ERRATA

Erratum to: “Breakdown of the Fermi Arcs in Underdoped Cuprates by Incommensurate Charge Density Waves” [JETP Letters 100 (6), 403 (2014)][†]

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Received October 10, 2014

DOI: 10.1134/S0021364014220123

This erratum corrects an error in one of the expressions derived for the inverse relaxation time of excitations on the so-called Fermi arcs (FAs). In Eq. (15), it was assumed that in the self-energy $\Sigma(\mathbf{p}; \omega)$ for the Green’s function both the real ($\Sigma'(\mathbf{p}; \omega)$) and the imaginary ($\Sigma''(\mathbf{p}; \omega)$) parts are large. For the physical problem studied in the work under consideration, $\Sigma''(\mathbf{p}; \omega)$ is small as ω is of the order of the temperature $T_{CO} \approx 40\text{--}50$ K of the charge order (CO) phase transition disclosed in cuprates in recent X-ray and NMR experiments.

The main result of the work that scattering on fluctuations in charge density waves (CDWs) rapidly destroys the coherence of excitations (holes) on FAs is *correct*. Holes on FAs represent one of the two branches of the quasiparticles’ spectrum in the so-called pseudo gap (PG) phase of cuprates. The second branch (of electrons on a small pocket) most notably manifests itself at low temperatures in quantum oscillations (QOs) and through negative sign of the Hall coefficient (superconductivity is suppressed by a high magnetic field). Therefore, the view popular in the literature is that the pocket of electrons arises only below T_{CO} via a reconstruction of the Fermi surface in the

CO transition. Results obtained in the work contradict the last hypothesis.

Indeed, from value of the Dingle temperature $T_D \sim 6$ K, one finds the inverse relaxation time for electrons $1/\tau_e \approx 30$ K. That is, the mobility of electrons saturates and becomes temperature independent in the CO phase below $T_{CO} \approx 40\text{--}50$ K. More experimental evidences mentioned in the work, in particular, the decrease of the Hall coefficient at temperatures more than twice higher than T_{CO} confirms existence of the electronic pocket above T_{CO} . The inverse relaxation time given by Eq. (11) for scattering of the FAs excitations on the CDW fluctuations is large; smallness of $\tilde{n}(T)^4$ ($\tilde{n}(T) \sim 0.1$) is significantly compensated by the factor $(\xi p_F / \Delta\phi) \sim 10^3$ (where ξ and p_F are the coherence length and Fermi momentum, respectively, and $\Delta\phi$ defines the length of the arc $p_F \Delta\phi$) at $\xi p_F \sim 100$, $\Delta\phi \sim 0.1$ and with all characteristic energies for cuprates in Eq. (11) ~ 1 eV the value of $1/\tau_{FA,CDW}$ turns out of the order of few hundred Kelvin, much larger than $1/\tau_e$. That is, at temperature of the CO phase transition the FAs carriers do not contribute any significantly to any transport characteristics leaving electrons as the only mobile carriers at T_{CO} .

I am grateful to G.B. Teitel’baum and O. Vafek for stimulating discussions.

[†]The article is published in the original.