

# T<sub>C</sub>SUH Bi-Weekly Seminar

Texas Center for Superconductivity at the University of Houston

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at the University of Houston

## Progress Report on Two Nano-Material Studies:

**Friday, November 9, 2007**

Room 102, University of Houston Science Center  
12:00 noon – 1:00 p.m.

### **Ion-Beam Assisted Fabrication of GaN nanorod and Applications**

**Abstract:** GaN is a direct Band Gap Semiconductor. Its ternary compound with In or with Al could cover a very broad band region with potential applications in Laser source, Light Emitting Diode, high efficiency solar cell and optoelectronics. We have studied GaN nanorod formation during MBE growth of GaN film on Si[111] substrate, and its fabrication assisted by ion implantation on Si before the the MBE growth. In this talk, I will give a progress report on our nanorod growth studies, Ion Beam Assisted growth, Nanorod characterization, and its potential applications. (Collaboration with Q. Y. Chen, L. W. Tu, and H.W. Seo).

### **Field Ionization of Carbon Nano Tubes and Applications**

**Abstract:** The removal of electrons from any species by interaction with a high electrical field is called Field Ionization. The most notable work on field ionization conducted by Mueller's team at Penn State [Phys. Rev 102, 624 (1956)] is a perfect example, which later developed into the famous Field Ion Microscope (FIM). Focus Ion Beam (FIB) is another example, where a sharp tip can emit focused liquid metal ions such as Ga ions when positively biased. We have studied field ionization of Carbon Nano Tubes under residual hydrogen gas, and produced huge proton current. In this talk, I will discuss the implication of our experiment and its potential applications. (Collaboration with Jiarui Liu).

*Persons with disabilities who require special accommodations in attending this lecture should call (713) 743-8210 as soon as possible.*



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