

CEEX σ and A_{FB} , energy cut-off study

$u\bar{u} \rightarrow \mu^- \mu^+$, at 189GeV. Energy cut: $v < v_{\text{max}}$, $v = 1 - M_{f\bar{f}}^2/s$.

Scattering angle for A_{FB} is $\theta = \theta^\bullet$. No cut in θ^\bullet . E-W corr. in \mathcal{KK} according to DIZET 6.x.

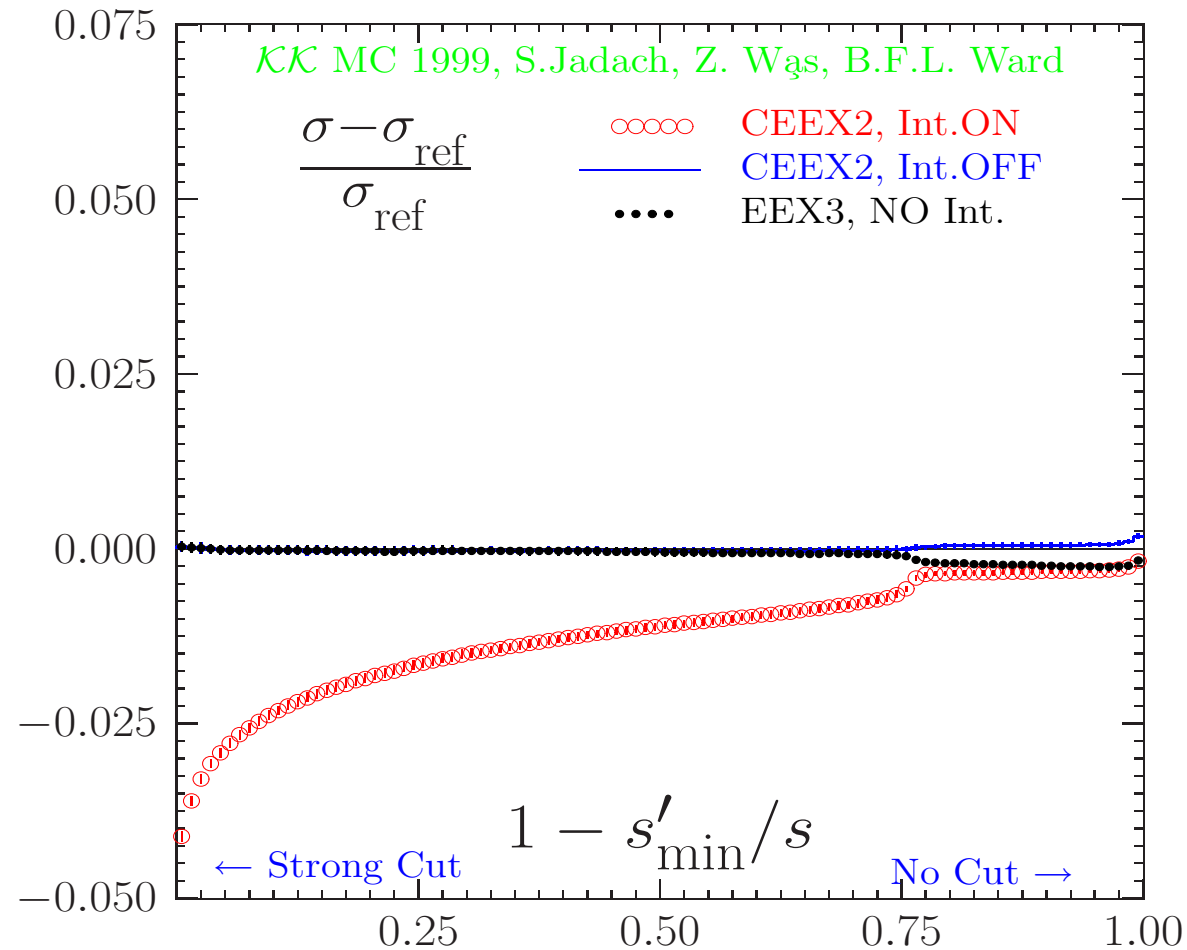
EEX3 is $\mathcal{O}(\alpha^3)_{\text{LL}}$ EEX3 matrix element without ISR \otimes FSR interf.

\mathcal{KK} sem is semianalytical part of \mathcal{KK} . (Angle θ^\bullet is from Phys. Rev. **D41**, 1425 (1990).)

v_{max}	\mathcal{KK} sem Refer.	$\mathcal{O}(\alpha^3)_{\text{EEX3}}$	$\mathcal{O}(\alpha^2)_{\text{CEEX}}$ intOFF	$\mathcal{O}(\alpha^2)_{\text{CEEX}}$
$\sigma(v_{\text{max}})$ [pb]				
0.01	1.2714 ± 0.0000	1.2718 ± 0.0009	1.2718 ± 0.0009	1.2191 ± 0.0009
0.10	1.6178 ± 0.0000	1.6175 ± 0.0010	1.6175 ± 0.0010	1.5792 ± 0.0010
0.30	1.8058 ± 0.0000	1.8053 ± 0.0010	1.8054 ± 0.0010	1.7784 ± 0.0010
0.50	1.9026 ± 0.0000	1.9018 ± 0.0010	1.9021 ± 0.0010	1.8815 ± 0.0011
0.70	2.0099 ± 0.0000	2.0084 ± 0.0010	2.0094 ± 0.0010	1.9938 ± 0.0011
0.90	3.3101 ± 0.0000	3.3023 ± 0.0010	3.3120 ± 0.0010	3.2993 ± 0.0010
0.99	3.3961 ± 0.0000	3.3881 ± 0.0010	3.3995 ± 0.0010	3.3872 ± 0.0010
$A_{\text{FB}}(v_{\text{max}})$				
0.01	0.6788 ± 0.0000	0.6787 ± 0.0009	0.6787 ± 0.0009	0.6548 ± 0.0009
0.10	0.6791 ± 0.0000	0.6790 ± 0.0008	0.6790 ± 0.0008	0.6656 ± 0.0008
0.30	0.6799 ± 0.0000	0.6798 ± 0.0007	0.6798 ± 0.0007	0.6713 ± 0.0007
0.50	0.6809 ± 0.0000	0.6806 ± 0.0007	0.6806 ± 0.0007	0.6743 ± 0.0007
0.70	0.6800 ± 0.0000	0.6794 ± 0.0006	0.6793 ± 0.0006	0.6749 ± 0.0007
0.90	0.4417 ± 0.0000	0.4415 ± 0.0004	0.4407 ± 0.0004	0.4366 ± 0.0004
0.99	0.4285 ± 0.0000	0.4283 ± 0.0004	0.4274 ± 0.0004	0.4238 ± 0.0004

