

ON THESE FOUNDATIONS

COLLEGE OF ENGINEERING

DEPARTMENT OF CHEMICAL & BIOLOGICAL ENGINEERING

Chair's message

As our plans for this summer's centennial celebration continue to crystallize, we are hearing from alumni far and wide who are planning to attend and bring their families to the "all class reunion" scheduled for Aug. 12-14.

A number of alumni (listed on page 2) have already agreed to serve as co-chairs to represent the various "cohorts" (grouped roughly by degree and graduation year) in planning events and communicating with you. You can expect to receive more specific information from your co-chairs this spring about activities and registration.

We encourage you, however, to make your travel plans and hotel reservations early, so we are including on page 2 of this issue a tentative schedule, as well as information on hotels at which we have reserved blocks of rooms.

Specific activities for the weekend may change in response to your suggestions and the suggestions of the alumni co-chairs, but the overall schedule is now fixed, so that you can make firm plans. Watch for more information in the mail, check the departmental web site for updates, and plan to join us if you possibly can.

We're looking forward to seeing as many of you as possible!



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*Chemical
Engineering
Aug. 12-14, 2005
Centennial*

Join us for the celebration!

Reserve these dates to reconnect with old friends and mentors.





FRIDAY, AUG. 12, 2005

1 – 5 PM: Group activities

(Sign up for one of these upon registration)

- Madison tour: State Street, Overture Center
- Golf outing
- Lake Mendota boat tour
- Socialize at the Union
- Give us your suggestions!

6 – 7:30 PM: **Reception**, Memorial Union

SATURDAY, AUG. 13, 2005

8:30 – 9 AM: **Welcome**, Dean Paul Percy, Professor Tom Kuech (Memorial Union)

9 – 10 AM: **Department history**, Bob Bird

10 – 10:15 AM: **Break**

10:15 – 11:15 AM: **The department of today**, CBE faculty

11:15 – NOON: **Focus on alumni**

NOON – 1:30 PM: **Lunch**, student poster session

1:30 – 2:30 PM: **Lab and college tours** (Engineering Hall)

2:30 – 6 PM: **Free time/ informal activities**

6 – 9 PM: **Banquet and evening program** (Memorial Union)

SUNDAY, AUG. 14, 2005

To be announced: **Informal activities**

CENTENNIAL CO-CHAIRS

Many thanks to the following alumni who have agreed to help with the planning and coordination for the upcoming centennial. Watch your mail this spring for updates from them on centennial planning, and information regarding registration for the August celebration.

- **Dick Schoofs** (BS '53)
- **Don Baldovin** (BS '57)
- **Harry Spiegelberg** (BS '59)
- **John Schmid** (BS '73)
- **John Torkelson** (BS '78)
- **Laura Sedlar-Lukaczyk** (BS '81)
- **Jim Rekoske** (BS '88)
- **Jakob Krummenacher** (BS '99)
- **Al Ziegenhagen** (BS '57, PhD '62)
- **Dick Weaver** (PhD '64)
- **Tunde Ogunnaike** (PhD '81)
- **Joe Kubsh** (PhD '82)

MAKE YOUR RESERVATIONS EARLY!

We continue to plan some details of the schedule for the centennial celebration but the general timeframe is now determined, so we encourage you to make your travel plans early. We have reserved blocks of rooms in a number of area hotels. Details are available on the department web site at www.engr.wisc.edu/che/ (click on the centennial icon), or write to the address on the mailing panel, or call the department at 608/262-1092. You can find other lodging options, as well as information to help in planning an extended visit to Madison at the web site of the Greater Madison Convention and Visitor's Bureau, www.visitmadison.com.

Who were the chairmen during this period?

W. Harmon Ray, 1981-1983;
Stuart L. Cooper, 1983-1989, 1992-1993;
Charles G. Hill, Jr., 1989-1992;
James A. Dumesic, 1993-1995, 1998-2000;
Sangtae Kim, 1995-1997;
James B. Rawlings, 2000-2003;
Thomas F. Kuech, 2003-present.

What books were published between 1980 and 2005?

