

**Erratum to the Paper «Improved Fits to the  $xF_3$  CCFR Data at the Next-to-Next-to-Leading Order and Beyond» by A. L. Kataev, G. Parente, A. V. Sidorov (Physics of Elementary Particles and Atomic Nuclei. 2003. V. 34. P. 43–87)**

The bug crept into the calculations of the numerical values of the  $A_s^3$  coefficients  $C_{F_3}^{(3)}(n)$  in the QCD expression for the coefficient function  $C_{F_3}^{(n)}(A_s)$  (the definition see in Eq. (8)) of the odd Mellin moments of Eq. (1) for  $xF_3$  structure function of deep-inelastic neutrino–nucleon scattering ( $A_s = \alpha_s/(4/\pi)$ ) with  $n = 1, 3, 5, 7, 9, 11, 13$  and  $f = 4$  numbers of flavours. This bug resulted from using the computer subroutine, which calculated the values for  $C_{F_3}^{(3)}(n)$  from the given in Eq. (22) order  $O(A_s^3)$  approximations for  $C_{F_3}^{(n)}$ , where instead of  $f^2$  in the last terms  $f$  was typed. These errors affected also the values of the even  $C_{F_3}^{(3)}(n)$  coefficients, obtained from the explicitly calculated ones using the smooth interpolation procedure. The corrected results are given below in the 5th corrected column of Table 2 of the paper.

*Table 2. The values for NLO, NNLO, N<sup>3</sup>LO QCD contributions to the coefficient functions, used in our fits, and the results of N<sup>3</sup>LO Padé estimates*

$n$	$C_{F_3}^{(1)}(n)$	$C_{F_3}^{(2)}(n)$	$C_{F_3}^{(2)}(n) _{\text{int}}$	$C_{F_3}^{(3)}(n) _{\text{int}}$	$C_{F_3}^{(3)}(n) _{[1/1]}$	$C_{F_3}^{(3)}(n) _{[0/2]}$
1	−4	−52	−52	−780.6427	−676	480
2	−1.778	−47.472	(−46.4295)	(−1206.83008)	−1267.643	174.4079
3	1.667	−12.715	−12.715	−992.198975	97.00418	−47.01328
4	4.867	37.117	(37.0076)	(−269.865143)	283.0851	246.0090
5	7.748	95.4086	95.4086	851.838501	1174.835	1013.328
6	10.351	158.2912	(158.4032)	(2286.68115)	2420.569	2167.903
7	12.722	223.8978	223.8978	3967.71313	3940.284	3637.790
8	14.900	290.8840	(290.8421)	(5844.3042)	5678.657	5360.371
9	16.915	358.5874	358.5874	7879.04004	7601.721	7291.305
10	18.791	426.4422	(426.5512)	(10044.4785)	9677.391	9391.308
11	20.544	494.1881	494.1881	12319.7676	11885.25	11633.28
12	22.201	561.5591	(561.2668)	(14687.1133)	14204.22	13991.80
13	23.762	628.4539	628.4539	171728.1191	16620.99	16449.68

The application of the corrected numbers in the next-to-next-to-leading order Jacobi polynomial fits of the experimental data of the CCFR collaboration resulted in slight decrease of N<sup>3</sup>LO values for  $\Lambda_{\overline{\text{MS}}}^{(4)}$  as presented in Tables 6, 11, and 12 by 3 MeV only and does not affect any conclusions of the paper.