

## Tenth Annual Schearer Prize Competition

The Tenth Annual Laird D. Schearer Competition for Graduate Research, established by the family of Dr. **Laird D. Schearer** to recognize research performed by a graduate student, was held on December 4. **Ralph Alexander**, **Bob DuBois** and **Barbara Hale** judged the competition with Dr. DuBois Chairing the Committee. This year we were blessed with six entries from which three finalists were selected. The finalists were **Matt Foster** who is advised by **Don Madison** and **Jerry Peacher**, **Harshani Wijewardane** who is advised by **Carsten Ullrich**, and **Jared Hund** who is advised by **Max Bertino**. The titles of their talks were *The Study of Three Dimensional Fully Differential Cross Sections for Single Ionization of Ion-Atom Collisions* (Foster), *Time-Dependent Density-Functional Approach to Nonlinear Intersubband Dynamics in Quantum Wells* (Wijewardane), and *Formation of Noble Metal Clusters in Silica Aerogels* (Hund). The Committee was impressed by the quality of the talks and the knowledge the students displayed in addressing questions from the judges. This year, first prize was awarded to Jared Hund, second prize to Harshani Wijewardane, and third prize to Matt Foster.

In addition, a new feature was added to the competition this year. In order to acknowledge all the applicants, the non-finalists presented their work in poster form just prior to the talks. The participants and titles of their posters were; **Andy Prideaux** (advised by Dr. Madison) whose poster was titled *Post Collision Interaction Effects for Electron Impact Ionization of S and P Shell Electrons in Gases*, **Rastko Sknepnek** (advised by **Thomas Vojta**) whose poster was titled *Smearing of a Phase Transition in a 3d Ising Model with Planar Defects: Monte-Carlo Simulations*, and **Alex Silviu** (advised by **Paul Parris**) whose poster was titled *Classical Treatment of Polaron Dynamics on a One-Dimensional Oscillator Chain*. Thanks to the technology available the posters were not only informative but also visually attractive. We hope the poster competition can be carried on in the future.

Due to the generous donations of the Schearer family, cash prizes were awarded to all participants. The photo below shows the 2003 Schearer Competition finalists. From left to right they are Matt Foster, Jared Hund, and Harshani Wijewardane.



### From Schearer Prize Winner Jared Hund



Jared Hund

I am honored to be the winner of the Tenth Annual Laird D. Schearer Competition. There were a number of excellent submissions this year, so it was a very pleasant surprise to win. My sincere gratitude goes out to the committee and the department of physics for giving me the opportunity to participate. I would like to thank my advisor, Dr. Massimo Bertino, for his guidance and help with this project as well as Dr. Nicholas Leventis and Mr. Ghoui Zhang of the UMR Chemistry Department. Most importantly, I would like to thank my wife, Shannon, for her patience and support throughout my research.

My first experience with the UMR Physics Department was in the spring of 2000 while checking into possible graduate schools to attend. I was impressed with the quality of research in the department and the approachability of the faculty. I began my studies here that summer, and started my graduate research with Dr. Bertino. After graduating from Fort Hays State University (in Hays, Kansas), I had become accustomed to the small college town atmosphere, and adapted very well to Rolla.

My talk given in the Schearer competition was based on part of the research for my PhD thesis. The project I presented was an interesting collaboration with Dr. Leventis to use aerogels to study metallic clusters of atoms. Because silica aerogel is a low density, high surface area material that is relatively inert, it made an excellent choice to support and stabilize the metal particles. During my work our group was able to develop two different methods to produce these metal aerogel composites. I also developed a method to produce bimetallic alloyed clusters that provided control over the relative composition. The finished metal aerogel composite retained the basic structure and high surface area of the pure aerogel, making it an interesting material for catalytic applications. I enjoyed working on this project at UMR because of the challenge it provided, and also the number of people I was able to interact with across campus in this interdisciplinary work.