Errata

Erratum: Motion of a single hole in a resonating-valence-bond background: Some exact results [Phys. Rev. B 43, 13 602 (1991)]

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PACS number(s): 75.10.Jm, 75.30.Hx, 74.20.$-$z, 99.10.$+$g

In the Brief Report, the single hole eigenspectrum has been determined ignoring the fermionic nature of the background spins. The changes to be considered, if the fermionic nature of the spins is taken into account, are as follows: there is a shift of (π,π) in the magnitudes of the momentum wave vectors (k,K) and t_2 is replaced by $-t_2$. Equation (14) has to be modified accordingly. Thus the plots in Fig. 2 give the eigenspectrum for $t_2 = -1.0$ with the momentum axis relabeled from π to 0. The expressions for energy eigenvalues quoted in the Nagaoka limit are correct if t_2 is replaced by $-t_2$ in the t-J model Hamiltonian [Eq. (1)] and if the wave-vector magnitude K is replaced by $K+\pi$. In this case the ferromagnetic (FM) arrangement of spins gives the lowest state. For the original model Hamiltonian [Eq. (1)], the low-lying energies for FM arrangement of spins are $-2t_2$ and $t_2-[t_2^2+16t_1^2\sin^2 K/2]^{1/2}$, respectively. From modified Eq. (14), the lowest-lying spectrum in the Nagaoka limit has the dispersion $\{-t_2-[t_2^2+16t_1^2\cos^2 K/2+48t_1^2\sin^2(K/2)]^{1/2}\}/2$. Thus, the RVB spin polaronic state is the ground state for reasonable choices of t_1, t_2.

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Erratum: t exponent in the PrBa$_2$Cu$_3$O$_7$-Ag percolation system [Phys. Rev. B 44, 789 (1991)]

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On p. 792, in the thirteenth line of the second paragraph, the words "300 K" should be replaced by "300 °C."

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Erratum: Electronic charge distribution in crystalline silicon [Phys. Rev. B 45, 646 (1992)]

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In Table III of Ref. 1, values of α/κ_2 were cited by mistake rather than values of α. All other entries in that table, and in the other tables in the paper, are correct. Unfortunately, the error crept in at the figure-preparation stage and some of the figures were affected. The visual changes in Figs. 1(a), 1(b), and 3(a) are marginal. New versions of Figs. 2, 3(b), 4, and 6 are given below. Figures 3(a) and 5 were not affected.

This correction brings the deformation-charge-density midbond peak and antibond dip to 0.200 and -0.054 $e/$Å^3 and the valence-charge-density peak and saddle heights to 0.580 and 0.576 $e/$Å^3, respectively. This improves the agreement with Spackman's[2] analysis and with the theoretical results of Yin and Cohen.[3]

It should be noted that the conclusions of the paper, i.e., the L-shell expansion, the breakdown of the rigid-atom model for the thermal motion of the atom, and the negligible anharmonic force constant, are not affected in any way either qualitatively or quantitatively, and they stand as stated in the paper.
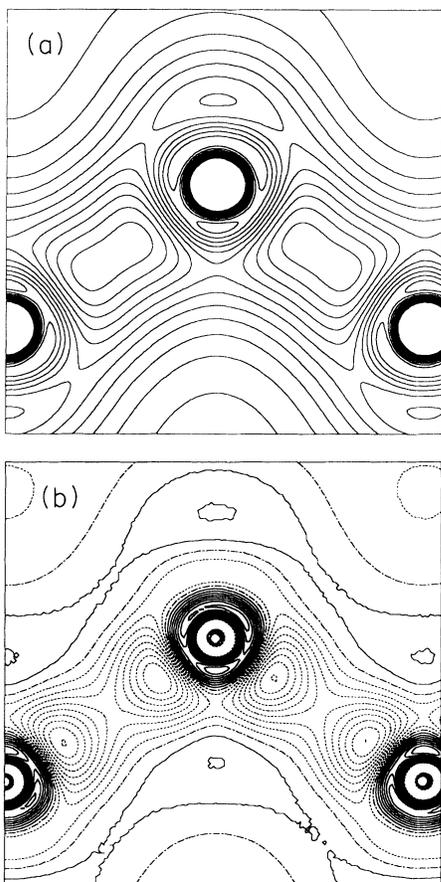
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FIG. 2. At-rest charge-density maps in the (110) plane of silicon. (a) Valence density $\rho_{def}=\rho_3+\rho_4$ for model p. Contour interval is 0.05 $e/\text{Å}^3$. (b) Difference in ρ_{def} between models p and b. Contour interval is 0.0025 $e/\text{Å}^3$. Map area is 4×4 Å^2 for both figures. The zero level is indicated by the dash-dotted line and the negative levels by dashed lines. The atoms are marked by $+$.
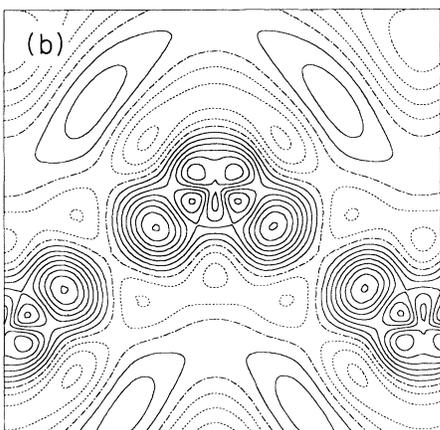

