

PHYSICS DEPARTMENT COLLOQUIUM

“2D ELECTRONS: SURPRISE FROM HIGH LANDAU
LEVELS”

BY

PROF. RUI-RUI DU
DEPARTMENT OF PHYSICS
UNIVERSITY OF UTAH

Quantum Hall effects (integer and fractional) are usually observed under a strong magnetic field (B) ~ 10 T (10^5 Gauss) or above, where only the lowest or few electronic Landau levels are occupied. Our research group has in recent years explored a quantum transport regime under a weak $B < 1000$ Gauss, where up to hundreds of Landau levels are occupied. New quantum oscillations, as well as dissipationless electron flow (with microwaves) which resembles superfluidity, arise in such systems. Two-dimensional electrons seem to never cease to amaze us! Implications for electron-electron correlation physics will be discussed.

References

1. Zudov *et al*, Phys. Rev. Lett. 86, 3614 (2001); Phys. Rev. B64, RC 201311 (2001).
2. Yang *et al*, Phys. Rev. Lett. 89, 076801 (2002).

THURSDAY, SEPTEMBER 12, 2002
4:00 PM IN 102 JFB
REFRESHMENTS AT 3:30 PM IN 219 JFB

