

Ninth Annual Schearer Prize Competition

The Ninth Annual Schearer Prize Competition for Graduate Research took place in December, 2002. The Schearer Prize is awarded from a fund established in the memory of **Dr. Laird D. Schearer**, late Curators' Professor of Physics, who joined the Physics Department in 1971, and served as departmental chair from 1971 to 1977. Professor Schearer, who passed away in 1993 while on research leave in France, had an intense interest in graduate students and their research. The department looks forward each year to awarding the Schearer Prize, which recognizes the best research conducted by UMR graduate students in physics.

This year's competition had two entries, **Abdalla Obeidat** and **Rastko Sknepnek**. Mr. Obeidat is performing his

research under the direction of UMR Physics Professor **Gerry Wilemski** while Mr. Sknepnek has been working with UMR's newest Assistant Professor, **Thomas Vojta**. During a regular department colloquium, they described their research to an audience consisting of faculty, students,



Laird Schearer

friends, and this year's Schearer Prize Committee members, **Ralph Alexander**, **Greg Story**, **Carsten Ullrich**, and **Bob DuBois**. Based on the talks and overall research records, the committee awarded first place to Mr. Sknepnek for his presentation, entitled *Superconducting quantum phase transitions in disordered ferromagnets*, and second place to Mr. Obeidat, who presented *Comparison of experimental and theoretical nucleation rates of water at low temperatures: an equation of state approach*. In making the awards, the Committee was impressed with the quality of the talks and the students' ability to convey the significance of their research. The competition ended on a relaxed note with the participants and members of the faculty enjoying dinner at a local restaurant, another tradition of which the department feels Laird would definitely approve.

To Contact UMR Physics

If you would like to contact us for any reason, you can reach us by phone at (573) 341-4781 and by e-mail at physics@umr.edu. You might also be interested in checking out our web page, <http://www.umr.edu/~physics>.

From This Year's Schearer Prize Winner Rastko Sknepnek



Rastko Sknepnek

It is a great honor to be the winner of the Ninth Annual Laird D. Schearer competition. I'd like to thank my supervisor Dr. **Thomas Vojta** for his patient guidance on this project and on the hilly path towards my PhD thesis. I thank also our collaborator, Dr. **Rajesh Narayanan**, of the Max-Planck Institute in Dresden, who helped me clarify some subtle points, and the Prize Committee for the opportunity to present my research. And last, but not least, I wish to thank my family and my friends for their unselfish love and support.

I came to UMR in February 2002, following Dr. Vojta, from Chemnitz University in Germany, where I spent two years working on my PhD thesis as a member of the Institute of Physics. I had joined Chemnitz University in May 2000 after graduating from the University of Belgrade, in Yugoslavia, my home country. Although, in the beginning, I was really hesitant about coming to a small town like Rolla, I quickly found it to be a nice place to live, with many friendly people and a really competitive and rich scientific life.

My talk in the competition was based on research I am doing for my PhD thesis. Our research on superconducting quantum phase transitions in disordered ferromagnets was motivated by the experimental discovery in 2000 that at low temperatures certain materials can exhibit superconductivity and ferromagnetism at the same time. This result, which clearly contradicted the general and well established philosophy behind conventional superconductivity, suggested a physically rich mechanism underlying the phenomenon and opened intriguing theoretical questions. We took a bite of that cake and asked how such a state arose, i.e., what the transition to a ferromagnetic superconductor looked like. To be immersed in a problem at the very front of modern condensed matter physics was a tough intellectual challenge, but the scientific thrill and experience I gained were more than worth the effort. I hope in the future to continue work on this and similar problems.

Physics Department Awards 2002-2003 Scholarships and Fellowships

The following scholarships have been endowed through the generous gifts of the friends of the UMR Physics Department. Scholarships are announced annually at the Harold Q Fuller Undergraduate Research Seminar, held this past year on April 18, 2002. Congratulations to all our Departmental Scholars!