- W.H. Ray, *Advanced Process Control*, McGraw-Hill, New York (1981); Russian Edition (1983); Chinese Edition (1987)
- D.F. Rudd, S. Fathi-Afshar, A.A. Treviño, and M.A. Stadtherr, *Petrochemical Technology Assessment*, Wiley, New York (1981)
- W.Z. Shetter and R.B. Bird, *Reading Dutch*, Martinus Nijhoff, Leiden (1985)



- M.D. Lelah and S.L. Cooper, *Polyurethanes in Medicine*, CRC Press, Boca Raton, Florida (1986)
- E.E. Daub, R.B. Bird, and N. Inoue, *Basic Technical Japanese*, University of Wisconsin Press and University of Tokyo Press (1990)
- S. Kim and S.J. Karrila, *Microhydrodynamics: Principles and Selected Applications*, Butterworth-Heinemann, Boston (1991)
- J.A. Dumesic, D.F. Rudd, L.M. Aparicio, J.E. Rekoske, and A.A. Treviño, *The Microkinetics of Heterogeneous Catalysis*, American Chemical Society, Washington, D.C. (1993)
- B.A. Ogunnaike and W.H. Ray, *Process Dynamics, Modeling, and Control*, Oxford University Press, New York (1994)
- N. Phan-Thien and S. Kim, *Microstructures in Elastic Media: Principles and Computational Methods*, Oxford University Press, New York (1994)
- R.B. Bird and S. Floyd, *Polymer Science and Engineering* (a supplement to *Basic Technical Japanese*), University of Wisconsin Press and University of Tokyo Press (1995)
- R.B. Bird, W. E. Stewart, and E.N. Lightfoot, *Transport Phenomena*, 2nd Edition, John Wiley and Sons, New York (2002); Chinese edition (2004)
- J.B. Rawlings and J.G. Ekerdt, *Chemical Reactor Analysis and Design Fundamentals*, Nob Hill Publishing, Madison, Wisconsin (2002)

SOON TO BE PUBLISHED:

- W.E. Stewart and M. Caracotsios, *Computer-Aided Modeling of Reactive Systems*, Wiley (2005).
- J.B. Rawlings, *Model Predictive Control—Theory and Computation*, Nob Hill Publishing, Madison, Wisconsin (2005)
- J.D. Schieber and J.J. de Pablo, *Chemical, Biological and Materials Engineering Thermodynamics* (2005)
- R. M. Murphy, *Introduction to Synthesis and Analysis of Chemical Processes*, McGraw-Hill (2005)

ogy using liquid crystals and nanostructured surfaces for the rapid detection of molecular interactions in proteomics, cell studies, environmental monitoring and *in vitro* diagnostics.

2002: VIRENT ENERGY SYSTEMS; **James Dumesic** and **Randy Cortright** (PhD '94); enables large-scale, economical use of renewable biomass to produce truly carbon neutral hydrogen, and plays a significant role in accelerating the hydrogen economy by providing systems that solve the cost, safety, energy density, and storage problems of current hydrogen systems.

Major changes in the teaching program

New curriculum and departmental name: "Chemical and Biological Engineering" (since 2003) with new additions to the curriculum:

- Biochem 501, Introduction to biochemistry
- Zoology 570, Cell Biology

NEW COURSES:

- CBE 250, 211, 311 have replaced ChE 210, 310
- CBE 561 Biochem Lab
- CBE 544 Electronic Materials
- CBE 535 Catalyst Design
- CBE 731 Computational Modeling of Reacting Systems

Major changes in emphasis in the graduate program

In the last two decades, emphasis in some of the research programs has been shifting to the molecular level, with emphasis on biological problems, nanotechnology, Brownian dynamics simulations, and quantum mechanical calculations.

Overseas summer lab course

It is now possible for the seniors to take the 5-week "summer lab" abroad. From 1974 to 2000 there was "summer lab" at the University of London, in addition to the one in Madison. Since 2000 students can take the 5-week course in Oviedo (Spain) or since 2003 in Vienna (Austria). In this way seniors can get a glimpse of a foreign culture and also satisfy the laboratory requirement.

Women in the chemical engineering program

During the past 25 years, enrollment of women in the chemical engineering department grew from 20.5 percent in the undergraduate program to 33.7 percent, and in the graduate program from 7.4 percent to 20.7 percent.



Pictured: "Sixty-strut Tensegrity Sphere" by R. Buckminster Fuller. Donated to the College of Engineering by the family of ChE alumnus Blair "Bud" Temkin (BS '49, MS '50).

