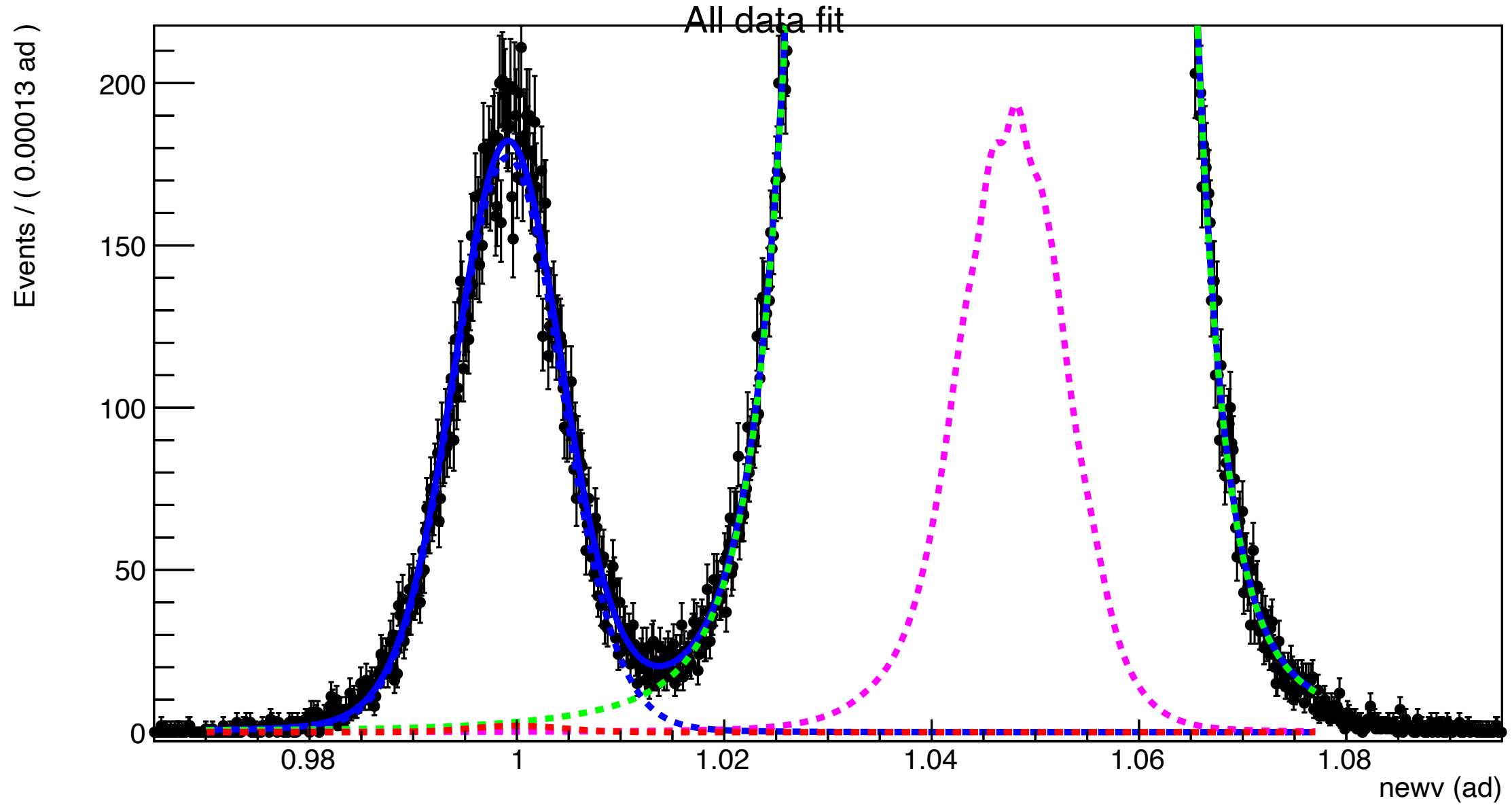
All samples –recoil fit for nopipijpsi bkg



Fit results (2012+2009)







EXT	PARAMETER		INTERNAL	INTERNAL	
NO.	NAME	VALUE	ERROR	STEP SIZE	VALUE
1	mufrac	2.78983e-01	1.45513e-03	5.00000e-01	-6.46329e-01
2	muresMean1	-1.23537e-03	3.15905e-06	1.85993e-02	3.92301e-01
3	musigma1	4.91112e-03	8.93851e-06	5.00000e-01	1.30334e+00
4	musigma2	8.88434e-04	9.94255e-06	5.00000e-01	-9.65464e-01
5	n_kk	1.84894e+04	1.27570e+02	5.00000e-01	1.01397e+00
6	n_mumu	3.05190e+06	1.74133e+03	7.23075e-02	1.13715e+00
7	resMean1	-1.31474e-03	4.60861e-05	5.00000e-01	-5.74192e-01
8	sigma1	3.07123e-03	6.96738e-05	5.00000e-01	2.30528e-01



Nkk=18239.39

Nmumu=3026802.64

$$BR = (3.14 \pm 0.03) \cdot 10^{-4}$$

Using weighted efficiency

Check single samples.....

Results on 2012/2009

$$2009 \text{ BR} = (3.17 \pm 0.05) \times 10^{-4}$$

$$2012 \text{ BR} = (3.14 \pm 0.03) \times 10^{-4}$$

I/O with INC-MC to be done this week/ further check on recoiling fitting $\rightarrow$ $\pi^0\pi^+\pi^-\pi^0$ contribution evaluation

Differences inside uncertainties

$$\text{BR} = (3.14 \pm 0.03 \pm 0.05) \times 10^{-4}$$

To be compared with

Branching Ratio:

FROM CLEO-c $(2.86 \pm 0.21) \times 10^{-4}$ ($\psi(2S) \rightarrow J/\psi \pi \pi$.. interference free)

FROM BABAR (PRD92,072008 (2015))

$\text{BR} = 3.50 \pm 0.20 \pm 0.12 \times 10^{-4}$ (with interference correction $\rightarrow 3.36$ is measured)

$\text{BR} = 3.22 \pm 0.20 \pm 0.12 \times 10^{-4}$

And with our

pos and neg	3.40 ± 0.08	$(-94.2 \pm 6.9)^\circ$	23.9 ± 1.2	2.24
pos	3.13 ± 0.08	94.5 ± 7.4	23.9 ± 1.2	2.24
neg	3.40 ± 0.08	-94.2 ± 6.9	23.9 ± 1.2	2.24

Outlook

Is this the end?

Surely, it is a big step forward.

I am almost ready to ask for the P&S.

I prefer to do a few further check...

