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Closing the pseudogap quietly JAMES STOREY, Victoria University of Wellington — The physical properties of hole-doped cuprate high-temperature superconductors are heavily influenced by an energy gap known as the pseudogap whose origin remains a mystery second only to that of superconductivity itself. A key question is whether or not the pseudogap closes at a temperature T^*. The absence of a specific heat anomaly, together with persistent entropy losses up to 300K, have long suggested that the pseudogap does not vanish at T^*. However, amid a growing body of evidence from other techniques pointing to the contrary we revisit this question. Here we investigate if, by adding a temperature dependence to the pseudogap energy and quasiparticle lifetime in the resonating-valence-bond spin-liquid model of Yang Rice and Zhang, we can close the pseudogap quietly in the specific heat.

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