Alexandrov and Mott Reply: In our Letter [1] we found an *infinite* thermal conductivity below T_c of near two-dimensional bosons for *any* short-range scattering potential. The maximum value of the thermal conductivity below T_c is restricted by the long-range (Coulomb) scattering or by the 3D corrections to the energy dispersion, but its position only slightly depends on the scattering mechanisms or three dimensional corrections in a wide range of the single parameter η. The maximum lies approximately at $T = 0.4T_c$ (see Fig. 1 of our Letter).

Contrary to the statement of the Comment by Fishman and Kino [2] we find that their experimental result for the "diffusivity" $D = K/C$ actually supports our explanation of the thermal conductivity of high-T_c copper oxides. To show this we present in Fig. 1 the temperature dependence of the diffusivity of near 2D charged bosons below T_c,

$$D_s = D_{s0}\frac{(1-t)^2}{t^6}\int_0^\infty \frac{x^4dx}{\sinh^2(x)[x^4+\eta(1-t)^2/t^5]}, \qquad (1)$$

which is obtained using our formula for K, Eq. (24) in Ref. [1] and the temperature dependence of the heat capacity of 2D Coulomb Bose gas well below T_c, $C \sim T^4$. Here D_{s0} is temperature independent. The theoretical curve does not show any maximum and is in qualitative agreement with the experiment of Fishman and Kino (see Fig. 1 in Ref. [2]). There is also no maximum in a diffusion coefficient of the Bogoliubov excitations with a particular momentum k

$$D(k) = \left(\frac{d\omega}{dk}\right)^2 \tau^s(k) \sim \frac{1}{\sqrt{k}\,(tk^2+\text{const})} \qquad (2)$$

as a function of k, and therefore the averaged diffusion coefficient monotonically increases with decreasing temperature below T_c.

The shape of the thermal conductivity of near 2D bosons below their condensation temperature, Fig. 1 in Ref. [1], is controlled by the simultaneous increase of diffusivity (due to the screening of the scattering potential by the Bose condensate and the long-wave singularity of the group velocity $d\omega/dk \sim k^{-1/2}$ [1]) and decrease of heat capacity $C \sim T^4$. Therefore there is no disagreement with the experimental data [2].

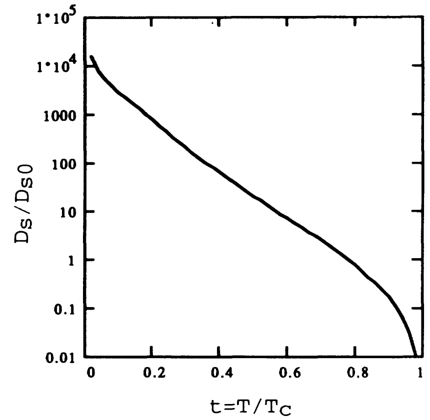

FIG. 1. Temperature dependence of the "diffusivity" of near 2D charged bosons in the superconducting state, $\eta = 0.01$.

In general we share the doubts by Yu, Salamon, and Lu [3] about a purely phononic explanation of the thermal conductivity. They arise from low values of the c axis K in a superconductor and of the in-plane K in an insulator, and from the near equality in superconducting and insulating samples above 100 K. These features of K are difficult to explain with phonon transport without an unrealistic choice of five or more parameters. On the other hand, our charged Bose-liquid model, which is a natural extension of the BCS theory to the strong-coupling limit explains all features of the thermal conductivity of high-T_c oxides with only one parameter [1].

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A. S. Alexandrov and N. F. Mott
Interdisciplinary Research Centre in Superconductivity
University of Cambridge
Madingley Road
Cambridge, CB3 OHE, United Kingdom

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