Alumni Reunited at ANTEC 2006
By Sarah Thorley

Despite cooler temperatures and some rainy weather, the city of Charlotte, N.C. welcomed conference attendees to ANTEC 2006. The Department of Polymer Engineering hosted its second annual Alumni Reception in conjunction with this event on Tuesday, May 9, at the Hilton Charlotte Center City. Alumni, faculty, current students, and industry personnel mingled while enjoying a wine and hors d’oeuvres buffet.

The alumni, representing graduation years 1985 through 2005, came in from Ohio, Minnesota, Delaware, Massachusetts, Rhode Island, Tennessee, Virginia, Texas, South Carolina, and countries South Korea and Thailand. The reception was well-attended and provided a fun evening for guests to see old friends and catch up on the latest news. Plan now to join us next year on Tuesday, May 8, for the Alumni Reception during ANTEC 2007 in Cincinnati, Ohio. Watch your mail next Spring for details!
Message from the Chair  By Sadhan Jana

I hope you all had a very nice summer. I am happy to present a few updates on the department. The year 2006 has been a very good year so far for the department. Two new faculty members, Drs. Kevin Cavicchi and Hendrik Heinz have joined our department. Dr. Cavicchi works on block copolymers and block copolymer membranes for proton exchange membrane fuel cells. Dr. Heinz works on computational aspects of polymeric materials and multi-scale materials processing. Both are very eager to establish strong research programs and to foster collaboration among various research groups in the university and outside.

Our graduate students have won many more awards this year at SPE ANTEC, which include Chase Plastics Education Award, Stretch Award, and Perkin-Elmer Award. You will find the descriptions of other awards under highlights section of this newsletter.

We just celebrated 50 years of a polymer doctoral program at The University of Akron with gala events in the Student Union during Aug. 911, 2006. I was very happy to see some of the Department of Polymer Engineering alumni at the events. The events, which included keynote presentations by invited speakers on the emerging technologies in polymers, were very successful in attracting local media and the alumni as far back as from 1958.

Dr. Arden L. Bement, director of the National Science Foundation, gave a keynote presentation on the theme issue of the impact of globalization on technology policy. These events also presented us some thoughts on how we will celebrate in 2008 the first 25 years of the formation of the polymer engineering program at The University of Akron. I, of course, will be looking forward to your input in due course of time.

Dr. Frank N. Kelley, dean of the College of Polymer Science & Polymer Engineering, has announced his retirement and a search for a replacement is underway. The College Dean search committee recommended five finalists who visited the campus during the weeks of Aug. 21 and 28. It is very likely that a new dean will be named by the time this newsletter reaches your hand.

I hope to see you all back on campus for the occasions of Alumni Day and Sponsors’ Day during Oct. 26 and 27, 2006. This year’s Distinguished Alumni Award recipient will be chosen by taking input from both you and the faculty. Sarah Thorley will be contacting you soon with more details.

Keep up with your good work and stay well. Hope to see you soon!

SCJ

News from PESO  By Kaan Gunes, 2005-06 PESO President

PESO had a very fruitful year filled with exciting social and academic activities and our growing success was again recognized by the Society of Plastics Engineers with two awards. First, the SPE Student Chapter at The University of Akron was acknowledged at ANTEC 2006 with the STRETCH Award, which has now been granted to our organization two years in a row.

The CHASE Plastics Education Award was also received by our student chapter. The grant provided by the CHASE award is being used to organize the first Plastics Awareness Day. By motivating local K-12 students to create polymer related science projects and organizing competitions to bring students and the public together, PESO will be able to promote the importance of research in polymers and the achievements of our department throughout the community. The Plastics Awareness Day will include working displays of polymer processing equipment, a polymer trivia quiz, an essay competition and many more fun activities.

PESO has also been very successful in creating a social environment for students, faculty, and staff by arranging activities such as picnics, canoeing, and bowling and movie nights. These events provide a social outlet that all participants can enjoy with their friends and families, which is also why the attendance is always so high.

Organization of career building seminars and publishing graduate student resume books are among the academic functions of PESO. Approximately 50 copies of the second edition of the resume book were printed in May and distributed at ANTEC and later in June at NPE 2006. The success of the resume book project can be seen in the increased number of employer interviews and job offers awaiting our graduates.

