$\tau \longrightarrow \mu\mu\mu$

Marcin Chrząszcz[1,2] , Nicola Serra[1]

University of Zurich[UZH]

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> " THERE came a day at summer's full
> Entirely for us
> I thought that such were for the saints,
> Where revelations be. " [a]

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[a]E.Dickinson

On Monday 4th of August we were given the permission to unblind.

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Unblinding 2

- Unfortunately no big "revelations" were there:
- 2011 numbers:

ProbNNmu	M_{blend}	Estimated	Observed
0.4, 0.45	0.28, 0.32	3.172 ± 0.661	4
0.4, 0.45	0.32, 0.46	9.242 ± 1.129	6
0.4, 0.45	0.46, 0.54	2.894 ± 0.632	6
0.4, 0.45	0.54, 0.65	3.173 ± 0.661	4
0.4, 0.45	0.65, 0.80	3.637 ± 0.716	2
0.4, 0.45	0.80, 1.0	3.787 ± 0.802	3
0.45, 0.54	0.28, 0.32	4.223 ± 0.779	6
0.45, 0.54	0.32, 0.46	8.345 ± 1.077	10
0.45, 0.54	0.46, 0.54	2.317 ± 0.568	4
0.45, 0.54	0.54, 0.65	2.828 ± 0.632	8
0.45, 0.54	0.65, 0.80	2.718 ± 0.688	5
0.45, 0.54	0.80, 1.00	4.825 ± 0.900	7

ProbNNmu	M_{blend}	Estimated	Observed
0.54, 0.63	0.28, 0.32	2.327 ± 0.584	6
0.54, 0.63	0.32, 0.46	8.324 ± 1.077	8
0.54, 0.63	0.46, 0.54	2.068 ± 0.534	1
0.54, 0.63	0.54, 0.65	3.291 ± 0.675	1
0.54, 0.63	0.65, 0.80	2.962 ± 0.646	4
0.54, 0.63	0.80, 1.00	3.114 ± 0.687	3
0.63, 0.75	0.28, 0.32	2.688 ± 0.616	1
0.63, 0.75	0.32, 0.46	7.541 ± 1.023	5
0.63, 0.75	0.46, 0.54	2.059 ± 0.534	3
0.63, 0.75	0.54, 0.65	1.996 ± 0.549	5
0.63, 0.75	0.65, 0.80	3.164 ± 0.661	2
0.63, 0.75	0.80, 1.00	4.674 ± 0.836	2
0.75, 1.0	0.28, 0.32	2.192 ± 0.551	2
0.75, 1.0	0.32, 0.46	3.384 ± 0.755	5
0.75, 1.0	0.46, 0.54	1.517 ± 0.457	3
0.75, 1.0	0.54, 0.65	1.280 ± 0.469	1
0.75, 1.0	0.65, 0.80	2.780 ± 0.645	1
0.75, 1.0	0.80, 1.00	4.421 ± 0.833	7

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Unblinding 3

- Unfortunately no big "revelations" were also in 2012 data:

ProbNNmu	M_{blend}	Estimated	Observed
0.4, 0.54	0.26, 0.34	39.6 ± 2.3	39
0.4, 0.54	0.34, 0.45	32.2 ± 2.1	34
0.4, 0.54	0.45, 0.61	28.7 ± 2.0	28
0.4, 0.54	0.61, 0.7	9.72 ± 1.22	5
0.4, 0.54	0.7, 0.83	11.38 ± 1.26	7
0.4, 0.54	0.83, 0.94	7.34 ± 1.10	6
0.4, 0.54	0.94, 1.0001	5.98 ± 0.95	0
0.54, 0.61	0.26, 0.34	13.6 ± 1.37	8
0.54, 0.61	0.34, 0.45	12.1 ± 1.29	12
0.54, 0.61	0.45, 0.61	8.32 ± 1.086	13
0.54, 0.61	0.61, 0.7	2.595 ± 0.616	1
0.54, 0.61	0.7, 0.83	1.833 ± 0.601	5
0.54, 0.61	0.83, 0.94	2.929 ± 0.724	6
0.54, 0.61	0.94, 1.0001	2.693 ± 0.632	3