Companies started up as spin-offs from departmental research—

1975: SHANAHAN VALLEY ASSOCIATES; **Dale Rudd**; examines the complex relationship that exists among the worldwide chemical industry, the marketplace for chemical products and the supporting chemical technology. In 1985, **Andrés Treviño** (PhD '79) became the owner.

1990: PROCESS RESEARCH CORP.; **Harmon Ray**; licenses software developed in Harmon's research group and generates research funds for the research group and university.

1998: STEWART & ASSOCIATES ENGINEERING SOFTWARE, INC.; **Warren Stewart**; creates and distributes software for the mathematical modeling and statistical analysis of chemical processes, and for design and analysis of experiments to investigate process mechanisms.

2000: BIOPULPING INTERNATIONAL, Masood Akhtar, **Ed Lightfoot**, and **Ross Swaney**; develops processes for treatment of wood chips prior to their conversion by mechanical defibration to pulp; these processes reduce the energy requirements for paper production and also results in stronger pulp.

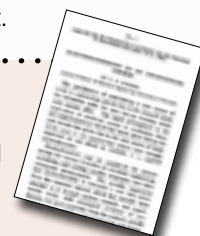
2000: PLATYPUS TECHNOLOGIES LLC; **Nicholas Abbott**, Barbara Israel, and Christopher Murphy; fabricates and sells a variety of nanostructured and chemically functionalized surfaces for use in life science research, and is developing a proprietary platform technol-

Professorships established or endowed by alumni

- **Olaf A. Hougen Professorship**; initial bequest by **Alfred S. Krenz** (BS '23).
- **Howard Curler Distinguished Chair in Chemical Engineering**; donation of the Bemis Company Foundation in honor of **Howard Curler** (BS '48).
- **Paul A. Elfers Chair in Chemical Engineering**; gift of **Paul A. Elfers** (BS '26).
- **Shoemaker Chair of Chemical Engineering**; endowed by Milton J. Shoemaker (BS '21, ChE '36) and his wife **Maude**.
- **John T. and Magdalen L. Sobota Professorship in Chemical Engineering**; established by **Magdalen Sobota** in memory of her husband, **John Sobota** (BS '32).
- **Harvey D. Spangler Professorship in Chemical Engineering**; established by **Harvey Spangler** (BS '56).
- **Harry L. Spiegelberg Professorship in Chemical and Biological Engineering**; pledge of estate gift by **Harry Spiegelberg** (BS '59) and his wife **Bonnie**.

EARLY ChE TECHNICAL PAPERS AVAILABLE

The Department of Chemical Engineering technical papers, 1900–1935, have now been added to the UW digital library History of Science and Technology collection. Five volumes show the development of the field of electrochemistry, which was an early emphasis of the department, and provide a glimpse into the department's history. A link to the collections can be found on the department's web site, www.engr.wisc.edu/che/, "Department Milestones".





Nick Abbott (left) received two major grants recently. The first is a three-year, \$439,000 grant from the National Science Foundation, joint with **Juan de Pablo** and Robert Lindquist,

professor of electrical and computer engineering at the University of Alabama in Huntsville. The team will explore capacitive, rather than optical, sensing for liquid-crystal-based chemical and biological sensors. A four-year \$1.8 million grant from the National Cancer Institute, will allow Nick, together with **Paul Nealey**, Professor of Biomolecular Chemistry Paul Bertics, and Professor of Biochemistry Ron Raines, to focus on the development of new molecular analysis tools for the assessment of the molecular mechanisms and consequences of anti-cancer agents.



Juan de Pablo was recently elected to the status of Fellow in the American Physical Society, an honor conferred each year on no more than one-half of one percent of the membership of the

society. Juan was nominated by his peers in the APS Division of Polymer Physics for the development and application of innovative simulation tools to problems in polymer physics.



Jim Dumesic won the 2004 Cross Canada Lectureship Award of the Canadian Catalysis Society, presented for recognized international leadership in the field. Jim will present lectures in

Ottawa, Toronto, Kingston and Calgary this spring on the subjects of "Catalytic production of hydrogen and liquid alkanes by aqueous-phase reforming of biomass-derived oxygenated hydrocarbons," and "Powering fuel cells with carbon monoxide using aqueous polyoxometalates and gold catalysts." The latter is the subject of an article by Jim and members of his research group in the Aug. 27 issue of *Science*. (See www.engr.wisc.edu/che, "In the News.")



