shaped He-3 sample is bounded on one side by a thermalizing metal heat exchanger and on the other by a Kapton-epoxy laminate diaphragm. The design is intended to combine the advantages of the Kapton diaphragm as developed by G. the. a Kapton-epoxy laminate diaphragm. The design is intended to combine the advantages of the Kapton heat exchanger and on the other by a Kapton
diaphragm. The design is intended to combine the advantages of the Kapton heat exchanger and on the other by an epoxy laminate diaphragm. The design is intended to combine the advantages of the Kapton heat exchanger and on the other by a Kapton laminate diaphragm.

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Dyb 8 Mössbauer Measurements of Hyperfine Magnetic Field in Heusler Alloys. A. H. SETOON and S. JHA*, U. of Cincinnati, GLEN M. JULIAN, HIGH-RES (Ohio) and JAMES W. HALL, NASA-LeWES Research Center. --We report the results of measurements by Mössbauer technique of the hyperfine magnetic field (hmf) at $^{119}\text{Sn}$ at the Mn-site and at the Ge-site in $\text{Rh}_2\text{MnGe}$ and at the Pb site in $\text{Rh}_2\text{MnPb}$. The source was $^{119}\text{Sn}$ in barium stannate form. The absorbers were made by synthesizing the alloy with natural high purity constituents, 2 at % of $^{119}\text{Sn}$ replacing Mn in one sample, Ge in the second sample, and Pb in the third sample. The room temperature Mössbauer spectrum of $\text{Rh}_2\text{MnGe}$ at $^{119}\text{Sn}$ showed two humps, from which a hmf of 45 kOe at Kf was extracted. The room temperature Mössbauer spectrum of $\text{Rh}_2\text{MnPb}$ showed the two humps due to $^{119}\text{Sn}$ at the Ge-site, but in addition it also showed a central hump which was attributed to $^{119}\text{Sn}$ at Mn site. The hmf at $^{119}\text{Sn}$ at Mn-site was estimated to be less than 10 Koe at Kt. The systematics of the hmf at the s-p site in these alloys and the hmf in Rh/MnPb will be presented.

*Supported in part by the National Science Foundation.

Dyb 7 Heat Capacity Study of the Orientational Ordering Transition of Monolayer $\text{He}$ Adsorbed on Graphite A.D. McGone, N.R. Kim, and MOORE H.W. Chan, Penn State Univ. --The A.C. Calorimetric technique was used to measure the heat capacity due to the orientational ordering transition of $\text{He}$ adsorbed on graphite. Results in the submonolayer regime indicate that the transition temperature and the heat capacity peak height per molecule are independent of the coverage. The width of the heat capacity peak is on the order of 1 K.

Dyb 6 Heat Capacity of Solid $\text{D}_2$ Below Kf. D.C. Basse, North Carolina State University. --The heat capacity of solid $\text{D}_2$ of 322 paracetamol concentration has been measured for Kf > 0.1K. The samples were grown at low pressure in a 0.13 cm$^3$ sample volume filled with sintered copper. The heat capacity was measured by a thermal expansion technique which also allowed investigation of thermal history effects with samples. No evidence of a phase transition was found in the samples in the temperature range associated with the quadrupolar glass phase, i.e., below 160 mK. No thermal remanence effects were observed for characteristic measurement times greater than about 30 seconds.

*Supported by NSF DMR-79-23202

Dyb 5 Magnetic Force Measurements on Liquid Helium. J. S. Brooks, C.D. Zimmerman, Boston University, and A. Massey and P. M. Tedrow, Francis Bitter National Magnet Laboratory MIT. --Experiments designed to measure the total magnetic susceptibility of liquid helium at low temperatures in high magnetic fields will be discussed and recent results presented.

*Supported by NSF Grant INT 880206

Dyb 4 Collective Mode Interactions in Helium He-3, J.A. Sauls, Princeton U. and J. A. SEBNE, Yale U.--The theoretical results on the interaction between zero sound and order parameter collective modes are presented. Our approach combines the advantages of collective mode frequencies in a magnetic field are also discussed.

*Supported by NSF Grant INT 880206

Dyb 3 Experiments on Phase Separation in He-He Mixture Films. P.H. Ellis and R.S. Hallock, Univ. of Mass., Amherst. --We have constructed a new apparatus to extend our studies of phase separation in He-He mixture films to lower temperatures, thicker films and smaller He concentrations. Our first measurements will be directed at situations of very low He concentration in He films to atomic layers in thickness in an effort to prove the nature of the He surface state on He films of various thicknesses. The apparatus will be described and available data relevant to the surface state and phase separation presented.

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Dyb Supported by NSF DMR-79-23202

Dyb 7 Heat Capacity Study of the Orientational Ordering Transition of Monolayer $\text{He}$ Adsorbed on Graphite A.D. McGone, N.R. Kim, and WOON H.W. Chan, Penn State Univ. --The A.C. Calorimetric technique was used to measure the heat capacity due to the orientational ordering transition of $\text{He}$ adsorbed on graphite. Results in the submonolayer regime indicate that the transition temperature and the heat capacity peak height per molecule are independent of the coverage. The width of the heat capacity peak is on the order of 1 K. The sharpness of the peak appears to confirm recent results,2 that the transition is first order. Results above the monolayer coverage will also be presented.

*Supported in part by Research Corporation.

Dyb 9 Mössbauer Studies of Hematite Under Pressure: High Pressure Crystallographic Changes. F.C. Bizzenzon and R. IMOIES. Crystallographic aspects of the Mössbauer spectrum of hematite ($\alpha$-Fe$_2$O$_3$) have been investigated over a range of pressures extending to 32.3 kbar and at temperatures ranging from 77 K to 300 K. Particular attention has been paid to the effects of the Morin (spin flip) transition on the $\alpha$-Fe$_2$O$_3$ Mössbauer spectrum at 77 K. The Morin transition is explained by the application of magnetic anisotropy energy density arguments, which also provide an estimate of the mean magnetic domain size in hematite. The absence of change in this model suggests the bond retains their ionic character through this pressure range. From the low temperature quadrupole splitting data and knowledge of the pressure dependence of the Morin transition, we can extract the change in magnetic dipole moment along the c-axis from 77 K to 300 K.

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Dyb 10 RF Sputtered Sn-Co Films. T. C. GALDQUIST, S. H. Kim, and T. B. SIMONS, Dept. of Physics, Quinn College of Carnegie-Mellon University. --RF sputtering from a target of targets from a range of compositions ranging from the 1:5 to the 2:1 composition are synthesized along the length of a substrate. Films prepared onto polished substrates at deposition temperatures above 750 °C produced fine-grained films with the regions of different crystal phases clearly observable by optical microscopy. In contrast to this, when the substrates were at room temperature vertically aligned mirror smooth amorphous films were obtained. The hot substrate film exhibit increasing randomness and decreasing coercivity as the film composition varies from the Sn$_2$Co$_3$ to the