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The transfer matrices of the self-similar fractal potentials on the Cantor set

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Corrigendum

The transfer matrices of the self-similar fractal potentials on the Cantor set N L Chuprikov 2000 J. Phys. A: Math. Gen. **33** 4293–4308

There is an error in equation (1). The correct form of (1) reads

 $V_0(x) = V_0(\alpha x) + V_0[\alpha (x - x_0)].$

(1)

1

This change has an effect on all statements concerning the scale invariance of the SSFP. Now the first relation in appendix A must be replaced by

 $V_{n+1}(x) = V_n(\alpha x).$

Relation (10) can be extended onto all levels of the SSFP, for any value of n

$$\mathbf{Z}_{n+1}(k) = \mathbf{Z}_n(\alpha k).$$

In this case, for any level *n*

 $\mathbf{Z}_n(\phi_n) = \mathbf{Z}_n(\alpha \phi_n) \mathbf{D}^{-1}(\phi_n, \gamma) \mathbf{Z}_n(\alpha \phi_n),$

where $\phi_n = \phi/\alpha^n$. This functional equation is the same for all levels of the SSFP. Hence it is sufficient to find the transfer matrix $\mathbf{Z}_0(\phi)$ from this equation at n = 0 (or, equation (16) in the original paper). Then the transfer matrices for the *n*th level can be found with the help of the relations $\mathbf{Z}_n(\phi_n) = \mathbf{Z}_0(\phi) = \mathbf{Z}_0(\alpha^n \phi_n)$.

There are also two minor errors:

1) the expression $\sin[2(y_{n+1}(k) - \gamma k d_n)] \ge 0$, after relation (15), should be replaced by $\sin[2B(k, y_n(k))] \ge 0$;

2) the renewed sentence to precede relation (B2), in appendix B, reads 'Now let us solve this equation with respect to η , choosing the root which behaves correctly at $\tilde{R} = 1 \dots$ ' (rather than $\tilde{R} = 0$).

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