**Niedermayer *et al.* Reply:** We reported drastically decreased $\mu$SR depolarization rates $\sigma_0$ for highly overdoped $Tl_2Ba_2CuO_{6+\delta}$ and explained the depression of $T_c$ and $\sigma_0$ as due predominantly to pair-breaking excitations [1]. Similar results were obtained by Uemura *et al.* [2] and more recently by us in the system $Yb_{1-x}Ca_xBa_{1.6}Sr_{0.4}Cu_3O_{7-\delta}$ [3]. Especially from the last system it becomes obvious that neither a departure from the optimal stoichiometry nor strong deviations of the flux line lattice from the 3D case account for the reduction of $T_c$ and $\sigma_0$, since well below $T_c$, $YBa_2Cu_3O_{7-\delta}$-like systems are known to have a three dimensional, well pinned static flux line lattice [4]. The FLL effects that Harshman and Fiory postulate [5] have been directly observed only for highly anisotropic Bi-2212 crystals [6]. Tl-2201 becomes less anisotropic with overdoping [7] and for the Tl-2201 sample close to optimum doping, thus with the highest anisotropy, we observed no anomalous behavior.

The relationship between $\sigma(0)$ and $n_s/m^*$ was questioned on the basis of a 60% variation of $\sigma(0)$ at constant $T_c$ (plateau in $YBa_2Cu_3O_{7-\delta}$). Our results on YCa-123 show this to be a systematic change of the condensate density due to an additional contribution from induced superconductivity on nearly oxygen-filled, well ordered CuO chains [3,8].

We used for our estimate of the pair-breaking length $l_b$ the linearized form of the Pippard model. With $l_b$ constant the variation in pair breaking occurs through $\xi_0$ varying inversely with $T_c$. This can explain the depression of the condensate density despite an increasing carrier concentration. We noted in Ref. [1] that a more realistic approach admits that pair breaking occurs (and grows) on the overdoped side only, so that $l_b$ is large near optimum doping and contracts to less than $\xi_0$ with increasing hole concentration. To illustrate this we show in Fig. 1 the condensate density $n_s$ plotted against the carrier density, estimated from the hole concentration as described in Ref. [1]. The solid curve is the model presented in Ref. [1] based on a constant value of $l_b$. On the underdoped and overdoped sides the data depart from the dashed line due to *localization* and *pair breaking*, respectively, as shown by the arrows. The inset shows the variation in $l_b$ necessary to reproduce both this curve and the overdoped data under the assumption that $\xi_0$ is constant determined by a constant energy gap of $200k_B$ [9]. The obtained values of $l_b$ ranging from 10 nm down to 0.5 nm are entirely reasonable. This scenario of pair breaking which grows with overdoping has found support recently from neutron scattering [10], high resolution electron energy loss spectroscopy [11], heat capacity [12], and normal-state susceptibility [13].

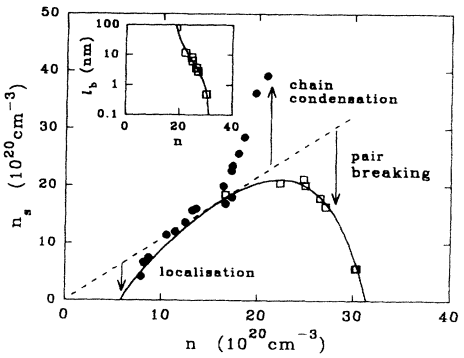


FIG. 1. The condensate density plotted as a function of the estimated carrier concentration showing data for $YBa_2Cu_3O_{7-\delta}$ (solid circles) and overdoped $Tl_2Ba_2CuO_{6+\delta}$ (open squares). The dashed line is the expected dependence and the arrows indicate the departures from the expected behavior arising from (i) localization on the underdoped side, (ii) pair breaking on the overdoped side, and (iii) condensation of superconducting pairs on the chains in 123.

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