Scattering rates and specific heat jumps in high-\(T_c\) cuprates\(^1\)

JAMES STOREY, Victoria University of Wellington — Inspired by recent ARPES and tunneling studies on high-\(T_c\) cuprates, we examine the effect of a pair-breaking term in the self-energy on the shape of the electronic specific heat jump. It is found that the observed specific heat jump can be described in terms of a superconducting gap, that persists above the observed \(T_c\), in the presence of a strongly temperature dependent pair-breaking scattering rate. An increase in the scattering rate is found to explain the non-BCS-like suppression of the specific heat jump with magnetic field. A discussion of these results in the context of other properties such as the superfluid density and Raman spectra will also be presented.

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