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**The phonon contribution to the low-temperature thermal conductivity in overdoped cuprates: a probe of electron-phonon coupling**
DAVID HAWTHORN, University of British Columbia, SHIYAN LI, Universite de Sherbrooke, FIL RONNING, Los Alamos National Lab, MIKE SUTHERLAND, University of Toronto, ROBERT HILL, University of Waterloo, MAKARIY TANATAR, JOHNPIERRE PAGLIONE, University of Toronto, DARREN PEETS, RUIXING LIANG, DOUG BONN, WALTER HARDY, University of British Columbia, N. KANEKO, MARTIN GREVEN, Stanford, LOUIS TAILLEFER, Universite de Sherbrooke — In the cuprates, past investigations of the low-temperature ($T < 1$K) thermal conductivity ($\kappa$) have focused on the electronic contribution to $\kappa$. Here we examine the phonon contribution to the thermal conductivity in two families of overdoped cuprates: Tl-2201 and Bi-2201. We find $\kappa_{ph}$ to be proportional to $T^2$ with a magnitude that is independent of sample size (not determined by boundary scattering of the phonons). In Tl2201, $\kappa_{ph}$ is shown to grow with increasing doping. We argue that this term in $\kappa_{ph}$ arises from phonon-electron scattering, providing a measure of electron-phonon coupling in the cuprates. The increase in $\kappa_{ph}$ with increasing doping is indicative of a decrease in the electron-phonon coupling with increasing doping.

David Hawthorn
University of British Columbia

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