Mike Graham won the 2004 François Naftali Frenkiel Award for Fluid Mechanics from the American Physical Society in recognition of significant contributions to fluid

SECOND HOUGEN SYMPOSIUM features BIOLOGICAL ENGINEERING

The second annual Olaf A. Hougen Symposium, held February 1, 2005 on the topic, "Engineering Biology from Molecules to Organisms," generated tremendous interest. Leading researchers at the interface of engineering and biology highlighted pioneering studies that illustrate the path leading from basic sciences to the clinic. Speakers included **George Daley** of Harvard Medical School and Children's Hospital, **George Georgiou** of the University of Texas, Austin, **Larry McIntire** of Georgia Tech and Emory University, **David Mooney** (BS '87) of Harvard, former Hougen Visiting Professor **David Tirrell** of CalTech, as well as **Eric Shusta** and **Sean Palecek** from this department. Abstracts of the talks are available on the department web site, www.engr.wisc.edu/che.

mechanics that have been published in *Physics of Fluids* during the preceding year by a young investigator. He presented the award lecture at the APS Division of Fluid Dynamics Annual Meeting in November on the topic of "Interfacial hoop stress and instabilities of viscoelastic free surface flows." Mike also was recently appointed as associate editor of the *Journal of Fluid Mechanics*, the leading international journal in the field.



Manos Mavrikakis is making news for his efforts to design catalysts from first principles. In the November issue of *Nature Materials*, he and graduate student Jeff Greeley report on a new

class of alloys that bind atomic hydrogen as weakly as the noble metals (Cu, Au) while, at the same time dissociating H₂ much more easily. This unique set of properties may permit these alloys to serve as low-temperature, highly selective catalysts for pharmaceuticals production and as robust fuel-cell anodes.

(See www.engr.wisc.edu/che, "In the News.") This and other work by Manos' group is featured in the Nov. 29 *Chemical & Engineering News* in an article reviewing how advanced computational methods are revealing mechanistic details and guiding catalyst design.



Paul Nealey was awarded an H.I. Romnes Faculty Fellowship from the UW-Madison Graduate School. The \$50,000 flexible research award, given to an exceptional faculty member who

has attained tenure within the past four years, is funded by the Wisconsin Alumni Research Foundation from income generated by patents

filed by UW-Madison faculty and staff. Paul is the founding director of the new NSF funded (five-year, \$13.6 million) Nanoscale Science and Engineering Center (NSEC) on campus. The research theme of the NSEC is templated synthesis and assembly at the nanoscale, and involves more than more than 25 chemists, biologists, physicists, and engineers. (See www.engr.wisc.edu/che, "In the News.")



Jim Rawlings recently presented an all-day workshop on state estimation at Exxon-Mobil. Earlier, he presented the keynote address titled, "Model predictive control and moving horizon estimation: Assessment of the current status," at a

workshop sponsored by the Danish Automation Society in Skaerbaek, Denmark. Following this, he traveled to Lyngby to present a seminar at the Technical University of Denmark, where we hope to initiate a series of student and faculty exchanges to strengthen collaborations.



Harmon Ray will be honored with a special issue of *Industrial and Engineering Chemistry*, scheduled to appear in April. The issue will contain articles on a

wide range of topics, reflecting the diversity of research fields in which Harmon has had significant impact. In a preface to the issue, Harmon's former students, **Jim Rawlings** (PhD '85) and **Tunde Ogunnaike** (PhD '81) reflect on Harmon's many professional accomplishments.

Christos Maravelias joins the CBE faculty

This fall, we welcomed Christos T. Maravelias to the department as assistant professor. Christos completed his PhD this past spring with Ignacio Grossmann at Carnegie Mellon University, one of the world's leading research groups in the area of process systems engineering. Christos received his MSc in Operations Research from the London School of Economics and Political Science, and his Diploma in Chemical Engineering from the National Technical University of Athens. Along the way, he also gained practical experience, studying catalytic hydroprocessing reactions for the Hellenic Refineries of Aspropyrgos, developing software for aircraft scheduling for British Airways, and developing optimization methods for the management of supply chains in the process industry for SmartOps Corporation.

