Chair’s Chat
It has been a busy and exciting time for the MSE department. Faculty and students alike have received numerous awards, the department was heavily featured in a PBS Nova program on Samurai swords, and our incoming sophomore class this Fall was 40 students (which is close to a record)! We have two new assistant professors joining in the Spring (Drs. Sabrina Jedlicka and Xuanhong Cheng), and an ongoing search for a new faculty member with expertise in nanocharacterization. At the MS&T meeting in Detroit (September 17), we held an Alumni reception, and it was a great opportunity to catch up with old friends and colleagues. Among those present were Dan Lewis, Richard Chromik, Anthony DiGiovanni, Ed Gorkowski, Steve Banovic, Junghyun Cho, Nitin Padture, Steve Claves, Don Susan and Ben Zhou. I was particularly pleased that Phil Bretz and Dilip Subramanyam (resplendent in their formal evening wear) were able to join us, as they were to be honored that very evening by being inducted as new ASM fellows (see separate article).

At the Founders Day ceremony we learned of the establishment of the Joseph K. Stone and Charlotte P. Stone Endowment Fund at Lehigh, to support teaching, research, and publication in metallurgy and materials science. By way of background, Joseph Stone graduated from Lehigh University in 1936 with a degree in metallurgical engineering, followed by his professional engineering degree in 1948. He later earned an M.B.A. from the University of Chicago. Stone was an expert in the Linz and Donawitz (LD) technique (a modification of the Bessemer process), which is a method for producing stronger and cheaper steel. He was nicknamed “Mr. LD,” and was the holder of eight patents. In 1990, Stone retired as manager at Kaiser Engineers, an international firm that worked on construction projects including the Hoover Dam and the cleanup of Boston Harbor. After his retirement, he wrote the “LD Process Newsletter,” which was published and distributed internationally. In 1997, the Republic of Austria presented him with the Golden Order of Merit Award for his outstanding service to the steel industry. Upon his death in 2005, Stone’s estate established the endowment Fund.

In the process of updating our Alumni records, we were pleased to find out that our department actually has the Commencement booklets dating back to 1954! For those you who might be interested in an electronic copy, please drop me or Janie Carlin a line. Also, please check out the new look for our website, suggestions / comments regarding the content and lay-out are welcome. Finally, thank you for all of your help with providing leads to employment opportunities for our current grads, and if you have any news / accomplishments you would like to share, please let me know.

Successful Accreditation Review for Materials Science and Engineering Program
Undergraduate engineering programs are reviewed by ABET, the Accreditation Board for Engineering and Technology, typically every six years. The most recent ABET review of engineering programs at Lehigh, including MS&E, took place on October 1 and 2. The ABET evaluator for MS&E was Professor Jeffrey Fergus, from the Materials Department, Auburn University. Although formal announcements of accreditation decisions will not be made until the Summer of 2008, we received very positive feedback from Professor Fergus, who was favorably impressed by the quality of our program and by the commitment and enthusiasm of our students.

The only changes needed as a result of the ABET review are to expand our statement of “Program Educational Objectives,” which are required by ABET to be “broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve”. Previously, our stated Educational Objectives were that “graduates receive an excellent education in a scholarly environment, and that they acquire the knowledge and experience needed to advance to successful careers in materials-related fields and, where appropriate, for graduate study in these fields.” To fit better with that ABET definition, we propose to retain the content of this statement, but to divide it into two parts and to expand the second part:

The Materials Science and Engineering undergraduate program’s mission is to provide its students an excellent education in a scholarly environment.

and

Our Educational Objectives are that graduates have the knowledge and experience needed to advance to suc-
cessful careers and, where appropriate, for graduate study, in materials-related fields. Successful careers will be reflected in continuing employment, personal satisfaction, professional recognition, and advancement in responsibilities. Success in graduate studies will be indicated by admission to highly ranked graduate programs, timely completion of degree requirements, and recognition by competitive fellowships and other awards.