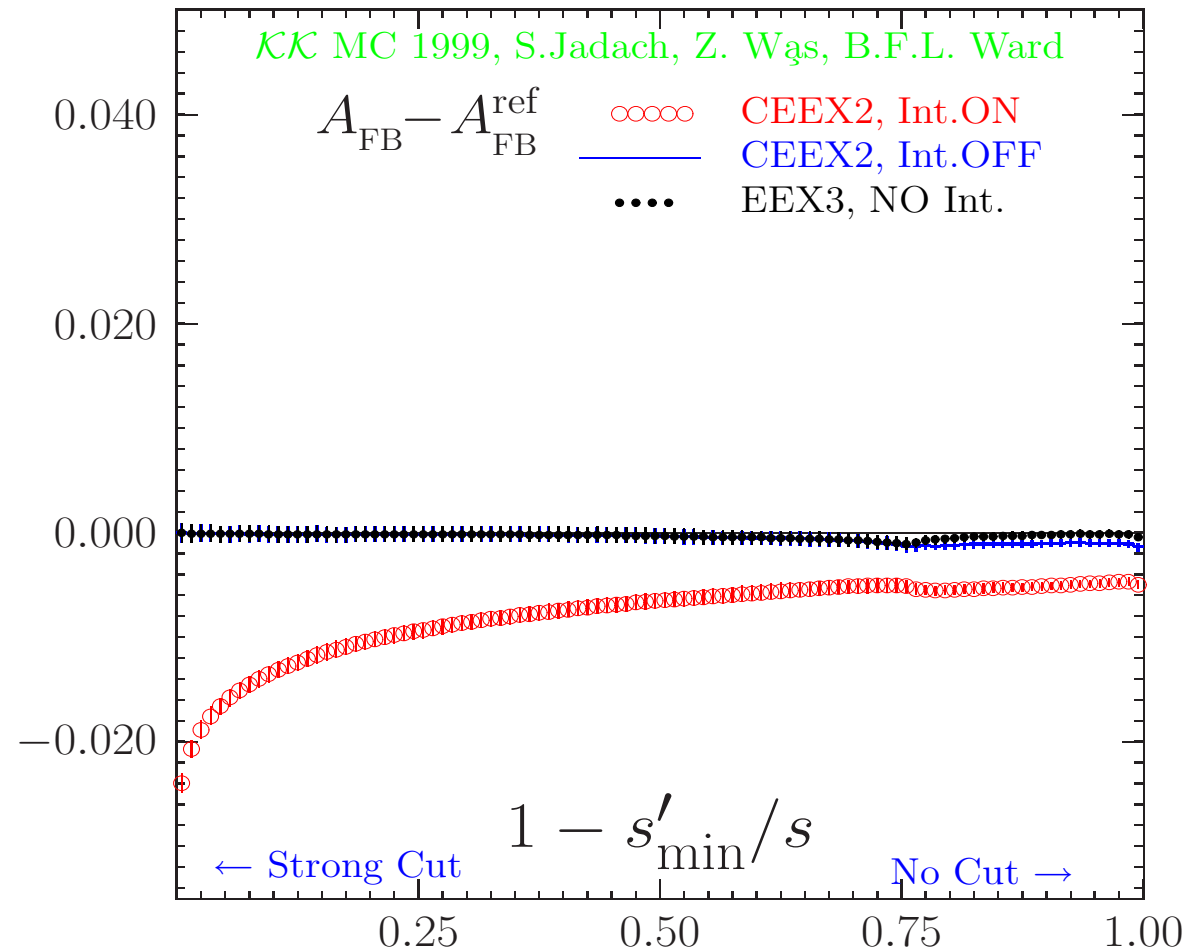
Total cross section σ , energy cut-off study

The same as in the table. No cut in θ^\bullet . Ref. σ_{ref} = semianalytical of $\mathcal{K}\mathcal{K}\text{sem}$.



Charge asymmetry A_{FB} , energy cut-off study

The same as in the table. No cut in θ^\bullet . Reference $A_{\text{FB}}^{\text{ref}}$ = semianalytical $\mathcal{K}\mathcal{K}\text{sem}$.



Physical Precision of CEE X ISR

The difference between second and first order CEE X results for at 189GeV.

The energy cut is on s'/s , where $s' = m_f^2 \bar{f}$.

Scattering angle is $\theta = \theta^\bullet$.

[Angle θ^\bullet is defined in Phys. Rev. **D41**, 1425 (1990)]

