

Spintronics Researcher update: 12/14 – 01/04/02
Recent developments and current plans

- MBE group: - report on X-STM at NRL of GaSb+Mn sample; cleaved Under vacuum produces “side view” of sample along growth direction; observation of MnSb islands surrounded by Mn; possibility of precipitates excluded for various reasons; concurs w/ earlier interpretation of two magnetic phases.
- growth of about 40 samples at Notre Dame:
 - (Ga,Mn)As series
 - (Ga,Mn)Sb series
 - (In,Mn)Sb series
 - (In,Mn)As series
 - epilayers GaSb:Mn
 - GaSb:As
 - Reference samples GaAs; GaSb; GaMn?
 - FRITD structures (ferromagnetic resonant interband tunneling diodes)
 - Learned several things from RHEED pattern (conditions for “good” sample growth etc.)
- Manhong Na: nothing to report
- Kevin Mooney: SQUID on some of above GaSb samples:
- 11219A $T_c=80K$ different from $T_c=30K$ of similar previous sample; but kink at 30K observed.
 - 11218M very low signal just above noise level; no exciting behavior observed
 - 11218N similar to 11218M; paramagnetic
- Conclusion: samples need to be annealed!!!
- Gelu Comanescu: FIR transmission (laser and bomem) data reveal CR of electrons!!! NOT holes in sample that shows Shubnikov-deHaas oscillations.
- Chris Meining: laser transmission experiment on above mentioned sample; preparation of laser transmission experiment on GaAs:Mn epilayer.