Low-temperature specific heat of $Nd_{2-x}Ce_xCuO_{4-y}$ single crystals (x=0 and 0.15) in applied magnetic fields

Hien N.T., Duijn V.H.M., Colpa J.H.P., Franse J.J.M., Menovsky A.A.
Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam, Netherlands; Cryogenic Laboratory, Faculty of Physics, University of Hanoi, Viet Nam

Abstract: Results are presented of low-temperature (0.3-6 K) specific-heat measurements on bulk single crystals of $Nd^{2-x}Ce^{x}CuO_{4-y}$ (x=0 and 0.15) in applied magnetic fields up to 8 T. The magnetic-field effect shows a highly anisotropic behavior : for both compounds only minor effects on the specific-heat curve have been found for fields applied parallel to the crystallographic c axis, whereas if the field is applied in the ab plane, a substantial broadening and shift of the zero-field maximum to higher temperatures is observed. A satisfactory quantitative description in terms of crystal-field and exchange interactions is given for the experimental data of the x=0 crystal. It is shown that application of the same description to the x=0.15 case is inadequate.

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Correspondence Address: Colpa, J.H.P.; Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam, Netherlands
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Authors with affiliations:

1. Hien, N.T., Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam, Netherlands, Cryogenic Laboratory, Faculty of Physics, University of Hanoi, Viet Nam
2. Duijn, V.H.M., Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam, Netherlands
3. Colpa, J.H.P., Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam, Netherlands
4. Franse, J.J.M., Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam,

Netherlands
5. Menovsky, A.A., Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam, Netherlands

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