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Nernst effect as a probe of superconducting fluctuations in $\mathbf{Nb_{0.15}Si_{0.85}}$ A. POURRET, H. AUBIN, J. LESUEUR, K. BEHNIA, Laboratoire de Physique Quantique(CNRS), ESPCI, 10 Rue Vauquelin, Paris, France, C. MARRACHE-KIKUCHI, L. BERGÉ, L. DUMOULIN, CSNSM, IN2P3-CNRS,Bâtiment 108, 91405 Orsay, France — We present a study of the Nernst effect in thin films of the amorphous superconductor $Nb_{0.15}Si_{0.85}$. A finite Nernst signal was resolved at temperatures well above T_c and at relatively high magnetic fields (1). In the zero-field limit and close to T_c, our results are in very good agreement with a simple relation derived from the theory by Ussishkin, Sondhi and Huse (2) for a two-dimensional superconductor. According to the theory, the magnitude of the Nernst signal generated by the fluctuating Cooper pairs depends only on the superconducting coherence length ξ. Far above T_c and/or in presence of a finite magnetic field, a departure from this relation is observed. Yet, even in this regime, the amplitude of the Nernst coefficient depends on a single length scale set by ξ and by the magnetic length l_B. This observation allows to establish a phenomenological relation for the Nernst coefficient, for all magnetic fields and temperatures above T_c, which depends only on the size of the superconducting fluctuations set by ξ and/or l_B.

(1) A. Pourret *et al.*, Nature Physics **2**, 683 - 686 (2006)
(2) I. Ussishkin, S. L. Sondhi and D. A. Huse, Phys. Rev. Lett. **89**, 287001 (2002)

Alexandre Pourret
Laboratoire de Physique Quantique(CNRS), ESPCI, 10 Rue Vauquelin, Paris

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