In July, elections were held for the 2006-07 PESO officers.
Elected were Sylvain Seif, president; Traian-Ovidiu Gheorghiu, vice president; Shanshan Wang, treasurer; external affairs officers Michael Perr and Wei Zhao; and coordinators Neelakandan Chandrasekaran and Maurice Wadley. As the outgoing PESO president, I wish the new PESO officers a productive 2006-07 term. I have full confidence that they will strive to achieve even greater successes.

Canoeers are all smiles. Top photo (left-right) are Atanas Gagov, Pankaj Rathi, Emily Ringwalt, Rushi Matkar, Elif Alyamac, and Kaan Gunes. Photo above (left-right) are Rahul Shingte, Elif Alyamac, Kaan Gunes, and Rushi Kumar.
Recent Polymer Engineering Graduates  
Spring 2006

**Darunee Aussawasathien, Ph.D.**  
“Electrospun Conducting Nanofiber-Based Materials and Their Characterizations: Effects of Fiber Characteristics on Properties and Applications”  
**Advisors:** Dr. Erol Sancaktar, Dr. Liming Dai

**Karnav Kanuga, Ph.D.**  
“A Fundamental Study on the Non-Linear Mechano-Optical Behavior of Polyethylene Naphthalate, its Blends with Polyetherimide and its Nanocomposites”  
**Advisor:** Dr. Mukerrem Cakmak

**Teik Lim Kwa, M.S.**  
**Advisor:** Dr. Mukerrem Cakmak

**Ahmet Nebioglu, Ph.D.**  
“Network Formation and Thermomechanical Properties of Photo-Curing Inorganic/Organic Hybrid Coatings”  
**Advisor:** Dr. Mark Soucek

**Erika Pedraza, M.S.**  
“A Study of the Effects of Functionality on Certain Aspects of Cross-Linkable Latex Systems”  
**Advisor:** Dr. Mark Soucek

**Haifeng Shan, Ph.D.**  
“Structure Development in Melt Spinning, Cold Drawing and Cold Compressing Poly(ethylene-co-1-octene) with Different Octene Content”  
**Advisor:** Dr. James L. White

**Chonggang Wu, Ph.D.**  
“Transesterification, Mechanical Properties and Rheology of Blends of Thermoplastic Polyester and Model Thermotropic Polyester”  
**Advisor:** Dr. Chang Dae Han

**Ming Zhou, Ph.D.**  
“Synthesis, Characterization, Phase Behavior and Rheology of Combined Main-Chain/Side-Chain Liquid-Crystalline Polymers”  
**Advisor:** Dr. Chang Dae Han

**SUMMER 2006**

**Zehra Kalkan, Ph.D.**  
“Generation of Advanced Polyamide-6,6 Nanocomposites via Interfacial Polycondensation”  
**Advisor:** Dr. Lloyd Goettler

**Sergey Lapshin, Ph.D.**  
“Experimental and Theoretical Study of Polyolefin-Clay Nanocomposites Prepared Using High Power Ultrasound”  
**Advisor:** Dr. Avraam Isayev

**SUMMER 2006**

**Dr. Thein Kyu Promoted to Distinguished Professor**  
*By Institutional Marketing*

Dr. Thein Kyu is one of two UA professors to have recently been named distinguished professors at The University of Akron. Candidates for this honor must be a professor at the University for at least five years and excel in teaching and in scholarly activity or artistic performance at a level significantly beyond the expectations for the rank of professor.

Dr. Kyu joined the University’s College of Polymer Science and Polymer Engineering as a professor of polymer engineering in 1983. While his primary research interests are in polymer science and engineering, he also has emerged as a leader in the cross-disciplinary field of soft matter physics involving a unique combination of theory, simulation and experimentation. Accordingly, Dr. Kyu was a guest speaker at the International Workshop of Soft Matter Physics held in July at Kyoto University.

In 1998, Kyu received UAA’s Outstanding Research Award. His research funding has exceeded $4.5 million with receipt of consistent awards from the National Science Foundation and other federal agencies such as the U.S. Army and Air Force. His research work has culminated in 170 refereed papers, nine book chapters and four patents. He has co-edited a book and has another two-volume book under contract. During Dr. Kyu’s tenure at The University of Akron, he has graduated 23 master of science and 20 doctoral students. Currently, he is advising nine graduate students.

