Erratum: Dynamics of the dissipative two-state system [Rev. Mod. Phys. 59, 1 (1987)]

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pp. 4 and 7: Tables I and II should be interchanged.

p. 14: the LHS of Eq. (3.1) should be H.

p. 19, 4 lines below Eq. (3.24): the first reference should read "Emery and Luther (1974)."

p. 23: Eq. (3.54): the commutator should be replaced by an anticommutator (as stated in the text).

p. 28, footnote 36: this is incorrect; it should read "In fact, from the analogy to the r^{-2} Ising model one expects that Δ_r behaves like the inverse Ising correlation length, which vanishes like $\Delta(\Delta/\omega_c)^{1/(1-\alpha)}$ as α tends to 1 from below, provided that $1-\alpha$ stays larger than Δ/ω_c. Note also that the critical value of α is 1 only in the limit $\Delta/\omega_c \to 0$ but is larger than 1 for finite Δ/ω_c."

p. 29: the second sentence after Eq. (3.91) should start "Thus for $\alpha > 1/2$, $\chi''(\omega)/\omega \ldots$."

p. 30, Eq. (3.95): the commutator should be replaced by an anticommutator.

p. 33: Eq. (4.11) should read

$$\chi(\tau)=\sum_{j=0}^{n} \eta_j[\theta(\tau-t_{2j})-\theta(\tau-t_{2j+1})], \xi(\tau)=\ldots$$

p. 37, column 1, sentence 2: line 2 should read "it then turns out [provided that $Q_w(t)$ increases faster than $\ln t$] that this factor. . ."; in Eq. (4.28) in the argument of Q_1, t_{1j} should be replaced by t_{2j}; in Eq. (4.32) the upper limit of the sum over n should be infinity.

p. 38: the line below Eq. (5.6) should read "which occurs in the golden rule expression (3.38)."

p. 45: the right-hand side of Eq. (5.45) should be preceded by a minus sign.

p. 47: the caption to Table III should read ". . .transfer matrix $\hat{K}$."

p. 60, 5 lines from foot and last line: "Curie-Weiss" should be "Curie."

p. 73: the last line of Appendix B should read

". . . by the relation $[1+P(t)]/2=W_{\downarrow}(t)$."

p. 76: Eq. (D9) should read[1]

$$(q_0^2/\pi\hbar)\int_0^{\infty} dt \int_t^{\infty} dt' L_1(t')=\pi\alpha \; .$$

p. 83: the line below Eq. (E6) should read

"Since $G(t)$ is analytic in the strip $\beta\hbar < \mathrm{Im}\, t < 0\ldots$"

In no case are any results of the paper affected.

We take this opportunity to comment briefly on one remark in our paper which was identified explicitly (end of Sec. IV.C) as a *conjecture,* namely that whenever the quantity $P(t)$ which is its explicit subject is given adequately (for "interesting" times in the sense defined there) by the "noninteracting blip approximation" (NIBA), then the symmetrized correlation function $C(t)$ should similarly be given adequately by this approximation, and thus the quantities $P(t)$ and $C(t)$ should coincide for such times. Whenever the validity of the NIBA is a consequence of any of the reasons given in Sec. IV.C—i.e., over the vast bulk of the (zero-bias) parameter space—there seems no obvious reason to doubt that this conjecture is correct. Its spectacular failure for the case of Ohmic dissipation at $T=0$ and $\alpha=1/2$, where $P(t)$ is given exactly by the NIBA and decays purely exponentially while $C(t)$ behaves[2] asymptotically like $-t^{-2}$, may be seen from the explicit and detailed discussion given in Section 15.5 of Weiss (1993) to be due simply to the fact that the exact validity of the NIBA for $P(t)$ at $\alpha=1/2$, and hence also its approximate validity for $\alpha \to 1/2$ from below, is not due to

[1]We thank Dr. Z. Rajilic for correspondence which alerted us to this error.

[2]In fact this behavior is expected for any alpha between 0 and 1, see Sec. III.E. [A rigorous proof of the inverse square law was given by Spohn (1989); cf. also the recent numerical verification of Chakravarty and Rudnick (1995).]

 0034-6861/95/67(3)/725(2)/$07.30

any of the considerations of Sec. IV.C[3] but is a consequence of the very special form of the integrands at this point. Thus, we should expect that the tiny region of the zero-bias parameter space (Ohmic dissipation with $1/2<\alpha<1$, $kT \lesssim \hbar\Delta_r$) in which the NIBA probably fails to give even a qualitatively correct description of the behavior of $P(t)$ at "interesting" times (see Sec. V.E) would in the case of $C(t)$ extend somewhat into the region $\alpha<1/2$. We emphasize that the above considerations give no reason whatsoever to doubt the correctness of any of the results stated in the paper; in particular, we reiterate (cf. especially p. 6) that we were primarily interested in the intermediate-time regime and do not expect the NIBA necessarily to give the infinite-time behavior correctly for either $P(t)$ or $C(t)$, and moreover that the results obtained in Sec. V.D for $P(t)$ in the Ohmic case with $0<\alpha<1/2$ are, as repeatedly stressed, *not* based on this approximation.

[3]The quantity $Q_2(t)$ does in this case increase with t, but (just) too slowly to justify the argument (c) of Sec. IV.C.

REFERENCES

Chakravarty, S., and J. Rudnick, 1995, Phys. Rev. Lett. **75**, 501.
Spohn, H., 1989, Commun. Math. Phys. **123**, 227.
Weiss, U., 1993, *Quantum Dissipative Systems* (World Scientific, Singapore).