FIG. 3. (b) Difference between the maps of Figs. 1(a) and 3(a). Contour interval is 0.0015 $e/\text{Å}^3$.

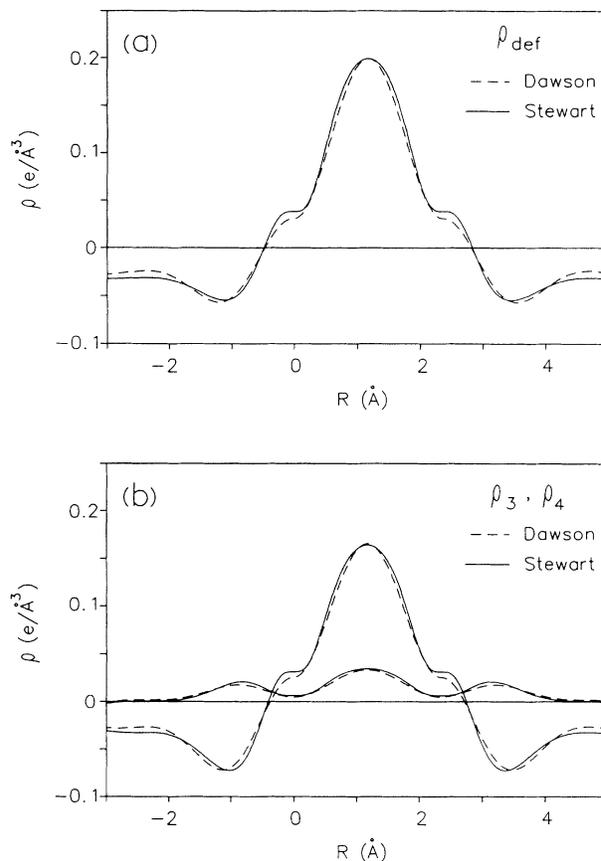FIG. 4. Deformation charge density (a) and its components (b) along the nearest-neighbor direction, $\langle 111\rangle$, for fit p using the Dawson (GA) and Stewart (EX) models. The silicon atoms are at $R=0$ and 2.3517 Å.
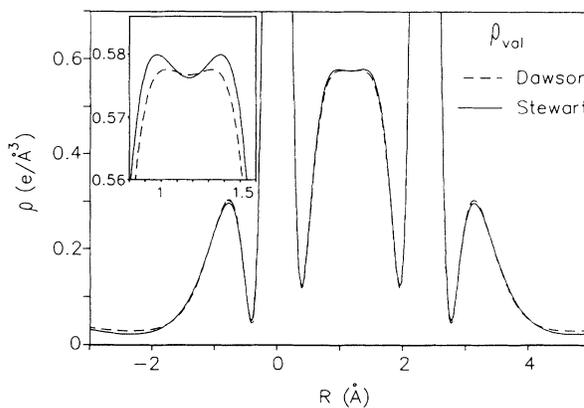

FIG. 6. Valence-charge densities along the nearest-neighbor direction, $\langle 111\rangle$, for fits p for Dawson (DA) and Stewart (EX) models. A magnified view of the midbond region is shown in the inset.

[1]M. Deutsch, Phys. Rev. B 45, 646 (1992).
[2]M. A. Spackman, Acta Crystallogr. Sec. A 42, 271 (1986).
[3]M. T. Yin and M. L. Cohen, Phys. Rev. Lett. 33, 1339 (1974).