

Fourth Annual Laird D. Schearer Graduate Research Prize

The Laird D. Schearer Graduate Research Prize competition has proven to be an appropriate, ongoing tribute to Laird D. Schearer, late Curator's Professor of Physics and active promoter of graduate research. Gifts from alumni, friends and the Schearer family have endowed and increased the Laird D. Schearer Fund, established to provide annual prizes for the best research conducted by a UMR physics graduate students.

Our graduate students gain valuable experience in the Prize process by documenting their research accomplishments to the Prize committee and presenting their work to a general audience. A faculty committee selected three graduate finalists to describe their research at a departmental colloquium

held in late November. This year's finalists were **Heider Ereifej** in experimental laser physics whose entry was titled "Unlimited sensitivity in trace element detection" (supervised by Profs. **Greg Story** and **John Schmitt**), **Kevin Cornelius** in theoretical atomic physics with "Collision dynamics for $H^+ + H(n=25)$ using CTMC [Classical Trajectory Monte Carlo]" (supervised by Prof. **Ron Olson**), and **Mevlut Karabulut** in experimental solid state physics with "Structural properties of iron phosphate glasses" (supervised by Prof. **Dan Waddill**). Following the colloquium presentations, the committee awarded first place honors to Mr. Ereifej, who has written a personal profile that appears below.

From the Schearer Prize Winner

My name is **Heider N. Ereifej**, and I am honored to have received the First Place Award in the 1997 Schearer Prize competition.



Heider Ereifej

I was born on Oct 5, 1970, in Seged, Hungary, where my father was a university student. My family later moved back to Ajloun, my father's small hometown in Jordan. There I received my elementary and high school education. By the time I was a sophomore in high school my fascination with physics was dominating all my plans for the future. When I finished high school in 1988, I already had decided that it is going to be physics for which I lived.

In July 1988, I was admitted to the physics department at Yarmouk University in Jordan, and I was so happy. College was the best time of my life. I learned a lot and made a lot of friends. The only problem was that it went so fast, and it was time to graduate before I realized it. In May, 1992, I was awarded a B.Sc. in physics. I then entered the masters program at the same university.

While I was working on my M.Sc. Degree, I was trying to get admitted to a good school in the USA. I defended my Master's thesis in October 1994, and graduated from the school in which I had spent six years of my life. Meanwhile I was accepted to a few colleges here in the States. After careful considerations, I decided that UMR's physics department was the place to be. I arrived in Rolla on Jan 11, 1995.

At first I worked with Prof. **Michael Schulz** in the field of atomic ion scattering. After four months, I felt that it was not the right field for me. During that time I heard about the laser and atomic lab that was being formed by newly-hired Prof. **Greg Story**. I decided to get involved in it, and was working with Prof. Story by the end of 1995.

At first it was very hard for me. I had no previous experience with lasers, and it took some time for me to get used to all those laser beams that could blind you if you are not careful. But after I broke a few mirrors here and there, I got used to the idea of working with lasers, and it became obvious to me that I really like lasers.

So far I have worked on two projects from which at least two papers will be submitted for publication. We are currently working on a new short-pulse laser system.

From Alumnus Hugh Holt (BS '70) ...

My UMR physics degree put me in a good position to work on airborne radar over the past twenty years or so. After a significant stint at RCA, I have now worked for many years at Northrop-Grumman in Norwalk, CT. I've been involved in the design, development and testing (including flight testing) of a number of radars during that time. They have tended to be airborne, high resolution surveillance and imaging radars ("Synthetic Aperture Radars"). One of the most familiar with the public perhaps has been the Joint STARS radar for the US Air Force.



Hugh Holt

My physics degree has been helpful in work ranging from antennas to signal processing, and related technical areas such as inertial navigation systems and GPS. My UMR optics, E&M, mechanics and mathematics have been particularly useful. More generally, I'd say that the overall discipline of approaching a problem from the "top down" (i.e., starting with the most general formulation and then working down to the specific while keeping in mind all along what assumptions and limitations one is making as one goes through the process) has helped me keep things in context. So I'd say my four years of physics have been helpful.

My wife Florence and I live in West Redding, CT. It's a lovely town surrounded by woods. I've been away a lot lately — one of the less pleasant aspects of my work has been the amount of travel required. No big trips — mostly same-day trips to Washington DC or Baltimore (NY to DC shuttle), occasionally one to three day trips elsewhere in the country. One would think that with more email, fax and video conferencing these days, travel would decrease, but it doesn't seem to be the case.

I did go back to graduate school (UC Berkeley) in the '74 to '76 time frame to study electrical engineering. I received an MS in electrical engineering and computer science. I found I needed more EE flavor in the work I was doing and, at the same time, felt I needed some amount of retraining after having spent two years as a draftee in the army. Six weeks after getting my BS in physics, I got drafted. Even with my physics degree, I was "selected" for the infantry! But I survived and had some once-in-a-lifetime (I hope!) experiences.

I'd love to hear from old friends. You can e-mail me at HoltHu@ct.essd.-northgrum.com. I'm a little homesick for those days at UMR. It really was nice part of my life.