Errata

Erratum: Hyperuniversality and the renormalization group for finite systems [Phys. Rev. B 35, 1846 (1987)]

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In the above paper, it was reported that the usual renormalization constants were sufficient to remove divergences in box geometry with periodic boundary conditions, but it was noted in the appendix that a size-dependent mass correction appeared to be necessary. We were suspicious of this apparent result, but it did not affect the work to be reported. There was an algebraic error in the calculation which, fortunately, did not affect the conclusions. We can now confirm that for the case of periodic boundary conditions, all divergences are removed using the bulk renormalization constants.

Equation (A2) suffered from some omissions and transcription errors. The correct version of Eq. (A2) is

$$\begin{aligned}
 & \left(\frac{2\pi}{L} \right)^{2d} \sum'_{\mathbf{q}_1, \mathbf{q}_2} \frac{1}{(\mathbf{q}_1^2 + T_0)(\mathbf{q}_2^2 + T_0)[(\mathbf{q}_1 + \mathbf{q}_2)^2 + T_0]} \\
 &= \int \frac{d^d q_1 d^d q_2}{(\mathbf{q}_1^2 + T_0)(\mathbf{q}_2^2 + T_0)[(\mathbf{q}_1 + \mathbf{q}_2)^2 + T_0]} + 3 \sum'_{\mathbf{n}} \int d^d q_1 d^d q_2 \frac{\exp(i\mathbf{q}_1 \cdot \mathbf{n}L)}{(\mathbf{q}_1^2 + T_0)(\mathbf{q}_2^2 + T_0)[(\mathbf{q}_1 + \mathbf{q}_2)^2 + T_0]} \\
 &\quad - \frac{3}{T_0} \left(\frac{2\pi}{L} \right)^d \int \frac{d^d q}{(\mathbf{q}^2 + T_0)^2} - \frac{3}{T_0} \left(\frac{2\pi}{L} \right)^d \sum'_{\mathbf{n}} \int d^d q \frac{\exp(i\mathbf{q} \cdot \mathbf{n}L)}{(\mathbf{q}^2 + T_0)^2} + \frac{2}{T_0^3} \left(\frac{2\pi}{L} \right)^{2d} \\
 &\quad + \sum_{\mathbf{n}_1 \neq 0, \mathbf{n}_2 \neq 0, \mathbf{n}_1 \neq \mathbf{n}_2} \int d^d q_1 d^d q_2 \frac{\exp(i\mathbf{q}_1 \cdot \mathbf{n}_1 L + i\mathbf{q}_2 \cdot \mathbf{n}_2 L)}{(\mathbf{q}_1^2 + T_0)(\mathbf{q}_2^2 + T_0)[(\mathbf{q}_1 + \mathbf{q}_2)^2 + T_0]}. \tag{A2}
 \end{aligned}$$

The final term was omitted, but it does not contain any ultraviolet divergences. The L -dependent divergences of the second and third terms on the right of (A2) above cancel against the divergences arising from the third and fourth terms of (A1) (in the original article), after renormalization.

Hence, as reported in the original article, the “new” L -dependent uv divergences cancel exactly without the introduction of any new renormalization constants. An L -dependent “mass shift” is, furthermore, unnecessary.

We wish to thank Volker Dohm for going through the calculation and suggesting a possible source of error.

Erratum: Fourier-transform method for accurate analysis of Mössbauer spectra [Phys. Rev. B 37, 3226 (1988)]

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Some errors in the above manuscript were found by Ralph Wagoner. They are as follows:

- (1) In Eq. (31) $(2k)!$ should read $(2k)!$.
- (2) The small x in Eq. (37) should be replaced by a capital X .
- (3) The element dz was omitted from the integral expression in Eq. (44).
- (4) A multiplicative factor β needs to be multiplied on the right-hand side of the second from the last equation $[G_m^{(1)}(x) \text{ term}]$ in Table I.
- (5) The superscript (0) on the left-hand side of Eqs. (51) through (57) should have been deleted. Also, the order of differentiation in Eqs. (56) and (57) should be $(j-1)$ rather than j .
- (6) The reference to Eq. (33) should refer to Eq. (36) in the third line below Eq. (57), the first line after Eq. (75), and the first line after Eq. (84). Also, reference to Eq. (51) should refer to Eq. (50) and (53) to (54) in the sentences before and after Eq. (55), respectively.
- (7) Equation (62) should read $S^{(0)}(x)$ instead of $S(x)$.
- (8) In the last expression of Eq. (65), the subscript $j-1$ should be replaced by the subscript 1.