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▶ **To cite this version:**

P. Nozières. PHASE TRANSITIONS IN A SPIN POLARIZED FLUID : THERMAL EQUILIBRIUM AND KINETIC PHENOMENA. Journal de Physique Colloques, 1980, 41 (C7), pp.C2-299-C2-299. 10.1051/jphyscol:1980745 . jpa-00220183

HAL Id: jpa-00220183

https://hal.science/jpa-00220183

Submitted on 4 Feb 2008

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JOURNAL DE PHYSIQUE *Colloque C7, supplément au n°7, Tome 41, juillet 1980, page* C7-299

PHASE TRANSITIONS IN A SPIN POLARIZED FLUID : THERMAL EQUILIBRIUM AND KINETIC PHENOMENA

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Abstract. - The phase equilibrium of liquid and solid ^{3}He will be discussed when the spin relaxation time is long compared to the experimental time scale. The concept of an effective magnetic field and the nature of the phase diagram will be clarified. Special emphasis will be given to irreversible aspects of the problem : spin diffusion near the moving interface, entropy production during melting and subsequent spin relaxation. Possible experiments will be described, and their impact on microscopic theories of ^{3}He will be discussed.

EQUILIBRIUM SHAPE AND OSCILLATION OF SURFACES OF SOLID HELIUM (CRYSTALLIZATION AND MELTING OF HELIUM)

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Abstract. - These processes due to their quantum coherent nature give rise to the existence of the weakly damped crystallization waves. Recently these waves were actually observed in our Institute

Article published online by EDP Sciences and available at http://dx.doi.org/10.1051/jphyscol:1980745