Recipients of the *Harold Q Fuller Scholarship-Loan* were **Travis Yates** of Searcy, Arkansas, and **Ryan Mallery** of Ballwin, Missouri. The \$1,300 scholarship-loan was endowed by the late Dr. Fuller, Chair of the Physics Department from 1948 to 1970 and former Dean of the College of Arts and Sciences, to recognize outstanding achievements among juniors and seniors in physics. One quarter of the scholarship is an interest-free loan that students begin to repay when they start their first jobs.

Recipient of the *Burke H. Miller Memorial Scholarship* was **Bernard Fendler** of Kirkwood, Missouri. This \$500 scholarship was established by the Miller family to commemorate the academic achievements of their son, Burke, who graduated with a bachelor's degree in physics in 1969 and later died during the Vietnam War. The award is for promising and dedicated students in physics.

Christopher Lloyd of St. Louis, Missouri, received the *L. E. Woodman Memorial Scholarship*. This \$1,000 scholarship was established by the Woodman family in honor of Dr. L. E. Woodman, Chair of the Physics Department from 1919 to 1948. It is offered to students in physics of good moral character, maintain a satisfactory grade point average, and are in financial need.

The *Charles M. Rice Scholarships* are presented to outstanding juniors or seniors in physics at UMR. They were established by Mr. **Charles M. Rice** (MS '50) to recognize and encourage outstanding effort and achievement in undergraduate physics. Chuck got his MS in physics at MSM in 1950 and was awarded a Professional Degree from UMR in 1966. During his career, he did award-winning work for the US government and later started several successful business enterprises. The 2002-2003 scholarship was awarded to **Joao Sosa** of Shawnee Mission, Kansas.

The *Richard W. Hannum Endowed Development Fund* was established through a bequest by Richard Hannum (PhD '66). The fund is currently used to provide scholarships for outstanding students in Physics. **Joseph Eimer** of Hillsboro, Missouri, received the Hannum Scholarship for 2001-2002.

In addition to endowed scholarships, which are usually awarded to juniors and seniors, the department awards special **Physics Department Scholarships**, funded from the annual **phonathon**, to students who earn a grade point average of 3.5 or higher. This past year, department scholarships were awarded to the following students, who range in academic standing from freshman to senior: **John Zirbel** of Watertown, South Dakota, **Deepak Vaid** of New Dehli, India, **Timothy Ivancic** of St. Louis, Missouri, **Cameron Johnson** of Manchester, Missouri, **Christopher Schwartze** of Vienna, Missouri, **Elizabeth Farrand** of Fair Grove, Missouri, **Charles Williams** of Poplar Bluff, Missouri, **Terence Anderson** of Pilot Knob, Missouri, **Nathaniel Bates** of O'Fallon, Missouri, **Micah Burgdorf** of Florissant, Missouri, **Paul Gholson** of Jackson, Missouri, **Daniel Huhmann** of Tipton, Missouri, **Ryan Kinney** of Gladstone, Missouri, and **Walter Kowalski** of High Ridge, Missouri.

Endowments: Gifts that Keep on Giving

Through the generosity of friends and alumni, the Department of Physics has been very successful in raising annual support for scholarships, student travel funds, and program enrichment. As you make your annual commitment to the department, however, you might want to consider starting an endowment in your name or in the name of a loved one, so that your gift will still be making a difference when your great-grandchildren enroll at UMR. An endowment to the university will bear the name that you designate *in perpetuity*.

Consider, e.g., the impact of leaving an endowed scholarship or lecture series in your name. With an initial gift of \$10,000 (which may be started with \$2,000 and a pledge of \$2,000 annually over the next five years) you can start a fund from which generations of students will

benefit. The fund will generate approximately \$500 per year initially, and will continue to grow as the principal increases each year. The UMR physics department has several donors that have been adding to their endowment for several years, including endowments established recently by **Ed** and **Mary Sue Sickafus**, and by the estate of **Richard Hannum**.

Endowments may be established with cash or readily marketable securities. Regardless of the amount of the endowment you wish to establish or the methods used to establish it, your investment will have a significant and long-term impact on the Physics Department and on the University of Missouri-Rolla. Please call **Maggie Morrison** or Mr. **Kevin Lindsey** at 1-800-392-4112 if you have any questions or wish to discuss options available to you for giving to the department.