

Correction

# Correction: Cárdenas-Castillo, L.F.; Camacho-Guardian, A. Strongly Interacting Bose Polarons in Two-Dimensional Atomic Gases and Quantum Fluids of Polaritons. *Atoms* 2023, 11, 3

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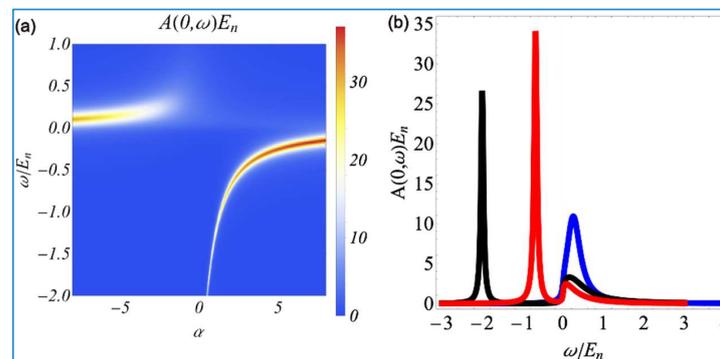
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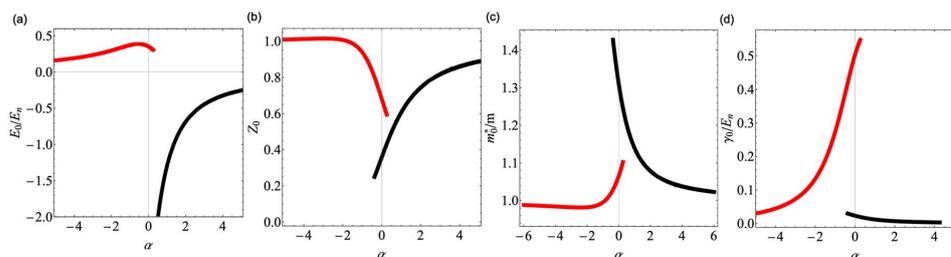
The authors wish to make the following corrections to their paper [1].

There is an error in the original publication. In page 3, there is a typo in the definition of the scattering length. The definition should read  $\frac{1}{a_{2D}} = \sqrt{-2m_r\epsilon_B}$ .

In the original publication [1], there is a mistake in Figures 2, 3, 5 and 6 as published. In these figures, we used a different definition for the unit  $E_n$  than reported in our manuscript. The corrected figures appear below as Figures 2, 3, 5 and 6. This leads to small quantitative differences. All the results and conclusions of the manuscript remain completely valid. This correction was approved by the Academic Editor. The original publication has also been updated.



**Figure 2.** (a) Spectral function of a two-dimensional impurity at zero momentum as a function of  $\omega$  and  $\alpha$ . The coherent excitations (quasiparticle) are situated at the narrow maxima of the spectral function (red regions), whereas the incoherent parts of the spectral function correspond to the white regions at positive energies. (b) Spectral function for fixed  $\alpha = 2$  (red),  $\alpha = 0.5$  (black) and for  $\alpha = -2$  (blue) and varying  $\omega$ .



**Figure 3.** Zero-momentum quasiparticle properties of the two-dimensional polaron: (a) Energy  $E_{\mathbf{k}=0}$ , (b) Quasiparticle residue  $Z_{\mathbf{k}=0}$ , (c) Effective mass  $m_{\mathbf{k}=0}^*/m$  and (d) Damping rate of the polaron. The red lines correspond to the repulsive branch, whereas the black lines depict the attractive polaron. System parameters are as in Figure 1.



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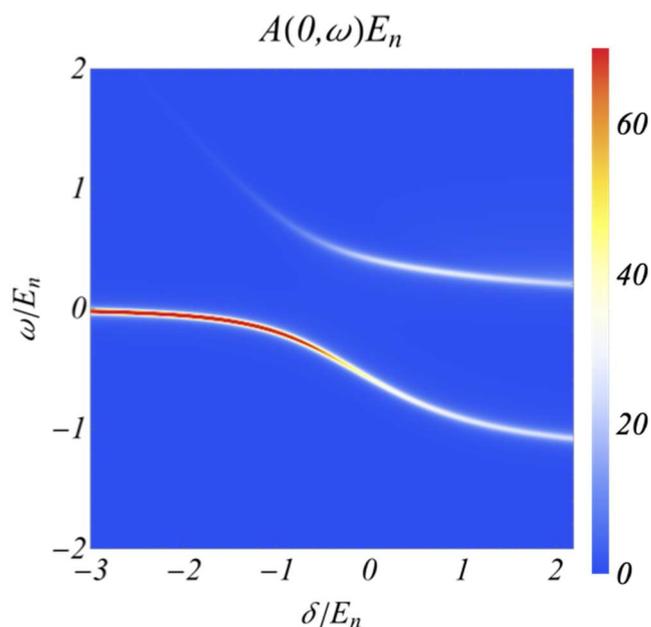
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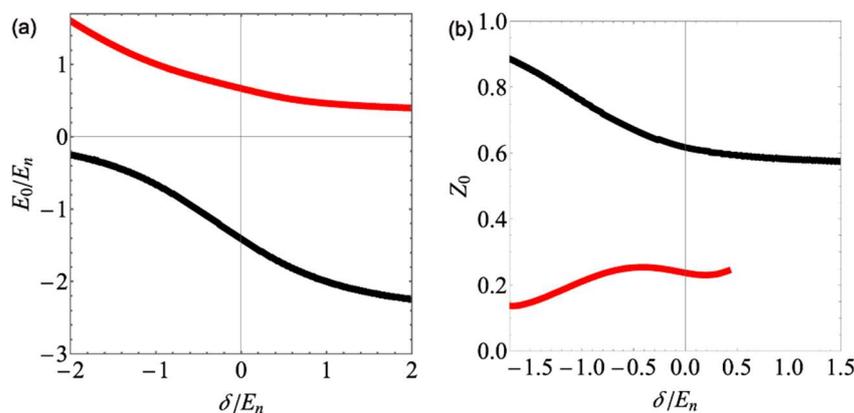
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**Figure 5.** Spectral function for zero-momentum electrons as a function of the cavity detuning  $\delta$  and  $\omega$  for  $\Omega/E_n = 0.75$ , a coupling strength given by the binding energy  $\Omega/|\epsilon_B| = 1$ , and assuming non-interacting excitons  $g_{xx} = 0$ .



**Figure 6.** Quasiparticle energy and residue for zero-momentum electrons in the polariton BEC. (a) Energy of the attractive (black) and repulsive polaron (red). (b) Residue for the attractive (black) and repulsive polaron (red). The system parameters are as in Figure 5.

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**References**

1. Cárdenas-Castillo, L.F.; Camacho-Guardian, A. Strongly Interacting Bose Polarons in Two-Dimensional Atomic Gases and Quantum Fluids of Polaritons. *Atoms* **2023**, *11*, 3. [CrossRef]
2. Nakano, Y.; Parish, M.M.; Levinsen, J. Variational approach to the two-dimensional Bose polaron. *arXiv* **2023**, arXiv:2306.17397.

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