Erratum: Extrinsic thermoelectric response of coherent conductors [Phys. Rev. B 104, 115430 (2021)]

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The transmission probabilities between the invasive probe and terminals 3 and 1 in Eq. (E2) of the original paper should read

$$\mathcal{T}_{1p}^{-\lambda} = \frac{\lambda(\eta_+ - \varepsilon)[1 + R(1-\lambda)]}{2\mathcal{A}_\lambda},$$
$$\mathcal{T}_{3p}^{-\lambda} = \frac{\lambda\varepsilon[1 + R(1-\lambda)]}{\mathcal{A}_\lambda}.$$

These were used to compute some of the results shown in Figs. 11, 13, and 14. The corrected results are plotted in Figs. 1–3, respectively.

The changes in the nonlocal charge current $I_{2,3}$ shown in orange in Fig. 1 are imperceptible, and the discussion in this respect is not affected. However, different from our previous observations, the double oscillation of the longitudinal current $I_{2,1}$ does not disappear at long distances in the presence of the invasive probe as seen in Fig. 2(a) and its inset. This affects the rectification coefficient $\mathcal{R}$, plotted in Fig. 2(b), which turns out to be very close to the results obtained in the case of having a noninvasive probe, cf. Fig. 12(e) in our paper. Our conclusion that the longitudinal currents are sensitive to whether the probe introduces backscattering or not is, therefore, not valid.

Finally, the behavior of the invasive probe as a thermometer is also affected. As shown in Fig. 3, increasing the coupling to the probe, λ, the interference oscillations of the temperature disappear, and $T_{p,j}$ tends to the asymptotic value corresponding to $x \to 0$ and $x \to \infty$.

We acknowledge J. Balduque for pointing out the missing factor in Eq. (E2) to us.

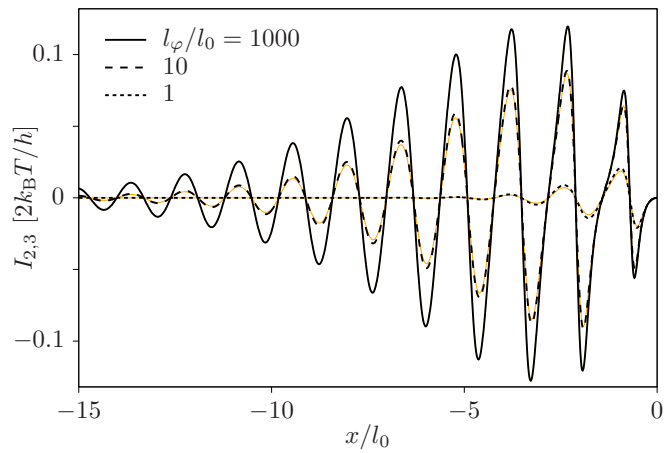

FIG. 1. Effect of pure dephasing on the nonlocal thermoelectric current ($T_3 = T + \delta T$), parametrized by the phase coherence length l_φ.

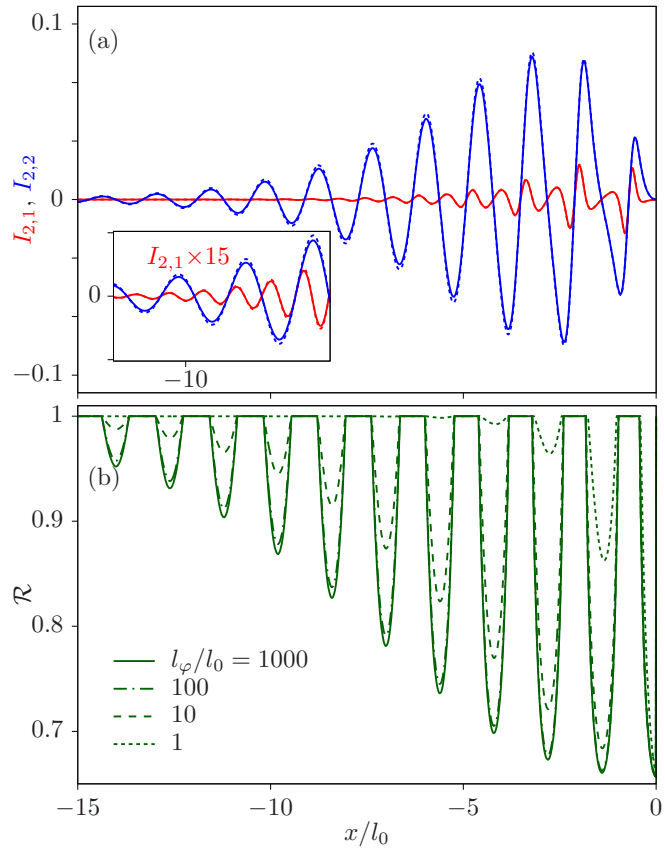

FIG. 2. Effect of quasielastic scattering on the longitudinal response. (a) Longitudinal currents $I_{2,1}$ (full red line) and $I_{2,2}$ (full blue line) for $l_\varphi = 10/l_0$. The case where the same l_φ corresponds to pure dephasing is shown by dotted lines. The inset shows a zoom of some oscillations. (b) Thermoelectric rectification coefficient $\mathcal{R}(x)$ for different coherence lengths.

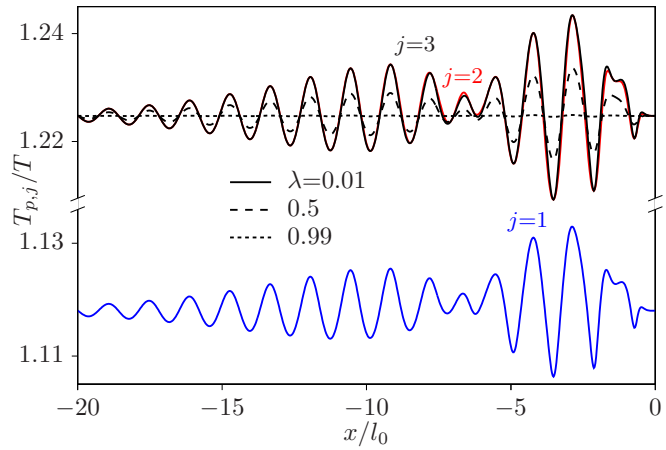

FIG. 3. Temperature of the probe terminal when the temperature of terminal $j = 1$ (blue), $j = 2$ (red), and $j = 3$ (black) is $T_j = 1.5T$ with $\lambda = 0.01$. Dashed and dotted lines show the $j = 3$ case for increasing values of the coupling λ as labeled.