Light in the tunnel

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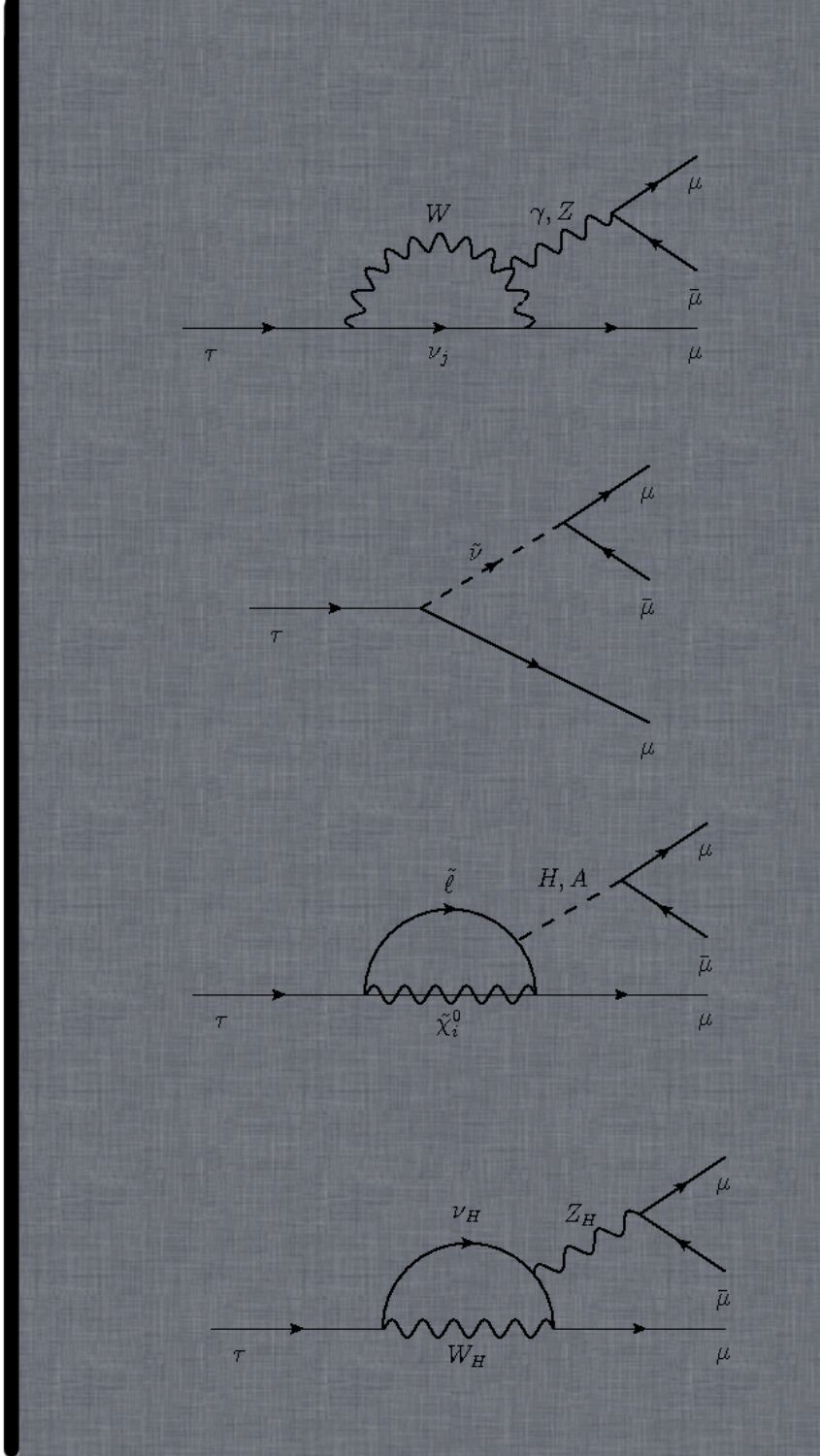

Francesco X-check

- In 2011 analysis we used the middle side bands for optimisation of binning:
  1. The bck there is the same as in the signal region.
  2. We checked that there is no significant difference in expected number of bck events
- We forgot about this test in this round.
- All numbers in the note.

