Notes for hall effect-1 PDF PhL 3.28.14

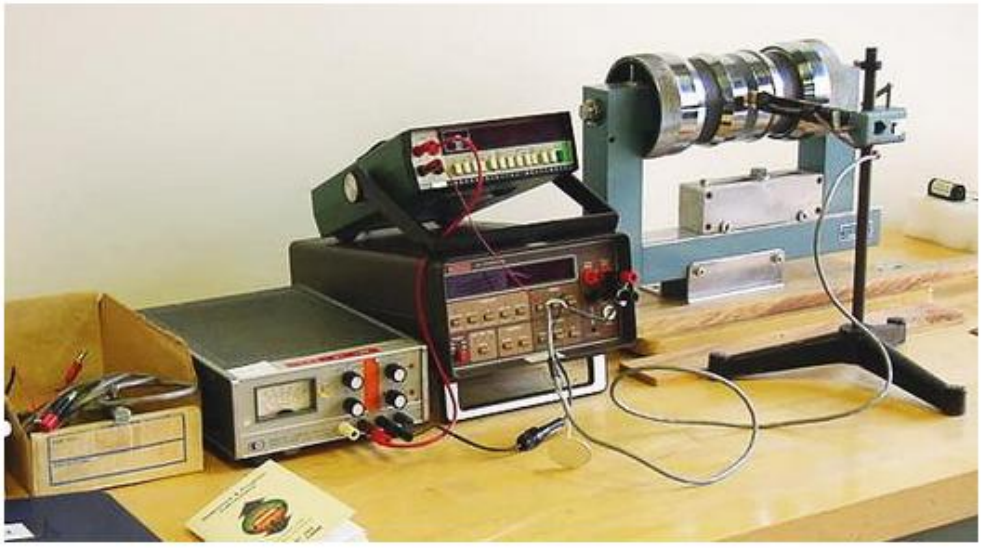
University of Washington, public, in Seattle, big med school, three campuses, main in Seattle, others in Tacoma and Bothell, 30,000 undergrads and 12,000 grad students! Huskies. Pengra is in the Physics Dept, no picture, no home page for guy. Authors of my blurb were

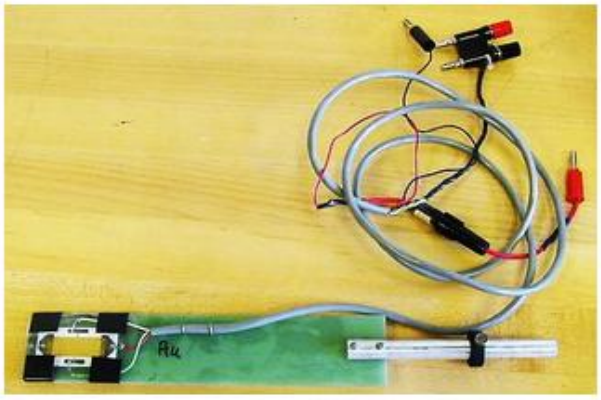
Prepared by D. B. Pengra, J. Stoltenberg, R. Van Dyck and O. Vilches
`hall_effect_10-07.tex -- Updated 4 October 2007`

Last one is emeritus, second last physics prof, Stot is some medical guy, Penra phys lecturer.

Here is a photo of the equipment they describe!

The Hall Effect in Metals and Semiconductors





In this experiment, students learn about the classical Hall effect which is the basis of most sensors used in magnetic field measurements. Thin film samples consisting of a semiconductor (InAs) and two different metals (aluminum and gold) are investigated to determine the sign and density of the charge carriers. The sample is placed in a DC magnetic field, and the transverse (Hall) voltage is measured as a function of the current through the sample. Students observe the inverse relationship between the magnitude of the Hall voltage and charge carrier density, a relationship which accounts for the almost exclusive use of semiconductors as Hall effect/magnetic field sensing devices.

The course is this

Physics 431, Winter 2014

Modern Physics Laboratory - Condensed Matter

Instructors

Prof Subhadeep Gupta
Email: deepg@uw.edu
Webpage:
http://oldwww.phys.washington.edu/users/deepg
Phone: 206-616-9649
Office: PAB B428
Office Hours: Before or after class, or by appointment

David B. Pengra
(Lab Manager)
Email:
dbpengra@uw.edu
Phone: 543-4783
Office: PAB B256

Teaching Assistants

Ben Krueger
Email: bkrueger@uw.edu
Office: PAB B049

Sifang Chen
Email: sifangc@uw.edu
Office: PAB B247

List 1

Fundamental Constants from Noise Measurements
The Hall effect
Low temperature superconductivity in Hg
Electron Diffraction

List 2

Surface Plasmon Resonance
Mössbauer spectroscopy
Physical adsorption
Continuous NMR
Pulsed NMR