

Frontiers in Physics Colloquium Series

The 2001 *Frontiers in Physics Colloquium Series*, which normally features a wide spectrum of interesting topics, was highlighted this year by an outstanding series of talks from candidates for the new faculty positions in condensed matter theory. The series started with a visit from Dr. **Alexei Koulakov** from The Salk Institute for Biological Studies. Dr. Koulakov's talk, "*Pattern Formation in Visual Cortical Areas*" demonstrated the growing appreciation of the use of physics in understanding phenomena in disciplines such as biology and physiology. Other highlights from the faculty candidates were the talks by Dr. **Carsten Ullrich** entitled



"*Terahertz Electronic Excitations in Semiconductor Nanostructures*" and by Dr. **Thomas Vojta** entitled "*Quantum Phase Transitions in Electronic Systems*." Drs. Ullrich and Vojta have both joined the department as faculty members this past year.

Later in the spring semester, Prof. **Eric Mazur** of Harvard University, shown on the left, addressed the

educational issue of shifting the focus of the classroom experience from the delivery of information to its synthesis, in a talk entitled "*Understanding Or Memorization: Are We Teaching The Right*

Thing?" Prof. Mazur also presented an informal talk about his research on laser-induced explosions in transparent materials.

Dr. **Zdenek Dohnálek** of Pacific Northwest National Laboratory led off the fall semester colloquia, with a talk on novel ways of preparing catalytically important materials. The



fall semester series included talks on atomic physics by Prof. **Klaus Bartschat** of Drake University, cosmology by Prof. **Ta-Pei Cheng** of the University of Missouri-St. Louis, and biophysics by Prof. **Gabor Forgacs** of the University of Missouri-Columbia.

Prof. **Ryne Raffaele** (Ph.D. '90) of the Rochester Institute of Technology, shown on the left, was our homecoming speaker

this year. Prof. Raffaele talked about his recent work on lightweight power systems for space missions in his talk entitled "*Integrated Microelectronic Power Supplies*." The series closed with Prof. **Alison Baski** who presented interesting STM images of one-dimensional growth on silicon surfaces.

New Physics Faculty Thomas & Agnes Vojta

The UMR Physics department grew a little bit bigger in January, with the addition of **Drs. Agnes and Thomas Vojta**, shown in the photo below with their two children, **Sophia and Philipp**. The Vojta's both grew up "behind the iron curtain", in the East German city of Dresden. This capital of the state of Saxony located at the river Elbe is famous for its Baroque architecture, art galleries, and today also for its high-tech industries. It is also known as the gateway to the mountains of "Saxon Switzerland" where modern freeclimbing evolved about 150 years ago. Growing up in such an area, Agnes and Thomas naturally became passionate hikers, climbers, and mountaineers.

The University of Dresden where Agnes and Thomas majored in Physics is not very old by European standards, it grew out of a technical school founded in 1828. In 1989, Agnes and Thomas became active participants in the exciting changes that led to the fall of the Berlin Wall and eventually also changed the course of their lives. After receiving his MS degree in 1991 Thomas first went to Mainz, and later to Chemnitz University to work with Prof. **M. Schreiber** on the transport properties of weakly doped semiconductors, obtaining his Ph.D. in Theoretical Physics in 1994.



He then came to the United States to do a two-year postdoc at the University of Oregon in Eugene with Prof. **D. Belitz** on quantum magnetism. In the meantime, Agnes was working on problems in pattern formation with Prof. **W. Pompe** in Dresden at a newly formed group of the Max-Planck Society, which at that time was beginning to set up research institutes in the

former East Germany. Agnes received her Ph.D. in Theoretical Physics in 1994, and left two weeks after her thesis defense for lovely Santa Barbara, California, where she spent two years working with Prof. **D. R. Clarke** on electronic ceramics. The two-year, long-distance relationship gave Thomas and Agnes a great chance to get to know several parts of the United States. They got to love living here and have been looking forward to returning ever since. Upon returning to Chemnitz

University in Germany, Thomas worked on quantum phase transitions in order to obtain his Habilitation, a kind of a second Ph.D. necessary to obtain a faculty position in Germany.

(continued on page 12)