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Erratum: Properties and uses of the Wilson flow in lattice QCD

Martin Lüscher

CERN, Physics Department,
1211 Geneva 23, Switzerland

E-mail: luscher@mail.cern.ch

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There are unfortunately a few small mistakes in this article. First there is a sign error in the quark contribution in eq. (2.25). The corrected equation then reads

$$\omega_1 = \frac{1}{16\pi^2}(4\pi \mathrm{e}^{-\gamma_\mathrm{E}})^\epsilon \left\{ N\left(\frac{5}{3\epsilon}+\frac{31}{9}\right) - N_\mathrm{f}\left(\frac{2}{3\epsilon}+\frac{10}{9}\right) + \mathrm{O}(\epsilon)\right\}. \tag{2.25}$$

Secondly, it turns out that the values of t_0/a^2 quoted in the last column of table 1 are slightly wrong. The table with the corrected entries is reproduced below.

While the sign error in eq. (2.25) did not propagate to the later equations, the data points and curves shown in figures 2 and 3 are sensitive to the values of t_0/a^2 and are thus redrawn here. All these corrections are however too small to have any impact on the interpretation of the results and the conclusions drawn from them.

I am indebted to Kengo Kikuchi for noticing the misprint in eq. (2.25) and to Yoshifumi Nakamura for informing me that his results for t_0/a^2 significantly deviated from the ones quoted in the paper.

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Lattice	β	a[fm]	$N_{\rm cnfg}$	t_0/a^2
48×24^3	5.96	0.0999(4)	100	2.7854(62)
64×32^3	6.17	0.0710(3)	100	5.489(14)
96×48^3	6.42	0.0498(3)	100	11.241(23)

Table 1. Lattice parameters, statistics and reference flow time.

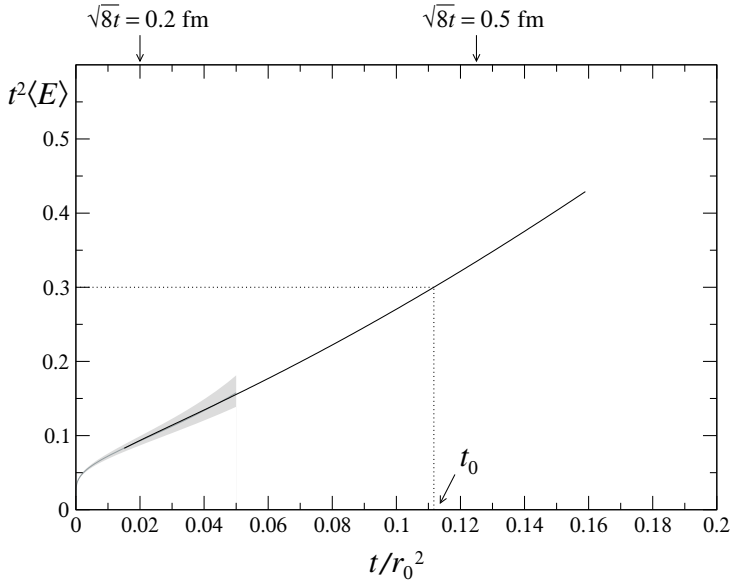

Figure 2. Simulation data obtained at $a = 0.05\,\mathrm{fm}$ for $t^2\langle E\rangle$ plotted as a function of the flow time t (black line). Statistical errors are smaller than 0.3% and therefore invisible on the scale of the figure. The curve predicted by the perturbation series (2.36) and the known value (3.2) of the Λ-parameter is also shown (grey band).

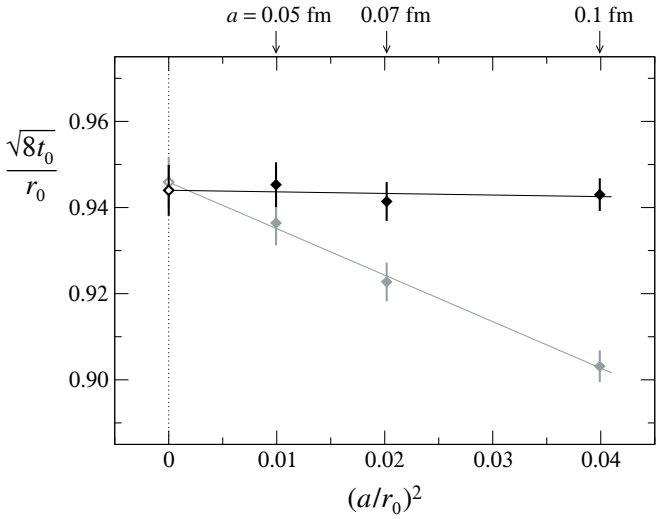

Figure 3. Extrapolation of the dimensionless ratio $\sqrt{8t_0}/r_0$ of reference scales to the continuum limit (open data points at $a/r_0 = 0$). The black data points were obtained using the symmetric definition of E and the grey ones using the expression (3.1).

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