Erratum: Signals of strong electronic correlation in ion scattering processes [Phys. Rev. B 93, 195439 (2016)]

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We found an error in the mathematical formulation of the finite-U model [19] that we used in our paper to describe the neutral fractions measured when Sr^+ ions collide with a gold surface [4,5]. The error is connected to boundary conditions, such as the following one:

$$F_{0\uparrow}\left(\hat{c}^{\dagger}_{k\downarrow}|0,0\rangle\langle\uparrow,\downarrow|_{t_0}\right) = -[2\langle\hat{n}_{k\downarrow}\rangle - 1]G_{0\uparrow}\left(\hat{c}^{\dagger}_{k\downarrow}|0,0\rangle\langle\uparrow,\downarrow|_{t_0}\right),$$

where the correct minus sign was dismissed. This correction introduces changes of sign in the integral terms $\int_{t_0}^{t'} d\tau\ \Omega(t,\tau)G(\tau,t')$ which affect the motion equation of the Green's functions $F(t,t')$.

The above-described amendment of the finite-U model introduces slight modifications in Figs. 6(c) and 7 of the published paper. These figures should be replaced by the figures below.

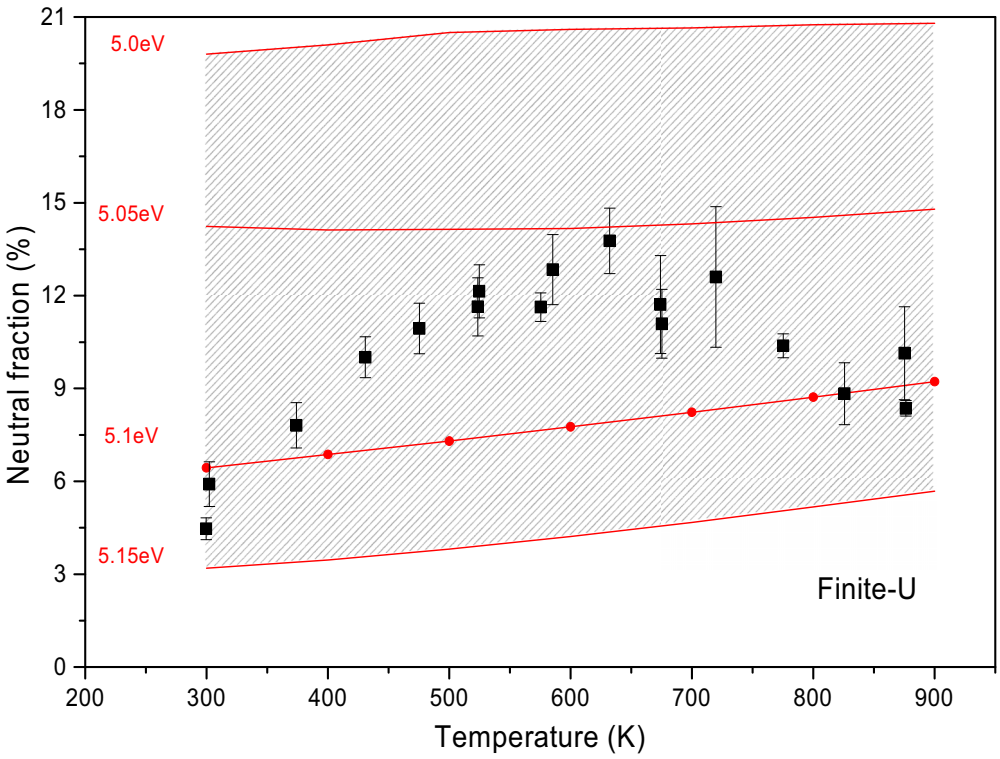

FIG. 6. (c). Calculated neutral fraction as a function of the target temperature under the finite-U approach. The solid red lines correspond to the calculation assuming different values of the gold work function around 5.1 eV (indicated in the figure). The figure shows a strong dependence of the neutral fraction with the surface work function. Typical precision in work-function measurements (0.1 eV) introduces ample errors in the calculation (shaded region), sufficient to match the experimental data (black solid squares).

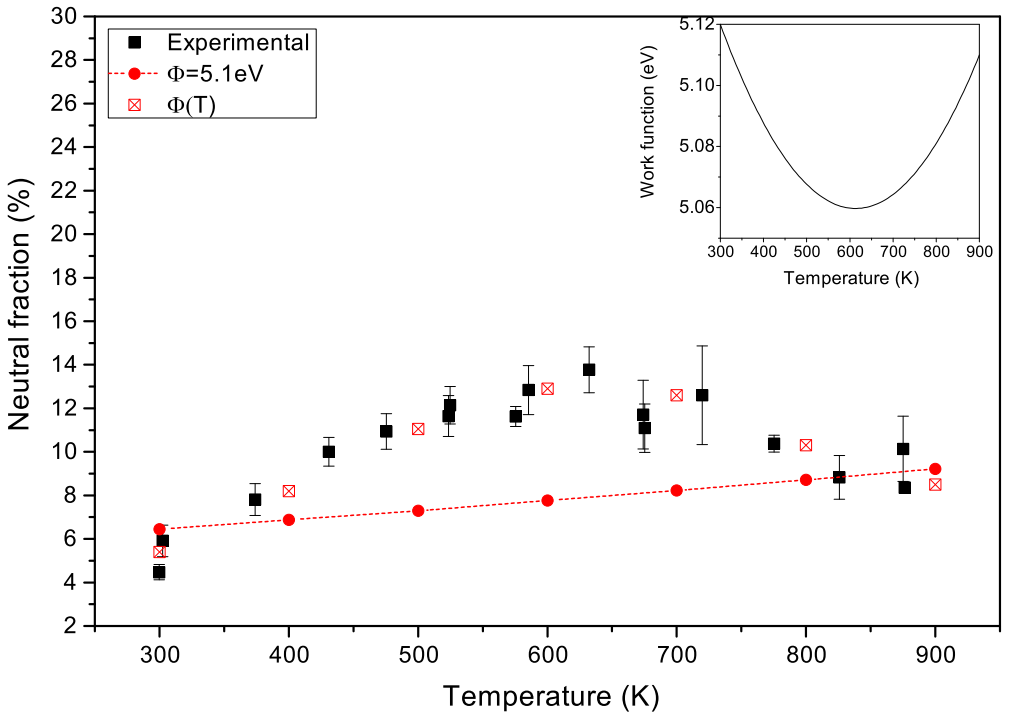

FIG. 7. Calculated neutral fraction under the finite-U model when the work function is fixed at $\Phi = 5.1$ eV (full red circles) and when a slight temperature dependence in the work function (the inset) is assumed (empty squares with crosses). Work-function variations on the order of 10^{-4} eV/K are typical in metals.

From Fig. 7, it can be observed that the work-function temperature dependence necessary to explain the measured neutral fractions is even less marked than that of the wrong result published. Thus, the important conclusions in the published paper regarding a very slight temperature dependence of the work function to explain the neutral fractions experimentally obtained are still (or even more) valid in the present case.

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[5] X. He and J. A. Yarmoff, Nucl. Instrum. Methods Phys. Res., Sect. B **269**, 1195 (2011).
[19] M. A. Romero, F. Flores, and E. C. Goldberg, Phys. Rev. B **80**, 235427 (2009).