Erratum: Extremely Strong Dependence of Superconductivity on Disorder in Sr_2RuO_4 [Phys. Rev. Lett. 80, 161 (1998)]

A. P. Mackenzie, R. K. W. Haselwimmer, A. W. Tyler, G. G. Lonzarich, Y. Mori, S. Nishizaki, and Y. Maeno

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On page 164 (in the first full paragraph) the second sentence was omitted in the published article, due to an error made after receipt of the author-corrected galley proofs. We reprint the corrected paragraph below:

To our knowledge, this represents the first semiquantitative test of the above model for the effect of nonmagnetic impurities. Extensive studies of the effects of magnetic and nonmagnetic impurities have been performed in the heavy fermion superconductors UPt_3 and UPd_2Al_3 [20,21], but it was not possible to make an accurate measurement of ℓ. In the cuprates, pair-breaking experiments and their analyses are complicated for several reasons. The applicability of the Abrikosov-Gor'kov theory in its simplest form is questionable because of the extremely short superconducting coherence lengths [22], and inelastic scattering at T_c cannot be neglected [16,17]. The magnetic effect of in-plane impurities is controversial, and the need to introduce very high levels of impurities (several percent) to depress T_c substantially makes single crystal studies difficult. None of the above complications apply to the present work on Sr_2RuO_4. T_c is sufficiently low that the coherence length is long and elastic scattering dominates, and our use of single crystals means that we can reliably estimate ℓ from transport measurements. The loss of superconductivity at ℓ_{crit} is of particular significance because, although some T_c suppression due to nonmagnetic impurities is expected in a material with an s-wave gap function whose value changes around the Fermi surface without a sign reversal of the phase, the strongest effect that the impurities can have is to average the gap, so there would not be a critical value of ℓ at which superconductivity is destroyed. Our observations thus give good evidence for a non-s-wave order parameter in Sr_2RuO_4.

Please note that this error was fixed in the on-line version of the article on 13 March 1998.

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