**Chakraverty *et al.* Reply:** In his criticism [1] of our work [2] Professor Alexandrov uses an equation for the Bose-Einstein condensation (BEC) temperature of a quasi-2D system in which he expresses the mass and concentration of the bosons in terms of the experimental London penetration depths $\lambda$ and claims that this supports the BEC scenario for high temperature superconductors (HTS). This is of course untrue. Doing that one simply gets $k_B T_c$ as the well known phase stiffness energy of a collection of $n_B$ bosonlike objects of mass $m_B$, being of the $XY$ universality class. In a 2D system it gives the Kosterlitz-Thouless temperature $T_{\mathrm{KT}}$ and such arguments have recently been used for the description of the quasi-2D HTS. Such an expression for $T_c$ is always amended by a factor of order unity which depends on $n_B$. It cannot tell us anything about the microscopic mechanism involved in superconductivity, e.g., whether these bosons are bipolarons or pseudobosons like Cooper pairs; neither does it give us the slightest indication of what the numerical value of those boson masses are. It is precisely for these reasons that we have carefully avoided in our paper making the amalgam between $T_c$ and $\lambda$ and used instead $\lambda$ as the relevant quantity to determine $m_B$ for a given $n_B$ (as de Gennes [3] aptly remarked, a given $\lambda$ can yield the solar mass as $m_B$ if one uses the "right" number of density of bosons). Using reasonable $n_B$'s we have thus found small boson masses. Apart from that, the apparent good agreement which Alexandrov gets is due to the anisotropy of his boson mass in the basal plane, a very personal choice based on a very dubious model [4].

Alexandrov finally admits that in the case of a Holstein model the masses are very big but claims that on the contrary for a Froehlich model they can be as small as a few electron masses—due to small (bi)polarons whose charge distribution is local while their lattice polarization is extended. We stress that if this were true in doped materials (bi)polarons would strongly overlap through their polarization fields. The latter being long ranged would exclude the formation of well defined bipolarons and should rather lead to a Fermi liquid of electrons involving *screened* electron-phonon interactions, for which the Holstein model is the appropriate model. To put numbers, taking $n_B = 3 \times 10^{21}\ \mathrm{cm}^{-3}$ and a distance $d = 12$ or 6 Å between superconducting layers leads, respectively, to the intralayer bipolaron distance $d_B = 5.5$ or 8 Å, thus 1.5 to 2 unit cells—making a single *Froehlich* bipolaron calculation totally nonsense. Even if we were to consider lower densities, where the interaction is not screened, the system is likely to be driven to an insulating Wigner crystal, as some recent calculations show [5]. Moreover, it should be remembered that the mass estimate $m^* \sim 13 m_e$ favored by Alexandrov is not corroborated by any measurements in the metallic HTS. Reference [6] in the Comment refers exclusively to photoinduced optical absorption measurements on *insulating* samples. All these considerations justify our use of the Holstein instead of the Froehlich model as the relevant model for intersite bipolarons.

Concerning the coherence length argument, we simply showed [2] that the observed coherence area $\sim\xi_0^2$ containing at least six electrons (or three pairs) is compatible with a Cooper pair scenario. If on the contrary one prefers the BEC scenario, $\xi_0$ can of course be larger than the interboson distance $d_B$ but, as explicitly pointed out by Alexandrov and Mott [7], $\xi_0$ is supposed to become equal to $d_B$ at the maximum of $T_c$, which again involves more than one boson per coherence area and thus rules out a BEC scenario.

The final point of discord concerns our statement that the bipolaron scenario cannot possibly account for the qualitative features of the photoemission experiments (PES). In such a scenario bipolarons condense below $T_c$ and above $T_c$ coexist with thermally excited polaronic electrons. PES hence tests the spectral properties of an electron remaining behind in a nondegenerate polaron band, separated from the chemical potential by the bipolaron dissociation energy $\varepsilon_{\mathrm{BP}}$. PES would thus show an isotropic and temperature independent gap (given by $\varepsilon_{\mathrm{BP}}$). The experimentally observed gap below $T_c$ is anisotropic, changes into an anisotropic pseudogap at $T_c$, and disappears above $T^*$. Thus the experimental PES results do not conform to a bipolaronic scenario [6].

Finally Ref. [7] of the Comment, providing a seemingly successful fit of tunneling spectra, assumes strong disorder, e.g., a mean-free path of the order of the lattice constant, while previously the same author had claimed in Ref. [4] that cuprates were in the clean limit. We are not sure that late N. F. Mott would have shared all those recent (and often contradictory) claims.

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