the hard-core of the potential and where the interaction via the collective excitations should play a lesser role.
*Supported by NSERC, Canada.

GH 5 Flow Effects and NMR in Superfluid ^{3}He-B. G.G. IHAS* and G.F. SPENCER, U. of Florida**--Transverse CW NMR has been performed on flowing superfluid ^{3}He-B in two different geometries. In the first, a slab geometry was used (thickness=0.0135cm) and the sample was held at 21.6 bar and later 0 bar. Using a rotatable magnetic field of 2.84mT, flow velocities of up to 0.48 cm/sec were attained in configurations of both parallel and perpendicular field and flow. No dissipation was observed. NMR in this geometry, governed by the textural surface-field free-energy for zero flow, was unaffected by application of flow. In the second, an open cylindrical geometry was used (radius=0.1cm) at pressures of 0.82 and 2.72 bar with an axial magnetic field of 2.86mT. Critical velocity effects were observed at small flow rates (0.043cm/sec). However, no effects were seen on the $\vec{n}$ texture for sub-critical flow. These results may be used, with our experimental uncertainty, to provide upper limits for the textural flow free-energies, indicating that the flow effects are much smaller than previously expected.
* Alfred P. Sloan Foundation Fellow.
** Supported by NSF grant #DMR-8006929

GH 6 n-Textures in Superfluid ^{3}He-B. G.F. SPENCER and G.G. IHAS*, U. of Florida** — Using the first detailed experimental mapping of an $\hat{n}$-texture,[1] the magnetic bending length, $R_C H_B/H_o$, is obtained, demonstrating the first experimental observation of the theoretically predicted $(1-T/Tc)^{1/2}$ dependence near T_c. The sample was contained in a cylindrical geometry (radius=1mm), with an axial magnetic field of H_o=2.86mT, maintained at P=2.72 bar. Deconvolution of the CW-NMR obtained in the experiment provided the $\hat{n}$-texture, which could then be used to evaluate the textural free-energy integrals. The expression obtained was $R_C H_B=37.4\ [\varepsilon/(1-0.627\varepsilon)]^{1/2}$ cm-G, where $\varepsilon=1-T/T_c$. Extrapolation of this function to lower temperatures allowed comparison of the present work with $R_C H_B$ measurements at other pressure. The agreement with other work is good, when those results are scaled by inclusion of Fermi-liquid pressure dependences only.

* Alfred P. Sloan Foundation Fellow.
** Supported by NSF grant #DMR-8006929
[1] G.F. Spencer, P.W. Alexander, and G.G. Ihas, Physica B+C 107, 289(1981).

GH 7 Textures and Vortices in Rotating Superfluid ^{3}He-A. J.A. SAULS and D.L. STEIN, Physics Dept., Princeton U. -- The structure of singular and nonsingular vortices in a rotating cylinder of ^{3}He-A is investigated, and the energies of several possible vortex lattices are compared. We find that the superfluid ground state varies as a function of rotational frequency and temperature. Implications for experiments are discussed.

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GH 8 Surface Relaxation of ^{19}F in a Polymer Covered with ^{3}He Films, L.J. FRIEDMAN and R.C. RICHARDSON, The Materials Science Center, Cornell University*--The relaxation rate of the ^{19}F nuclei in small fluorocarbon beads is sensitive to the quantity of ^{3}He on the surface.[1] For small coverages of ^{3}He on the surface the ^{19}F relaxation rate first increases. With continued addition of ^{3}He, the ^{19}F relaxation rate passes through a sharp minimum and then a broad maximum.

*Research supported by MSC through NSF Grant DMR-78-24008 A02 and by a contract from the ONR. (MSC Report #4667).
[1] L.J. Friedman, P.J. Millet, and R.C. Richardson, Phys. Rev. Lett. 47, 1078 (1981).

GH 9 High Magnetic Field Measurements of Nuclear Spin Relaxation of Liquid ^{3}He. R. MESERVEY, P.M. TEDROW, Francis Bitter National Magnet Laboratory,* M.I.T. and J.S. BROOKS, G.O. ZIMMERMAN, Boston University† - Nuclear spin relaxation has been observed in liquid ^{3}He by a novel method. Level differences in the free surface of liquid ^{3}He in different values of magnetic field are used to determine the total susceptibility of the liquid. Rapid changes in the applied field allow the nuclear spin relaxation time to be deduced from time-dependent liquid level changes. Characteristics of this method at temperatures between 0.5 K and 1.2 K and in magnetic fields between 2 T and 14 T will be reported.

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GH 10 Magnetic Field-Dependent Thermal Boundary Resistance Between Liquid ^{3}He and Platinum. T. PERRY,* K. DECONDE, D.L. STEIN, and J.A. SAULS, Princeton U.† -- We find that the thermal boundary resistance R between liquid ^{3}He and platinum powder decreases monotonically by a factor of 3 as the magnetic field is increased from 2 kG to 8 kG. For all the field values used, R is independent of the ^{3}He pressure, and inversely proportional to the temperature for temperatures between 1 and 10 mK. The measurements were made using both pulsed and continuous rf heating of the platinum, and observing the platinum nuclear spin temperature via cw nmr. Both heating methods gave the same results. We are able to fit the results with a theoretical model which involves magnetic coupling to the solid ^{3}He layer on the platinum surface.

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GH 11 Thermal Resistance Between Phonons and Quasiparticles in Dilute ^{3}He-^{4}He Mixtures.* F. GUILLON, J.P. HARRISON and A.S. SACHRAJDA, Queen's Univ., Canada - Below 50 mK in mixtures within the pores of sintered heat exchangers the thermal resistance between the phonons and quasiparticle excitations of the mixture is anomalously low. On the other hand a measurement[1] of this resistance for a bulk sample of mixture showed reasonable agreement with mixture theory at ∿ 35 mK but was low above that. That sample cell contained many discs to increase the surface area and so a size effect might have resulted from the 40 μm spacing between the discs. The measurements have now been repeated with the discs removed; the temperature range was extended down to 25 mK and three different mixtures were used: 0.03%, 0.1% and 0.3% ^{3}He. The new results for 0.1% will be discussed and compared with the earlier work. The concentration dependence of the resistance will be interpreted in terms of contributions from phonon absorption and inelastic scattering.

*Work supported by NSERC.
[1] F. Guillon, J.P. Harrison, T. McMullen and A. Tyler, PRL 47, 435 (1981).

GH 12 Nuclear Magnetostriction in Solid ^{3}He, D.G. WILDES, J. SAUNDERS, AND R.C. RICHARDSON, Laboratory of Atomic and Solid State Physics, Cornell University.*-We have measured pressure vs. temperature for solid ^{3}He at several molar volumes and to temperatures below the nuclear magnetic ordering transition. The design of our strain-gauge cell allows us to directly measure the