CHEMISTRY WATCH

Greetings to all our alumni and friends of the Department of Chemistry at USC! This is the first issue of a Department Newsletter that I hope is informative and will allow us to keep in touch. I want to encourage you to send us your comments and look at our homepage on the WWW.

THE DEPARTMENT

A lot has changed in the Department during the last few years. While severe staffing cuts and a moratorium on faculty hiring had us all tightening our belts, the worst seems to be over. We have hired several new faculty (see Spotlight) and replaced a number of staff positions with energetic and talented new people. You will find further updates on our Faculty, Staff, and Students in future issues.

A new administrative structure is in place that allows us to move all parts of the department forward. There are three Sections: Inorganic/Biological, Organic/Materials, and Physical/Theoretical. Each of the sections has hiring autonomy and a Section Head that serves on an Executive Committee which meets regularly with the Chair to discuss important overarching issues and goals.

We have many bright undergraduate majors and teach about 1000 students in General Chemistry and 600 students in Organic Chemistry each year. State-of-the-art research is carried out by 110 graduate students and 55 postdoctoral research associates. The faculty generate an annual extramural research budget of $5.5M.

A BRIGHT FUTURE

There are many positive changes occurring that improve on an already strong program in Chemistry. Our newest Faculty members are James Haw and Anna Krylov. That brings us up to 25 tenured or tenure-track faculty.

Chemistry is one of the strongest Departments in the College. In addition to increasing excellence by building Chemistry, I look forward to the role that our Department can play in supporting the growth of life sciences, biomedical engineering, and other initiatives in USC’s Strategic Plan.

Bruce Koel
Chair of Chemistry
We are fortunate to have added this fall two outstanding faculty. Professor James Haw is the first holder of the Ray R. Irani, Chairman of Occidental Petroleum Corporation, Chair. Prof. Anna Krylov is an Assistant Professor in Physical/Theoretical Chemistry. In upcoming issues of the Newsletter, we will profile other recent appointments, as well as Faculty Promotions.

JAMES HAW
Prof. Haw obtained his B.S. and Ph. D. degrees from Virginia Polytechnic Institute, and was Professor of Chemistry at Texas A&M University, College Station, before joining USC. At Texas A&M, Jim was the Director of the Laboratory for Magnetic Resonance and Molecular Science, and received the 1992 Yarwood Medal of the British Vacuum Council. Prof. Haw has a strong interest in Materials Chemistry and Heterogeneous Catalysis. Catalysis by zeolites, metal oxides and supported metals is central to the production of a majority of petroleum products, polymers and fine chemicals. His research probes the fundamental chemistry of these processes. Using in situ solid state NMR spectroscopy and other experimental techniques including FT-IR, GC-MS, XRD, and electron microscopy, he is directly characterizing structure and reaction pathways (including reactive intermediates) in these materials. A solid state carbenium ion chemistry is emerging from studies of organic reactants on Friedel Crafts catalysts. A variety of organometallic intermediates have been characterized on metal oxide surfaces. Computational chemistry provides the means to relate structure and spectra. In parallel with experiment, he uses high level ab initio methods to calculate the structures of surface species and their spectroscopic properties.

ANNA KRYLOV
Chemistry beyond the Born-Oppenheimer approximation -- that is the interest of Prof. Anna Krylov, who arrived as an Assistant Professor of Theoretical Chemistry in Fall 1998. Anna obtained her Ph.D. from the Hebrew University of Jerusalem working on dynamic simulations of small molecules in rare gas matrices, and was a postdoc with Prof. Martin Head-Gordon at UC Berkeley, where she developed a method for electronic structure calculations of bond-breaking reactions of molecules and radicals. She is planning to combine these two areas in studying the electronic structure and dynamics of polyatomic molecules participating in processes important in photochemistry, catalysis, and selective organic synthesis. She is interested in radiationless transitions, photoinduced isomerization, spin-forbidden reactions of biradicals, and molecules adsorbed on small metal clusters. These will be studied via electronic structure and semiclassical molecular dynamics calculations performed "on the fly".

Anna won numerous awards throughout her graduate career, and recently was the recipient of Israel's Landau Prize given for the outstanding Ph.D. dissertation in 1996-1998. At USC, she has already received the Camille and Henry Dreyfus New Faculty Award.
A strong faculty is at the heart of success in the teaching and research missions of the University. Many of our Faculty have received prestigious honors and awards, most important of which was the 1994 Nobel Prize awarded to Professor George Olah.

