of the calibrated thermometer resonance. From the temperature change and the r.f. power absorbed we deduced the specific heat of the electron solid. We found that it fits well a Debye model using renormalized elastic constants. Within our experimental error there is no latent heat at the transition. These results favor a transition of continuous order, in accord with our shear modulus measurements.[1]

[1]G. Deville, A. Valdez, E.Y. Andrei and F.I.B. Williams, Phys. Rev. Lett. 53, 588 (1984).

NX 4

Shubnikov-de Haas Oscillations in Graphite-Ferric Chloride Intercalated Compounds.

A.K. Ibrahim, R. Power, G.O. Zimmerman, and M. Tahar

The tranverse Shubnikov-de Haas effect at 4.2K has been used to study the Fermi surfaces in graphite-$FeCl_3$ intercalated compounds. These studies were performed for several stages and in a magnetic field as high as 20T. Our preliminary results indicate that in stages less than stage 6 one can observe a dominant hole period, while in higher stages both electron and hole contributions exist. Details about the temperature dependence of the oscillations, Fermi Constants, and other related physical quantities will be presented and discussed

NX 5 Renormalization Group Study of the Linear High-Spin Anisotropic and Alternaing Antiferromagnet. C. Y. Pan and X. Y. Chen , Utah State University * -- We report an even block renormalization group method which has been applied to the 1-D, high-spin anisotropic and alternating Heisenberg antiferromagnet. In spin-1 case, the result of energy gap and ground-state energy are Δ = 0.368166 and E / NJ = 1.449724, respectively. They are in good agreement with the Monte Carlo results given by Nightingle and Blote [1]. Spin-3/2 case has also been treated. Our result shows we support the Haldane's prediction and also give it some new supplementary feature.

[1] M. P. Nightingle and H. W. Blote, Phys. Rev. B33, 659 (1986).

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NX 6

Internal Magnetic Field and Charge Transfer in $FeCl_3$-GIC.

G.O. Zimmerman and A.K. Ibrahim

The $FeCl_3$-Graphite Intercalation Compounds exhibit a magnetic susceptibility maximum at temperatures between 1.7K and 1.8K which depends on stage(1). The correlation of the behavior of this maximum in an applied external magnetic field and its behavior as a function of stage in zero applied magnetic field yields information about the effective internal fields. The shielding of the magnetic dipolar interaction can then be related to the conductivity of the graphite layers and, together with Hall effect measurements, to the charge transfer between the graphite and the intercalant layers.

(1) Ibrahim and Zimmerman, Phys. Rev., to be published.

NX 7 The RKKY-Interaction in Disordered Metals. GERD BERGMANN, University of Southern California--The spin polarisation in the vicinity of a magnetic impurity (the origin of the Rudermann-Kittel-Kasuya-Yoshida interaction between two spins) is calculated for small mean free path of the conduction electrons. In contrast to former results it is found that the polarisation does not exponentially decay with distance at zero temperature, but depends on the distance as $1/r^d$ in d dimensions. It shows a quantum interference effect. At finite temperature its range is limited to $r_T \approx D\hbar/(k_B T)$. For larger distances the polarisation fluctuates. A magnetic field changes the polarisation and therefore the RKKY interaction.

NX 8

Magnetoconductance and Phase Transitions of Surface State Electrons. L. Wilen and R. Giannetta, Princeton University* we present a study of the low frequency magnetoconductivity of electrons on the surface of liquid ^{4}He. The magnetoresistance exhibits an abrupt jump with increasing magnetic field. The location of this jump depends upon both electron density and drive level. Implications for the phase diagram of an electron crystal in a magnetic field are discussed.

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NX 9

Low Temperature Cyclotron Resonance of Surface State Electrons. R. Giannetta and L. Wilen, Princeton University* Using a 2GHz hybrid resonant cavity, cyclotron resonance measurements of electrons on the surface of liquid ^{4}He have been performed. Cyclotron linewidths and mass shifts are presented for temperatures 50 mk < T < 250 mk. We discuss the data as it pertains to both weak-coupling polaron theory and to the response predicted for a Coulomb crystal.

*Work supported by NFS under contract # DMR-8519339

NX 10 Proximity Coupling of Surface Acoustic Waves to a 2D Electron Gas. A. SCHENSTROM*, M-F. Xu*, H.P. BAUM*, B.K. SARMA and M. LEVY*, U. of Wisconsin-Milwaukee, Y. J. QIAN†, Northwestern U. and U. of Wisconsin-Milwaukee and H. STORMER, AT&T Bell Labs,--We have measured the attenuation of Surface Acoustic Waves (SAW) produced by placing a GaAs-AlGaAs heterojunction in close proximity to the surface on which the SAW was propagating. Characteristic oscillations were observed in the attenuation as a function of field. These oscillations correspond to the oscillations in σ_{xx} of the 2D electron gas on the interface between the GaAs and the AlGaAs. The sample was placed on the surface of the piezoelectric substrate and held in place by a spring. The SAW produces an electric field that extends above the surface to a distance of the order of the wavelength of the SAW. This electric field produces joules losses in the electron gas, thereby attenuating the wave. Mechanical coupling between the SAW and the sample can be neglected as contact is only made at a few points.

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NX 11

High-Accuracy Numerical Simulations of Magnetic Impurities in Metals. R.M. FYE and J.E. HIRSCH, University of California, San Diego.-- Using a recently developed quantum Monte Carlo technique, we explore properties of the Anderson and Kondo magnetic-impurity Hamiltonians. We consider first the effect of finite conduction-electron bandwidth on Anderson Hamiltonian results and find deviations from universal behavior.