



## Nano-Femto Group Seminar

Wednesday 10<sup>th</sup> November 2004, 16:15 PM  
Room: SC6333

### **Probing ultrafast dynamics of multi-particle excitations in quantum systems.**

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In recent years, a number of powerful experimental techniques were developed for studying the structure and dynamics of molecules. The great advances were made in both spatial and temporal resolution. At JRM Laboratory, we are constantly improving the existing tools for studying complex molecular systems by utilizing ultrashort pulses of ions or laser radiation. The recent activities encompass the development of 4-D time-resolved imaging technique for resolving changes in momentum space and time called COLTRIMS and studies of electron transport in nanometer-scale systems. In particular, I will talk about the momentum imaging of molecular breakup where we make use of 8 fs pulses (generated by compressing 40 fs pulses using nonlinear optics). In addition, I will briefly mention other experimental endeavors such as the pump-probe spectroscopy of image states in MWNTs and the use of ionic beams for probing highly excited atomic systems.

If you would like to meet the speaker please contact Tobias Hertel (phone 322-2864, e-mail: [tobias.hertel@vanderbilt.edu](mailto:tobias.hertel@vanderbilt.edu) or via <http://people.vanderbilt.edu/~tobias.hertel>)