Christos's thesis research at Carnegie Mellon produced six publications. He developed novel optimization methods for the scheduling of complicated batch processes that can be two to three orders of magnitude faster than previous models, enabling the solution of problems that are practically



unsolvable with earlier tools. He also developed novel methods to guide the process of new product development in the pharmaceutical and agrochemical industries, in order to maximize the expected net present value of a project. The model he developed was shown to have the capability of generating comprehensive plans for optimally integrating R&D and manufacturing in situations in which decisions must be made regarding which products from the R&D pipeline to test.

The model guides the design or retrofit of batch manufacturing facilities, while accounting for the fact that products may fail to pass the necessary tests.

Christos plans to teach our undergraduate Process Design course and our course in Intermediate Problems in Chemical Engineering. He hopes to develop an advanced course on optimization for students of any engineering discipline, and one on process systems engineering for advanced chemical engineering students.

Process Systems Engineering

By Christos Maravelias

The objective of our research is to develop theory, models and algorithms for the solution of important and fundamental problems in the area of process systems engineering. We are currently working on: 1) the development of effective methods for the production planning and scheduling in the process industry, 2) the modeling and optimization of the R&D activities of pharmaceutical firms, and 3) the analysis of biological systems. To address these problems we primarily use optimization techniques from various scientific fields, such as operations research and computer science, as well as simulation and control theory.

The planning and scheduling of operations in the chemical/process industry is an important and challenging problem for both academia and practice. Despite the advances in optimization software and computer hardware, real world problems remain hard to solve. The focus of our research is to develop methods for the solution of problems of practical interest, by using advanced mathematical programming techniques and by integrating mathematical programming with other solution techniques, such as constraint programming, heuristics and network algorithms.

The management of the pharmaceutical R&D pipelines is becoming increasingly important as patent lives are shortened and approval rates decrease. There are many challenges and decisions to be made: What products to choose from a portfolio of potentially new

products? How to allocate resources to the various competing projects? In order to address these questions we develop stochastic models that capture the uncertainty of the R&D process and effective solution techniques to overcome the combinatorics of the resulting models.

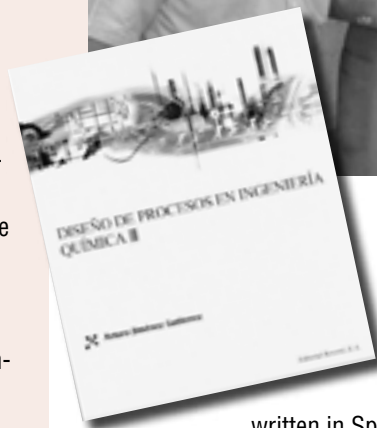
Finally, we apply systems engineering methods to explain raw biological data and, ultimately, better understand biological systems. We study regulatory networks and try to address questions about reachability of states, pathways, and stable states of a cell. We are also interested in understanding the dynamics of virus growth and evolution, and we are starting to develop models for analyzing the efficacy of drug therapy.

WE WANT TO HEAR FROM YOU TOO!
E-MAIL US AT: alumni@che.wisc.edu.

James Axley (BS '68) has taken a circuitous route from ChE undergrad, to the study of physical oceanography, where he encountered computational fluid dynamics, and eventually to the position of professor at the Yale University School of Architecture, and yet he says that transport phenomena, chemical kinetics and related dynamic phenomena have been his "intellectual obsession" since his undergraduate days, and the text, *Transport Phenomena*, has been his "bible." Over his career, Jim has published and presented a series of influential papers relating to the development of computational techniques for building thermal, airflow, and air quality analysis.

Sakarindr Bhumiratana (PhD '75), senior vice president for administrative affairs for King Mongkut's University of Technology, Thon Buri, and former director of the National Centre for Genetic Engineering and Biotechnology, has been appointed as the new director of the National Science and Technology Development Agency of Thailand. As NSTDA director, his major role will be to promote the development of science and technology in Thailand, while collaborating with academic research laboratories and industries to bring technology development for industrial use.