**CHEMISTRY FACULTY**

**Robert Bau**
Professor of Inorganic Chemistry  
Ph.D., 1968, Univ. of Calif., Los Angeles

**Robert A. Beaudet**
Professor of Physical Chemistry  
Ph.D., 1962, Harvard University

**Stephen E. Bradforth**
Assistant Professor of Physical Chemistry  
Ph.D., 1992, Univ. of California, Berkeley

**Karl O. Christe**
Adjunct Professor of Inorganic Chemistry  
Ph.D., 1961, Technical Univ. of Stuttgart

**Larry R. Dalton**
Harold & Lilian Moulton Chair, Chemistry  
Prof. of Physical & Polymer Chemistry  
Ph.D., 1971, Harvard University

**David A. Dows**
Professor of Physical Chemistry  
Ph.D., 1954, Univ. of California, Berkeley

**Thomas C. Flood**
Prof. of Organometallic & Organic Chem.  
Ph.D., 1972, Mass. Inst. of Technology

**James E. Haw**
R. R. Irani CEO of Occidental Petroleum  
Prof. of Chemistry  
Prof. of Materials Chemistry  
Ph.D., 1982, Virginia Polytechnic Institute

**Thieo E. Hogen-Esch**
Prof. of Organic and Polymer Chemistry  
Ph.D., 1967, Univ. of Leiden, Netherlands

**Bruce E. Koel**, Chair  
Prof. of Physical Chem. & Surface Science  
Ph.D., 1981, University of Texas at Austin

**Anna I. Krylov**
Assistant Prof. of Theoretical Chemistry  
Ph.D., 1996, Hebrew Univ. of Jerusalem

**Chi H. Mak**
Associate Prof. of Theoretical Chemistry  
Ph.D., 1988, Stanford University

**Charles E. McKenna**
Prof. of Organic and Bioorganic Chemistry  
Ph.D., 1971, Univ. of California, San Diego

**George A. Olah**
Donald P. and Katherine B. Loker Distinguished Prof. of Organic Chem.  
Ph.D., 1949, Technical Univ. of Budapest

**Nicos A. Petasis**
Prof. of Organic and Bioorganic Chemistry  
Ph.D., 1983, University of Pennsylvania

**G. K. Surya Prakash**
Prof. and George A. and Judith A. Olah Nobel Laureate Chair in Hydrocarbon Chemistry  
Ph.D., 1978, Univ. of Southern California

**Hanna Reisler**
Professor of Physical Chemistry  
Ph.D., 1972, Weizmann Institute, Israel

**Kenneth L. Servis**
Dean of Academic Records and Registrar  
Professor of Organic Chemistry  
Ph.D., 1965, Calif. Inst. of Technology

**Lawrence A. Singer**
Assoc. Chair, Prof. of Organic Chemistry  
Ph.D., 1962, Univ. of Calif., Los Angeles

**Philip J. Stephens**
Prof. of Phys., Theor. & Bioinorg Chem.  
D.Phil., 1964, Oxford University

**Howard S. Taylor**
Professor of Chemistry and Physics  
Ph.D., 1959, Univ. of California, Berkeley

**Mark E. Thompson**
Associate Prof. of Inorganic Chemistry  
Ph.D., 1985, Calif. Inst. of Technology

**Arieh Warshel**
Prof. of Theoretical Chem. & Biophysics  
Ph.D., 1969, Weizmann Institute, Israel

**William P. Weber**
Prof. of Organic and Polymer Chemistry  
Ph.D., 1968, Harvard University

**Curt Wittig**
Paul A. Miller Professor of Chemistry  
Prof. of Physical Chemistry  
Ph.D., 1970, University of Illinois

**EMERITUS FACULTY**

**Arthur W. Adamson**
Emer. Prof. of Inorganic and Phys. Chem.

**Sidney W. Benson**
Distinguished Emer. Prof. of Phys. Chem.

**Anton B. Burg**
Emer. Professor of Inorganic Chemistry

**Otto Schnepp**
Emer. Professor of Physical Chemistry

**Gerald A. Segal**
Emer. Professor of Theoretical Chemistry

**James C. Warf**
Emer. Professor of Inorganic Chemistry

**Did You Know?**

Professor Olah's work on the chemistry of carbocations earned him the 1994 Chemistry Nobel Prize.
The Department cannot function without a technically competent and loyal staff. We have had quite a few changes recently, but we have an even stronger staff working with us now.

**STAFF PROFILE:**
Dr. Bruno Herreros
The first staff member to be profiled is Bruno Herreros, who joined our staff this fall as Director of Instructional Computing. He received his Ph.D. from Cambridge University in 1995, and he spent the last 3 years at the Univ. of Nebraska. He is interested in implementing computational approaches to teaching in chemistry, in maintaining and developing web pages for our major courses, implementing on-line homework, and developing Java, Cgi, and chime tools of pedagogical value in instruction. He is also in charge of maintaining the undergraduate computing laboratory. He is moving us aggressively in the direction of using new technologies in our undergraduate program. Visit Bruno’s home page at: http://chemmac1.usc.edu/

**OUR STUDENTS:**
Teaching at both the Graduate and Undergraduate level is a major activity in the Department. The Graduate Student Committee, whose function includes recruiting the best graduate students to our program, remains the most time-consuming and important service in the Department. Our ongoing challenge is to remain competitive with other first-rate institutions, and there will be more information in the future on our development efforts. Recent emphasis on recruiting better quality undergraduate students to USC is already showing up in course performances. Watch for lots of information on all of our students in upcoming issues!

---

Department of Chemistry
University of Southern California
Los Angeles, CA 90089-1062

First Class
Please Forward

Return Service
Requested