Born in Prome, Burma, Dr. Kyu studied in Japan, where he earned a bachelor of science in textile engineering from Kyoto Institute of Technology and master of science and doctoral degrees in polymer chemistry from Kyoto University.

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**Alumni Day**

Alumni, please mark your calendars to return to campus on Friday, Oct. 27, for the second annual Polymer Engineering Alumni Day. Last year’s first-ever event was a resounding success and we have received lots of positive feedback.

The day will kick-off with a welcome by the dean and department chair followed by a morning of technical presentations by alumni.

A noon luncheon will include the presentation of the Distinguished Alumni Award. Both faculty and alumni will be able to vote prior to Alumni Day to select the recipient of this year’s award (more details coming in your mail and by e-mail!). A roundtable discussion, building tours, and poster presentations will take place in the afternoon and conclude with a social mixer in the atrium of the Polymer Engineering Academic Center.

Also keep in mind that the day before, Thursday, Oct. 26, will be Sponsor’s Day with morning presentations by faculty on their research to industry attendees followed by lunch. The afternoon will host the Polymer Processing Hall of Fame Symposium followed by an evening banquet. Alumni are welcome to join in on either or both of these Thursday events in addition to Alumni Day on Friday.

More details will follow in your mail/e-mail on both day’s events, but for now, please mark your calendars to return “home” at the end of October. We are looking forward to seeing you!
Dr. Mukerrem Cakmak  
**FACULTY**  
*June 2006 –* Dr. Cakmak (Co-PI) and Dr. Celal Batur (PI) of the Department of Mechanical Engineering received $110,880 in continued monies from Case Western Reserve University/subcontractor to the U.S. Air Force Office of Scientific Research for “Directionally Solidified Multifunctional Ceramics.”  
*August 2006 –* Received $98,655 from NASA Glenn Research Center for “Silica Aerogel Film Development Utilizing Continuous Casting Process.”

Dr. Avraam Isayev  
*November 2005 –* Was awarded $10,049 by NASA Langley Research Center for continuing research on “Continuous Ultrasonic Process for Dispersion of Nanofibers and Nanotubes in Polymer Melts and Manufacture and Products from Prepared Nanocomposites.”

Dr. Thein Kyu  
*August 2006 –* Was promoted to Distinguished Professor in the Department of Polymer Engineering.

Dr. Erol Sancaktar  
*Spring 2006 –* Received a Certificate of Appreciation from the Design Engineering Division of ASME for his service as Conference Chair for the 18th Anniversary Celebration of the First Ph.D. Program, Jane won Best Poster in the category of “Development of Spatial Structural Hierarchy in Clay Nanoparticle Filled Polypropylene Melt-Spun Fibers.” Jane is a doctoral student with Dr. Miko Cakmak and anticipates graduating this December.

Mr. Pritam Das (M.S. 2004)  
*April 2006 –* Pritam Das, Lead Application Development Engineer for Thermoplastic Composites at the National Composite Center (NCC), along with Lead Design Engineer Dr. Brian Knouff and Lead Test Engineer Jessica Ravine, was awarded a $69,000 Technical Oversight Committee (TOC) research grant at the NCC’s Members Day. As a primary investigator, Mr. Das will integrate Long Fiber Thermoplastic (LFT) processing technology with current film and nanotechnologies in the market to manufacture thermoplastic composite parts for structural-cum-cosmetic applications. The grant would also be used to develop a complete well defined process control system for LFT materials. The awarded proposal intends to promote collaboration among industries, research institutes, and universities for commercialization of advanced thermoplastic composite technologies. Collaborators in this program include education institutions such as the University of Alabama at Birmingham, commercial companies like Celaneese and A. Schulman, and research institutions including the University of Dayton Research Institute (UDRI) and NCC. Additional in-kind support for the project exceeds $150,000 from the collaborators in the form of tools, materials, and services. Pritam studied with Dr. R. Byron Pipes.

Mr. Liqun “Harrison” Yu (M.S. 2000)  

Ms. Soma Guhathakurta  
*May 2006 –* Was co-recipient of the Ticona Excellence in Engineering Plastics Award – Polymer Engineering. Soma is a third year doctoral student studying with Dr. Kyonsuku Min.
Like last year, the annual Sink or Swim Coatings Symposium was held on The University of Akron campus May 23-24, 2006 in the Student Union and the Martin Center. This year there were four speakers invited from outside of the Cleveland Coating Society to give plenary lectures.

