Published for SISSA by Springer

Received: *September 22, 2020*
Accepted: *September 23, 2020*
Published: *October 26, 2020*

Erratum: Symanzik improvement with dynamical charm: a 3+1 scheme for Wilson quarks

ALPHA Collaboration

Patrick Fritzsch,[a] Rainer Sommer,[b,c] Felix Stollenwerk[c] and Ulli Wolff[c]

[a] *CERN, Theoretical Physics Department, 1211 Geneva 23, Switzerland*
[b] *John von Neumann Institute for Computing (NIC), DESY, Platanenallee 6, 15738 Zeuthen, Germany*
[c] *Institut für Physik, Humboldt-Universität zu Berlin, Newtonstr. 15, 12489 Berlin, Germany*

E-mail: patrick.fritzsch@cern.ch, rainer.sommer@desy.de, stollenwerk@physik.hu-berlin.de, uwolff@physik.hu-berlin.de

Erratum to: JHEP06(2018)025

ArXiv ePrint: 1805.01661

JHEP10(2020)165

We correct for typos and add a few missing details that can help to reproduce our calculations. The results of our original paper remain unchanged.

1. We add information to the 2$^{\mathrm{nd}}$ sentence following eq. (4.3):

   The normalization factor $\mathcal{N}$, which implies $\Phi_1 = g_0^2 + \mathrm{O}(g_0^4)$ in perturbation theory, has been derived in [41] for the plaquette gauge action. For our setup with tree level improved Lüscher-Weisz gauge action we have to recompute this normalisation factor which amounts to replacing the lattice time-momentum gauge propagator in eq. (2.48) of ref. [41] with that of choice B provided in appendix B of ref. [43]. Otherwise, the numerical calculation proceeds along the lines of [41], leading to the values quoted in table 4, which have entered into our results.

https://doi.org/10.1007/JHEP10(2020)165

T/a	$\mathcal{N}$
8	0.014804755
12	0.016141622
16	0.016638624
20	0.016688084
24	0.017004531

Table 4. Normalisation factors for the renormalised coupling Φ_1 in the SF with tree level improved Lüscher-Weisz gauge action, $T = L$ and vanishing background field.

2. We add a sentence before eq. (5.3):

   ...correlations and finally to $m'^{ij}(x_0)$. For the precise definition, the reader is advised to consult [25].

3. A minus sign was missing in eq. (5.4). The correct formula reads

$$c_A = -\frac{r'^{ij}(y_0) - r^{ij}(y_0)}{s'^{ij}(y_0) - s^{ij}(y_0)} \qquad \text{at } y_0 = \frac{3}{4}T \tag{5.4}$$

4. We replace the caption of table 2 as follows:

Table 2. Results of the individual improvement condition runs along the LCP for various input values of c_{sw}. Beside g_0, κ_l and κ_c, we quote the corresponding current quark masses $m^{ud}(x_0)$ at $x_0 = T^*/2$ with one-loop c_A, the improvement condition mass $M^{ud}(x_0, y_0)$ for $x_0 = \frac{1}{2}T^*$ and $y_0 = \frac{3}{4}T^*$, and the mass difference ΔM^{ud} from eq. (5.6). Errors from the relation $g_0^2 \leftrightarrow T^*/a$ are neglected.

Note the change from $x_0 = \frac{1}{4}T^*$ to $x_0 = \frac{1}{2}T^*$.

Acknowledgments

We thank A. Patella and J. Lücke to communicate some of the shortcommings addressed here, and A. Ramos for providing the normalisations quoted in table 4.

JHEP10(2020)165