Erratum: Density-density propagator for one-dimensional interacting spinless fermions with nonlinear dispersion and calculation of the Coulomb drag resistivity [Phys. Rev. B 77, 125109 (2008)]

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In our paper, as well as the complementary arXiv submission,[1] the finite-temperature calculation of the Coulomb drag resistivity r in Sect. III is performed with the spectral function $B_{k\omega}$, Eq. (32), which is valid for $T=0$ only.

This is done under the implicit assumption that the leading contribution to r is insensitive to such simplification. However Aristov[2] points out that an error introduced by the use of the zero-temperature spectral function is of the same order as r itself. To get an accurate result it is necessary to find $B_{k\omega}$ at $T>0$ and use such spectral function to evaluate r. The correct calculations are performed in Ref. 3.

Fortunately the most important conclusions of the paper remain valid despite this mistake. Namely, the $r\propto T^2$ result is unchanged, so is $\delta r\propto T^4$ [see Eq. (52) of our paper and Ref. 1], where δr is the correction to the Coulomb drag due to the quasiparticle interaction. It is confirmed also that the in-chain repulsive interaction depletes the drag.

Yet the details of the derivations and some less important results are to be amended. Most notably, it is found that the correct value of coefficient c_1 in Eq. (41) is $\pi^2/4$, in accordance with Ref. 4.

The evaluation of δr is to be modified as well. Instead of the spectral function correction of Eq. (51), which is valid for zero-temperature only, it is necessary to use the finite-temperature quantity:

$$\delta B_{k\omega} \approx \frac{\tilde{g}'\mathcal{K}}{\pi\tilde{v}_{\rm F}'}\sum_p \tilde{B}^0_{-pk\omega}\left[-\frac{p\,\delta\omega_p}{2\tilde{v}_{\rm F}k}-\frac{(\delta\omega_p)^2}{4\tilde{v}_{\rm F}^2k^2}-\frac{(\tilde{v}_{\rm F}'k)^2}{12\tilde{v}_{\rm F}^2}-\frac{\pi^2}{24}\frac{T^2}{\tilde{\epsilon}_{\rm F}^2}\right]. \tag{1}$$

Since Eq. (51) is derived for $T=0$, it does not contain the term proportional to T^2. This term is not very important for our purposes: it adds an extra T^4 contribution to δr, leaving $\delta r\propto T^4$ relation, Eq. (52), unchanged.

The reader, who is interested in the details of the derivations, should consult Ref. 3, where thorough calculations are presented.

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[1] A. V. Rozhkov, arXiv:0801.2619v1 (unpublished).
[2] D. N. Aristov (private communication).
[3] A. V. Rozhkov, arXiv:0801.2619v2 (unpublished).
[4] M. Pustilnik, E. G. Mishchenko, L. I. Glazman, and A. V. Andreev, Phys. Rev. Lett. **91**, 126805 (2003).

