Yu, Salamon, and Lu Reply: The thermal conductivity anomaly in $YBa_2Cu_3O_{7-x}$ has been attributed [1] entirely to the phonon contribution κ_L, due to reduced electron-phonon scattering below T_c. As demonstrated in the Comment of Cohn *et al.* [2], with five or more parameters available the data can be fit equally well with or without a charge-carrier contribution κ_e. The goal of our analysis [3] was to bring the thermal conductivity data into agreement with the emerging picture of quasiparticle transport below T_c. We made the simplifying assumption that quasiparticle and phonon systems are largely decoupled, and chose a particularly simple form for the underlying κ_L. No assumption was made concerning the Wiedemann-Franz ratio beyond asserting that κ_e should be temperature independent above T_c.

There is mounting evidence, from optical [4], microwave [5], and NMR [6] data, that the quasiparticle (QP) lifetime decreases dramatically below T_c. Combined with the decreasing QP density, this leads to a peak in the electrical conductivity. Further, there are theoretical reasons [7] to expect the Wiedemann-Franz law to hold in strongly correlated electronic systems, and even to have an enhanced ratio. Consequently, an unrestricted choice of phonon relaxation rates that ignores the QP contribution as done previously, or drives it monotonically to zero as in the Comment, is inconsistent with other results on these materials.

As we pointed out in our Letter, κ_L can be constrained by the basal plane conductivity of insulating samples and the c axis conductivity of all samples. For the model of Cohn *et al.* to be valid, κ_L in the insulating state must necessarily be equal to, or larger than, that of the superconducting sample at all temperatures, and must certainly exceed 25 W/m K at some temperature. However, the thermal conductivity of insulating samples [8] does not exceed $\simeq 10$ W/m K. Indeed, Allen *et al.* [9] have even suggested that phonons do not exist in complex crystals such as these. Oxygen vacancies represent rather small mass defects (16 parts in 666 with a maximum defect concentration of $\simeq \frac{1}{13}$) and should not cause a dramatic effect, particularly at low temperatures. Indeed, some samples studied [10] contain approximately 3 at.% Au impurities, which would scatter phonons as effectively as oxygen vacancies, but do not affect the height of the maximum. Both the QP density and lifetime are strongly affected by oxygen vacancies, however, with κ_e completely suppressed in insulators. Similarly, κ_L along the c axis should be larger than the basal plane contribution because of the reduced effectiveness of electron-phonon scattering [11]. To explain the small value of κ_c and the absence of a peak in the phononic picture, it is necessary to introduce artificially a significant density of stacking faults. The absence of a peak and a smaller κ_c follows naturally in the electronic model.

Despite the statement to the contrary in the Comment, there are experimental results that cast doubt on a purely phononic explanation. For example, the same electron-phonon coupling that decreases κ_L in the normal state should give Bloch-Grüneisen form to the electrical resistance; rather, a strictly linear temperature dependence is a central feature of this material. Further, the height of the peak is much more strongly suppressed by doping and oxygen depletion than is the normal state thermal conductivity and, where data are available, the peak height appears to scale with the electrical conductivity of the sample. These, along with the points made above, point to a need to constrain the parameters characterizing the many phonon relaxation processes. We expect that, properly constrained, the phonon contribution will not look dramatically different from our approximate form. In any case, a model that ignores evidence for strong correlation effects in YBCO, and applies results appropriate for a simple metal with strong electron-phonon coupling, is certain to miss important clues to the nature of the carriers in the normal state and the behavior of quasiparticles in the superconducting phase.

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