ProbNNmu	M_{blend}	Estimated	Observed
0.61, 0.71	0.26, 0.34	13.457 ± 1.366	7
0.61, 0.71	0.34, 0.45	10.852 ± 1.23	11
0.61, 0.71	0.45, 0.61	9.661 ± 1.18	12
0.61, 0.71	0.61, 0.7	3.346 ± 0.69	2
0.61, 0.71	0.7, 0.83	4.600 ± 0.888	5
0.61, 0.71	0.83, 0.94	4.091 ± 0.809	4
0.61, 0.71	0.94, 1.0001	2.780 ± 0.680	1
0.71, 0.8	0.26, 0.34	7.808 ± 1.067	6
0.71, 0.8	0.34, 0.45	7.001 ± 0.985	8
0.71, 0.8	0.45, 0.61	6.170 ± 0.945	6
0.71, 0.8	0.61, 0.7	1.570 ± 0.556	2
0.71, 0.8	0.7, 0.83	2.987 ± 0.717	0
0.71, 0.8	0.83, 0.94	3.929 ± 0.806	0
0.71, 0.8	0.94, 1.0001	3.222 ± 0.676	1
0.8, 1.0	0.26, 0.34	5.123 ± 0.861	3
0.8, 1.0	0.34, 0.45	4.435 ± 0.792	6
0.8, 1.0	0.45, 0.61	3.802 ± 0.784	5
0.8, 1.0	0.61, 0.7	2.649 ± 0.676	2
0.8, 1.0	0.7, 0.83	3.053 ± 0.674	2
0.8, 1.0	0.83, 0.94	1.740 ± 0.543	2
0.8, 1.0	0.94, 1.0001	3.361 ± 0.702	3

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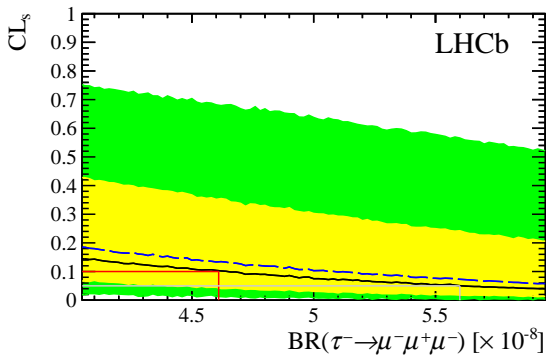
Limits(PHSP):
Observed(Expected)
4.6 (5.0) $\times$ 10^{-8} at 90% CL
5.6 (6.1) $\times$ 10^{-8} at 95% CL

Dalitz distribution	x10^{-8}
$\varrho_V^{(LL)(LL)}$	4.2 (4.7)
$\varrho_V^{(LL)(RR)}$	4.1 (4.6)
$\varrho_{rad}^{(LR)}$	6.8 (7.6)
$\varrho_{mix}^{(LL)(LL)}$	4.4 (5.1)
$\varrho_{mix}^{(LL)(RR)}$	4.6 (5.0)

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Conclusions

- We didn't find NP (yet).
- Limits set with full LHCb dataset.
- Awaiting for the future data!
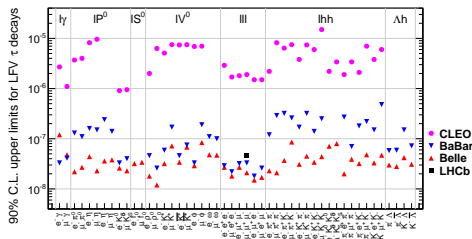
- We would like to thank our referees for very friendly, thorough and fruitful review.
- With this presentation we ask collaboration for approval.

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