Jürgen Dopatka (MS '86) is a team leader of the process engineering group at ALSTOM Power's Environmental Control Systems division, a leading supplier of air pollution control solutions for fossil-fired power plants and other industries. Jürgen is responsible for the design of the chemical-based processes (SO₂- and NO_x-removal technologies). Earlier this year, he received the division's Engineer of the Year 2003 Award based on his technical leadership provided over many years. Since 1996, Jürgen, wife Bruni and their children Sonia (14), Kevin (9), and Stefan (7) live in Knoxville, TN. In his spare time, Jürgen takes fine art photographs, which he shows in regional art shows, competitions and a gallery. (See page 8 of this issue for some of his early work, or visit his image gallery at www.Dopatka.com/.)



Arturo Jiménez (PhD '82), professor of chemical engineering at the Instituto Tecnológico de Celaya and frequent instructor in UW's summer lab, recently published the undergraduate textbook, *Diseño de Procesos en Ingeniería Química* (Ed. Reverté, ISBN: 968-6708-51-0), the first text on process design

written in Spanish. A formal book presentation was held at one of the first locations to adopt Arturo's text, the Universidad Autónoma de San Luis Potosí, where Arturo (with his book) was joined by fellow UW alumni and UASLP faculty members **Marco Sánchez** (PhD '03) (left), **Guadalupe Cárdenas** (PhD '93), and **Brent Handy** (PhD '88). The audience was treated to an informative discourse on how to present the material, and to a first-hand account of the travails of time, money, and indifference encountered in publishing a technical book that was to be both formulated and published in Spanish. Arturo feels that textbook writing within México should be more heavily promoted as an ongoing activity that is essential to achieving that country's goals of academic and technological maturity.

Jay V. Ihlenfeld (PhD '78) was awarded a Distinguished Service Citation Award at Engineers' Day this past October 22. Jay joined 3M Corporation after graduating and has held executive positions with the company in Europe, Asia and the US. In 2002, Jay returned to St. Paul to become Vice President for Research and Development, overseeing nearly 7,000 technical employees. He was part of the team that reorganized 3M's entire business around its key markets, helping the company to achieve double-digit growth and generate a full pipeline of ideas for new products. (See also "In the News" at www.engr.wisc.edu/che/.)

Joseph Kreuser (BS '02) married Janell West in 2002, they are expecting their first child in February of 2005, and they are building a house in Johnson Creek, Wisconsin. Joseph is an R&D Project Engineer working for Midwest Instrument Company in Hartland. He recently designed an instrument that can simultaneously measure

hydrogen, nitrogen, and oxygen dissolved in molten metal—these three dissolved gases create many of the quality issues seen during steel production. He has a patent pending, a publication in the 2004 Association for Iron and Steel Technology Conference Proceedings, and he gave a technical presentation on the subject at the AISTech conference in Nashville in September.

Michael Morman (BS '69) won the 2004 Lifetime Technical Achievement Award from INDA, Association of the Nonwoven Fabrics Industry. Michael earned his PhD in ChE from Rice University in 1973, and retired this year after "28 years of challenge, fun, and satisfaction" as a researcher at Kimberly-Clark. His work focused on spunbond, meltblown, and elastomeric processes and materials, as well as an array of absorbent material concepts and product designs. He is credited with 289 invention disclosures, 63 issued patents, and more than 20 patents currently pending.

Babatunde Ogunnaike (PhD '81) was recently appointed as the William L. Friend Professor of Chemical Engineering at the University of Delaware, where he presented the inaugural lecture for the professorship, "Understanding and controlling complex processes: A journey from engineering to biology and back." Tunde also won the 2004 College of Engineering Excellence in Teaching Award at Delaware. Before joining the faculty at Delaware, Tunde was a research fellow at DuPont.

Greg Raupp (PhD '84), professor of chemical engineering and associate vice president for research at Arizona State University, is the founding director of the Army Flexible Display Center, established under a five-year \$43.7 million cooperative agreement with the U.S. Army—the largest federal award in the university's history. According to Greg, "the center will be the focal point in a large-scale national effort to provide tomorrow's warfighters with ubiquitous, conformal and flexible displays that are lightweight, rugged, low power and low cost."

Brian Severson (BS '97) received an Abbott Engineering Excellence Award from Abbott

Laboratories and donated the cash award to the department to purchase equipment for the undergraduate labs. Thanks, Brian!

