

Update on MoM

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S-wave study

- In rush for Moriond we observed that some F_s pulls are a bit over covering.
- We had just limited number of toys so we stooped to investigate.
- With more toys the pulls slightly over cover, but the impact on the angular observables is negligible.

Bin [GeV^2]	mean	sigma
0.1 – 0.98	0.038 ± 0.029	0.918 ± 0.021
1.1 – 2	-0.024 ± 0.031	0.998 ± 0.022
2 – 3	-0.025 ± 0.029	0.942 ± 0.021
3 – 4	-0.069 ± 0.030	0.971 ± 0.022
4 – 5	0.062 ± 0.030	0.955 ± 0.021
5 – 6	0.081 ± 0.032	0.992 ± 0.022
6 – 7	-0.031 ± 0.031	0.992 ± 0.022
7 – 8	-0.054 ± 0.030	0.962 ± 0.021
11 – 11.75	0.002 ± 0.030	0.947 ± 0.021
11.75 – 12.5	-0.027 ± 0.031	0.979 ± 0.022
15 – 16	0.011 ± 0.029	0.933 ± 0.021
16 – 17	0.02 ± 0.029	0.929 ± 0.020
17 – 18	-0.054 ± 0.030	0.962 ± 0.021

Correlations between S_x and A_x , MC Toys

- We tested the correlation between the S_i and CP different observables.
- In toys correlation is negligible.

q^2	$S_3 A_3$	$S_4 A_4$	$S_5 A_5$	$S_6 A_6$	$S_7 A_7$	$S_8 A_8$	$S_9 A_9$
0	0.049	-0.066	-0.001	0.011	-0.034	0.015	0.022
1	0.029	-0.047	-0.003	0.011	-0.003	0.017	0.052
2	0.004	-0.046	0.026	-0.022	-0.010	-0.036	-0.032
3	0.079	0.032	0.035	-0.028	-0.025	0.037	0.027
4	-0.020	0.074	-0.001	0.008	-0.063	-0.015	0.037
5	-0.019	-0.018	-0.041	0.001	0.025	0.015	-0.014
6	0.000	-0.008	-0.021	0.049	-0.014	-0.04	-0.002
7	0.000	-0.008	-0.021	0.049	-0.014	-0.04	-0.002
8	-0.011	-0.009	-0.013	-0.023	0.047	0.006	-0.004
9	-0.009	-0.015	-0.008	-0.009	-0.010	-0.050	-0.029
10	0.030	0.023	0.084	-0.049	0.030	0.002	0.021
11	-0.016	0.006	0.018	-0.029	0.034	-0.049	0.039

- To access systematics due to unfolding procedure we use the higher(+2) order acceptance correction function on high statistics MC.
- I noticed that some of the weights ($1/\epsilon$) are super large (> 100) or even negative which creates larger systematics(shifts the mean a lot).
- Repeated this study rejecting this events, smaller systematics in both cases negligible.

q^2	F_1	S_3	S_4	S_5	S_6	S_7	S_8	S_9
0	0.0022	0.005	0.0003	0.0077	0.0066	0.0080	0.0002	0.0032
1	0.0048	0.001	0.0014	0.0051	0.0088	0.0036	0.0048	0.0003
2	0.0004	0.0001	0.00013	0.0056	0.0046	0.0014	0.0003	0.0022
3	0.0002	0.0012	0.0007	0.0017	0.0001	0.0016	0.0011	0.0021
4	0.002	0.0004	0.0005	0.0015	0.0003	0.0009	0.0002	0.0010
5	0.006	0.0011	0.0007	0.0026	0.0014	0.0016	0.0015	0.0004
6	0.008	0.0019	0.0008	0.0024	0.0029	0.0033	0.0019	0.0000
7	0.0062	0.0015	0.0002	0.0011	0.0036	0.0028	0.0016	0.0005
8	0.0035	0.0037	0.0017	0.0046	0.0037	0.0005	0.0040	0.0040
9	0.005	0.0001	0.0004	0.0010	0.0009	0.0050	0.0043	0.0033
10	0.0011	0.0044	0.002	0.0060	0.0059	0.0101	0.0000	0.0012
11	0.0021	0.0018	0.0001	0.0020	0.0004	0.0052	0.0082	0.0059