The technical meeting had a total of 18 presentations and was well attended with more than 150 people. There was also an excellent showing of more than 55 exhibitors which filled the Student Union Ballroom with a total of 240 people in attendance. More than 30 students, post-doctoral fellows, and professors from the University of Cincinnati, The Ohio State University, and The University of Akron contributed to the conference.

There were many excellent talks with the first day ending with a Speakers Reception at the elegant Martin Center. During both the first and second days, coating workshops were held including Fundamentals of Coatings; Corrosion; Catalysis; and Linking Creativity with Commercialization. A tour of the Polymer Engineering and Polymer Science facilities was available, which was much appreciated by the attendees.

Overall, the symposium was a stunning success with an universal impression of technical excellence, state-of-the-art facilities, and beautiful surroundings for networking. Currently, it is anticipated that the symposium will be held once again next year at The University of Akron in late May 2007.

We Want to Hear From You!

Alumni, we would like to hear from you! Please send us your recent news, awards and career updates. Either log on to the department’s Web site at http://www.poly-eng.uakron.edu and click on the Alumni link under People to complete the survey, or contact Sarah Thorley, coordinator of academic programs, at sarah3@uakron.edu.

In future editions of the newsletter, we want to include coverage of alumni. Your news will be of interest to your fellow alumni as well as our department members and current students. You also are welcome to include a digital photo of yourself to accompany your news.

We are proud of you, our distinguished alumni, and we look forward to hearing from you!
We are very pleased to introduce Dr. Hendrik Heinz as the newest professor in the Department of Polymer Engineering. Dr. Heinz received his formal education at the ETH Zurich, Switzerland, earning his M.S. in chemistry (2000) and Ph.D. in computational materials science and polymer chemistry (2003). For the past three years, he has been working at the Air Force Research Laboratories at Wright-Patterson AFB. Dr. Heinz said he is glad to be joining the polymer engineering program here and feels it is a good opportunity to establish a research program and work with students to “turn ideas into output that can be applied.”

In some of Dr. Heinz’s previous work, he helped develop an atomistic energy model (force field) for sheet silicates (now available through Accelrys, Inc.), and a method to compute local stress tensors in the presence of angle and torsion potentials. Dr. Heinz says that “better models and methods remain the key for success of computer simulation methods and force fields for pi-conjugated polymers, biominerals and nanoparticles.”

When asked about his vision for a research group and its areas of focus, Dr. Heinz remarked, “A research group may be any dynamic mix of diverse people, which remains coherent through similar professional interests and goals. After initial discussions and a project outline for a new group member, I believe that academic freedom is essential for making original contributions. However, I enjoy teaching and working together so that progress can be effectively made. Ultimately, good research contributions within the graduate program and having skills to work with people help start a successful career.”

“The research will be aimed at challenges in nanotechnology and bioengineering, using computer simulation methods in connection with experiment. The activities will include the advancement of models and methods and simulation of technologically important systems and processes, coupled with experimental efforts. Opportunities for graduate students to interact with other groups in industry, government, or academia will be available, and joint projects with other faculty members can also be arranged.”

Dr. Heinz believes teaching graduate students is mainly to prepare and provide them with a solid basis of knowledge about the subject topic and allowing opportunities for problem solving, whether working independently or in groups, and making use of the technologies available. Beyond that, he would help them learn to master complex intellectual challenges rapidly, to acquire a deep level of understanding and to flexibly apply the knowledge to more advanced subject topics and other life experiences.

When asked if there was someone or something that influenced his having taken the path of his chosen career, Dr. Heinz responded: “It was pretty early in my life that I discovered a passion for chemistry, when I was about 14. I made all kinds of experiments in a home-based laboratory … In spite of having many other choices; I completed my studies in chemistry at ETH Zurich and followed with a Ph.D. in materials science and engineering. My supervisor, Ueli Suter, and also Epameinondas Leontidis, now at the University of Cyprus, both made a very positive impression on me, which reinforced me in pursuing a scientific career. I have then continued to work with a number of candid and supportive researchers along the way, namely, Kurt Binder and Wolfgang Paul at the University of Mainz, Germany; Barry Farmer, Richard Vaia, Ruth Pachter, and Rajesh Naik at AFRL; and also Norman Blank, Robert Flatt, and Irene Schober at Sika Corp.”