The MS&E faculty feel that these are good descriptions of what we aim to do in our undergraduate program, and that the second statement satisfies the ABET definition of Program Educational Objectives. We are inviting comments from alumni/ae, current undergraduate students, and members of our Advisory Committee, who we view as our main “constituencies,” before we notify ABET that we have formally adopted this statement of Educational Objectives. Please send any comments to MS&E Department Chair Helen Chan (helen.chan@lehigh.edu). Some MS&E alums will also receive questionnaires inquiring about their employment, professional recognition, and career advancements. Some more recent graduates will be asked about their experiences in post graduate studies. If you receive a questionnaire, please provide the requested information, to help us assess how well we are meeting these Educational Objectives.

Faculty News

Two new junior faculty members, Xuanhong Cheng and Sabrina Jedlicka, will join MS&E in January 2008. Both have research interests in the area of biomaterials / materials for bioengineering applications.

Xuanhong Cheng comes to Lehigh from Massachusetts General Hospital and Harvard Medical School, where she has been a post-doctoral fellow since 2005. She received her doctorate in bioengineering and her master’s degree in electrical engineering from the University of Washington, and received her bachelor’s degree in biology from Wuhan University, China. Cheng has a long-standing interest in developing and applying engineering tools, including micro/nanotechnology, chemical and electrical approaches to study biological problems, especially those related to whole cells. Her research emphasis has been on biomaterials, surface modification, surface science, cell-surface interaction, biological microelectromechanical systems (BioMEMS) and global health diagnostics.

Sabrina Jedlicka holds a dual B.S. in Biological and Agricultural Engineering and Chemical Science from Kansas State University. She received her PhD in Engineering from Purdue University in Fall 2007. Dr. Jedlicka is interested in the development of novel materials, modification of existing platforms, and translation of traditional materials science characterization tools into the biological and organic environments. In addition to materials design and fundamental characterization, her interests also include biomolecule:material interactions, specifically related to biophysics and modeling.

MSE at Lehigh Ranked #1

Of the top 100 federally funded U.S. universities whose researchers published papers in Thomson Scientific-indexed journals of materials science & engineering between 2000 and 2004, the universities below contributed the highest percentages of their total papers to the field during that five-year period.

<table>
<thead>
<tr>
<th>Rank</th>
<th>University</th>
<th>Number of papers, 2000-2004</th>
<th>Percent of university's total papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lehigh University</td>
<td>177</td>
<td>10.37</td>
</tr>
<tr>
<td>2</td>
<td>Georgia Inst. of Technology</td>
<td>624</td>
<td>9.17</td>
</tr>
<tr>
<td>3</td>
<td>North Carolina State University</td>
<td>529</td>
<td>6.29</td>
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<tr>
<td>4</td>
<td>Virginia Polytechnic Institute</td>
<td>330</td>
<td>5.19</td>
</tr>
<tr>
<td>5</td>
<td>University of Delaware</td>
<td>236</td>
<td>4.78</td>
</tr>
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David B. Williams, formerly Lehigh’s vice provost for research, has been named the University of Alabama in Huntsville’s (UAH) fifth president beginning July 1. He was appointed following a yearlong, competitive nationwide search of more than 200 applicants. Williams, with more than 30 years of distinguished service at Lehigh, was chair of the department of the materials science and engineering in the P.C. Rossin College of Engineering and Applied Science prior to his tenure as Vice Provost for Research.

On July 2, Himanshu Jain received the Otto Schott Research Award at the International Congress on Glass in Strasbourg, France. The 25,000-Euro award, given once every two years, is the most valuable prize for glass research. Jain will share the award with Walter Kob of the University of Montpellier in France. Jain was recognized for “outstanding work towards advancing fundamental understanding of the movements of atoms inside glass.”

Martin P. Harmer will receive the 2008 Sosman Award from the American Ceramic Society at the MS&T08 meeting scheduled to be held in Pittsburgh, October 5-9 2008. This is the highest recognition for basic science accomplishment awarded by the American Ceramic Society. There will also be a Symposium at the conference organized in honor of Martin’s accomplishments. The Sosman Award Symposium will be on the topic of Kinetic
Engineering of Interfacial Transport Processes. His plenary lecture will feature the new scientific concept of interface complexions.

Martin P. Harmer was also elected to the World Academy of Ceramics as an academician in the category of basic science. This award is given to individuals who have made an internationally renowned significant contribution to the advancement of ceramics science.