John Torkelson (BS '78), professor of chemical and biological engineering and director of the Materials Research Center at Northwestern University, is on a roll, having received three major awards in the past year. He won the inaugural Polymer Physics Prize from the *Journal of Polymer Science, Part B, Polymer Physics*; the 2004 Charles M.A. Stine Award from the Materials Engineering and Science Division of AIChE, and the 2004 Best Paper Award from the Division of Polymer Analysis of the Society of Plastics Engineers.

David (Qiang) Wang (PhD '02) joined the ChE faculty at Colorado State University this fall, following a postdoctoral appointment with Glenn Fredrickson at the University of California, Santa Barbara. David's research focuses on applying advanced theories and computer simulation techniques to complex fluids, polyelectrolytes, block copolymers and polymer blends, nanocomposites, self-assembly, structure-property relations, and surface and interface phenomena.

Linchong You (PhD '02) joined the biomedical engineering faculty at Duke University, following a postdoctoral appointment with Frances Arnold at the California Institute of Technology. Linchong's research interests are in computational systems biology and synthetic biology, including nonlinear dynamics in biology, mechanisms of noise propagation and regulation in gene networks, and design, modeling and construction of robust gene networks for applications in engineering and medicine.

Joanne (Yamas) Yurchak (MS '67) didn't realize at the time that she was the first woman to receive an advanced degree from the department. She retired a year ago from teaching at Widener University where she had a great time developing labs and wrote three freshman lab manuals.

Joanne and her husband, **Sergei Yurchak** (PhD '69) recently celebrated their 40th anniversary and have two children and four grandchildren. Sergei is retired from Mobil Oil, where he coordinated research for the first commercialized synthetic fuels plant in Plymouth, New Zealand using Mobil's methanol to gasoline process.

New faculty and alumni scholarships/fellowships are established

The heart of any academic program can be found in the quality of students it is able to attract. Thanks to the generous support of our faculty, alumni and their families, the department will soon award two new undergraduate scholarships and two new graduate fellowships. All of these awards are intended to provide direct assistance to students while strengthening the department's recruiting efforts. Three of the new awards are also intended to encourage students to gain international experience.

Donald Baldwin (BS '57) is endowing the **Donald E. Baldwin Graduate Fellowship Fund** to support students in ways that enhance the competitiveness of the department in graduate student recruiting, for example, by encouraging international experience for graduate students. Don has previously endowed two scholarships: a college-wide award in honor of his parents, Angelo and Rose Baldwin, and a departmental scholarship in his name. The scholarships are awarded to undergraduates planning to enter the college or department. He also made a generous contribution to the

construction of the Engineering Centers Building. Don retired from Amoco Corp. in 1998 as Vice President, Finance and Business Support, Worldwide Exploration Business Group, after over 40 years of company service.

Kwen Chu and **David Chu**, widow and son of **Chieh (Jay) Chu** (MS '59, PhD '61) funded the **Chieh Chu Graduate Support Fund** to honor Jay's career. The fund will provide supplemental graduate support to attract top doctoral candidates. Jay was known for his innovations in thermal recovery of petroleum reserves as an

engineering with Texaco. He passed away in February 2003.

Richard L. Antoine (BS '59) and his wife **Dorothy O'Brien**, also a UW graduate, endowed the **Antoine Family Scholarship Fund**, which will support undergraduate students participating in the international summer laboratory programs. In 2002, Dick received the college's Distinguished Service Award for his contributions at Procter & Gamble where he serves as global human resources officer.

Finally, faculty member **Charles G. Hill, Jr.** and his sister, **Dorothy Smith** have established the **Charles G. Hill Family Scholarship Fund** in honor of their father. Like the Antoine Family Scholarship, the award will be presented to an undergraduate participating in one of the international summer laboratory programs.



Do these scenes look familiar?

As a student, the Engineering Hall stairwell reminded **Jürgen Dopatka** (MS '86) of a three-dimensional chess board, where he waited patiently to capture a couple of players in motion. (Photo at left titled "The Move.") Join us for the centennial celebration Aug. 12–14 and set your own memories of Madison in motion! (And see the *Alumni News* section on page 6 to learn what Jürgen has been up to lately.)



"Biker's Overpass" on Campus Drive. (Photos courtesy of Jürgen Dopatka www.Dopatka.com).

**ON THESE
FOUNDATIONS**

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