Francesco X-check 2011

PID	BLEND	30 *MeV*blind window	20 *MeV* blind window
0.4, 0.45	0.32, 0.46	8.2742 $\pm$ 1.069	8.000 $\pm$ 1.0162
0.4, 0.45	0.46, 0.54	2.619 $\pm$ 0.602	2.448 $\pm$ 0.5624
0.4, 0.45	0.54, 0.65	2.897 $\pm$ 0.632	2.709 $\pm$ 0.591
0.4, 0.45	0.65, 0.8	3.411 $\pm$ 0.690	3.323 $\pm$ 0.6578
0.4, 0.45	0.8, 1.0001	3.409 $\pm$ 0.775	3.561 $\pm$ 0.756
0.45, 0.54	0.32, 0.46	7.677 $\pm$ 1.032	7.690 $\pm$ 0.9995
0.45, 0.54	0.46, 0.54	1.739 $\pm$ 0.497	1.748 $\pm$ 0.4826
0.45, 0.54	0.54, 0.65	2.828 $\pm$ 0.632	2.906 $\pm$ 0.6187
0.45, 0.54	0.65, 0.8	2.189 $\pm$ 0.629	2.199 $\pm$ 0.6022
0.45, 0.54	0.8, 1.0001	4.547 $\pm$ 0.879	4.189 $\pm$ 0.818
0.54, 0.63	0.32, 0.46	7.447 $\pm$ 1.014	7.218 $\pm$ 0.9659
0.54, 0.63	0.46, 0.54	1.790 $\pm$ 0.497	1.676 $\pm$ 0.4658
0.54, 0.63	0.54, 0.65	2.874 $\pm$ 0.632	2.686 $\pm$ 0.5913
0.54, 0.63	0.65, 0.8	2.717 $\pm$ 0.6168	2.541 $\pm$ 0.5776
0.54, 0.63	0.8, 1.0001	2.994 $\pm$ 0.673	2.783 $\pm$ 0.6292
0.63, 0.75	0.32, 0.46	6.964 $\pm$ 0.985	6.510 $\pm$ 0.9215
0.63, 0.75	0.46, 0.54	2.059 $\pm$ 0.534	1.926 $\pm$ 0.4997
0.63, 0.75	0.54, 0.65	1.8971 $\pm$ 0.533	2.188 $\pm$ 0.5465
0.63, 0.75	0.65, 0.8	2.891 $\pm$ 0.632	2.834 $\pm$ 0.6053
0.63, 0.75	0.8, 1.0001	4.246 $\pm$ 0.801	4.540 $\pm$ 0.7935
0.75, 1.0001	0.28, 0.32	1.92 $\pm$ 0.516	1.925 $\pm$ 0.4998
0.75, 1.0001	0.32, 0.46	3.15 $\pm$ 0.740	3.170 $\pm$ 0.7140
0.75, 1.0001	0.46, 0.54	1.377 $\pm$ 0.437	1.286 $\pm$ 0.4083
0.75, 1.0001	0.54, 0.65	1.177 $\pm$ 0.432	1.250 $\pm$ 0.4250
0.75, 1.0001	0.65, 0.8	2.504 $\pm$ 0.615	2.629 $\pm$ 0.6036
0.75, 1.0001	0.8, 1.0001	3.601 $\pm$ 0.761	3.763 $\pm$ 0.7459

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Francesco X-check 2012

PID	BLEND	30 *MeV*blind window	20 *MeV* blind window
0.4, 0.54	0.45, 0.61	28.7 $\pm$ 2.0	28.126 $\pm$ 1.9096
0.4, 0.54	0.61, 0.7	9.72 $\pm$ 1.22	9.287 $\pm$ 1.1550
0.4, 0.54	0.7, 0.83	11.38 $\pm$ 1.26	11.293 $\pm$ 1.2171
0.4, 0.54	0.83, 0.94	7.34 $\pm$ 1.10	7.36042 $\pm$ 1.0587
0.4, 0.54	0.94, 1.0001	5.98 $\pm$ 0.95	5.9935 $\pm$ 0.9181
0.54, 0.61	0.45, 0.61	8.32 $\pm$ 1.086	7.89144 $\pm$ 1.023
0.54, 0.61	0.61, 0.7	2.595 $\pm$ 0.616	2.4168*pm*0.5754
0.54, 0.61	0.7, 0.83	1.833 $\pm$ 0.601	2.0231 $\pm$ 0.5932
0.54, 0.61	0.83, 0.94	2.929 $\pm$ 0.724	3.5334 $\pm$ 0.7406
0.54, 0.61	0.94, 1.0001	2.693 $\pm$ 0.632	2.631 $\pm$ 0.6036
0.61, 0.71	0.45, 0.61	9.661 $\pm$ 1.18	9.0134 $\pm$ 1.1012
0.61, 0.71	0.61, 0.7	3.346 $\pm$ 0.69	3.3744 $\pm$ 0.67012
0.61, 0.71	0.7, 0.83	4.600 $\pm$ 0.888	4.6955 $\pm$ 0.85961
0.61, 0.71	0.83, 0.94	4.091 $\pm$ 0.809	3.9536 $\pm$ 0.7670
0.61, 0.71	0.94, 1.0001	2.780 $\pm$ 0.680	3.0163 $\pm$ 0.6749
0.71, 0.8	0.45, 0.61	6.170 $\pm$ 0.945	5.7536 $\pm$ 0.8835
0.71, 0.8	0.61, 0.7	1.570 $\pm$ 0.556	1.7297 $\pm$ 0.5510
0.71, 0.8	0.7, 0.83	2.987 $\pm$ 0.717	2.8913 $\pm$ 0.6803
0.71, 0.8	0.83, 0.94	3.929 $\pm$ 0.806	3.6279 $\pm$ 0.7512
0.71, 0.8	0.94, 1.0001	3.222 $\pm$ 0.676	3.007 $\pm$ 0.6317
0.8, 1.0	0.45, 0.61	3.802 $\pm$ 0.784	3.8222 $\pm$ 0.7558
0.8, 1.0	0.61, 0.7	2.649 $\pm$ 0.676	2.4380 $\pm$ 0.6296
0.8, 1.0	0.7, 0.83	3.053 $\pm$ 0.674	2.8408 $\pm$ 0.6300
0.8, 1.0	0.83, 0.94	1.740 $\pm$ 0.543	1.7401 $\pm$ 0.5229
0.8, 1.0	0.94, 1.0001	3.361 $\pm$ 0.702	3.405 $\pm$ 0.6816

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X-check on 2011 limit

- As agreed last time I have X-checked 2011 limit.
- Got a bi higher value then Paul:
  1. $B(\tau \to 3\mu) < 8.45 \times 10^{-8}$
- REMINDER: Pauls: $B(\tau \to 3\mu) < 7.9 \times 10^{-8}$

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