Charles Lyman, David Williams, and Alwyn Eades were three of a small number of microscopists from the United States who gave invited talks at CIASEM 2007: The Ninth Interamerican Congress on Electron Microscopy, held in Cusco, Peru, from the 23rd to the 28th of September, this year. John Mansfield (University of Michigan) who teaches at the Lehigh Microscopy School was another invited speaker.

Ray Pearson was elected to be the technical program chair for the 3rd annual Mini-Conference on Polymer Nanocomposites to be held on March 3-5, 2008 at Lehigh University. The topics of the conference include the processing of polymer nanocomposites, mechanical properties, barrier properties and flame retardancy. More details will become available at http://www.4spe.org/conf/.

Wojtek Misiolek was invited to give a series of lectures in New Zealand last summer. His short course entitled Extrusion Excellence: Applied Fundamentals for Aluminium Extruders was presented at the Auckland University of Technology (AUT) on June 18th, 2007 and then at two companies, Fletcher Aluminium in Auckland and MCK Metals in New Plymouth. Additionally, Wojtek gave two talks about research performed with his grad students, first at AUT and the second one at the University of Canterbury in Christchurch. He also had time to enjoy snow and skiing with his sons in Southern Alps.

Adjunct professor William Van Geertreyden has filed a patent application on a ceramic filter used in kidney dialysis. The new filter will double the amount of toxins removed during dialysis and reduce the treatment time by 30 minutes to one hour. His company, EMV Technologies, LLC, has received a $195,000 Small Business Technology Transfer grant from the National Institutes of Health (NIH), to verify the feasibility of the new filter.

**Staff News**

Janie Carlin received the Lehigh Tradition of Excellence Award in May for her dedication and knowledge of Lehigh, the integral administrative role she fills. Her willingness to always go the extra mile to support the efforts of faculty and students have helped make Materials Science and Engineering a productive and vital department.

Andrea Harmer (known to many alums as DeeDee Weiss) graduated with her Doctor of Education Degree in Educational Technology from Lehigh University’s College of Education in May 2007. In August, she accepted a position as Assistant Professor of Instructional Technology and Library Science at Kutztown University, while retaining research and outreach efforts at Lehigh part time. Originally hired as a photographic technician by MS&E Department Chair Al Pence in 1979, Andrea initiated the use of departmental computers for digital imaging and online education. In 2001, she was promoted to Director of Web-based Education, and began her outreach efforts through the Imaginations program, teaching children and teachers about electron microscopy and nanotechnology. To fill the void of instructional materials introducing nanoscale to young learners, Andrea authored a book entitled, *Nanotechnology for Grades 1-6+*, which she uses in her program. Since 1989, she has been co-editor of the MatAlum News, a responsibility she is now turning over to staff member, Xiaoli Zhao. “I will miss being co-editor the MS & E Department newsletter,” Andrea says, “because I personally know so many of the alumni, but I plan on staying in touch with all
department activities and achievements. After 28 years, the MS & E Department will always be home to me.”

Visiting Scientist Hassan M. Moawad received the third prize of the Best Poster awards at the 31st Int'l Conference on Advanced Ceramics and Composites for his poster “Fabrication of Nano-Macro Porous Soda-Lime Phosphosilicate Bioactive Glass by the Melt-Quench Method.”

**Student News**

Ryan Deacon received Graduate Student Merit Award by the Lehigh Alumni Association. The award recognizes a graduate student “who by exemplary character, personality, scholarship and participation in extracurricular activities, represents the highest traditions of Lehigh University.”

The following undergraduate awards were presented at the annual SMS spring picnic:

Lisa A. Sheaman—Allen S. Quier Award
Regina R. Du and Brian F. Gerard—Cyril John Osborn Award
Brittany L. Hamilton—Kahn Memorial Award
Mark J. McLean—Bradley Stoughton Student Award
Regina R. Du—Handwerk Prize
Joseph C. Sabol—Gilbert Doan Award
Sean C. Kelly—Harmer Prize

The following graduate students received awards at the International Ceramicographic Contest held at the Materials Science & Technology 2007 Conference and Exhibition:

Ram Tiruvalam, 1st Prize in TEM category
Animesh Kundu, 2nd Prize in combined techniques category and 3rd prize in SEM category
Shantanu Behera and Shen J. Dillon, 3rd Prize in the combined techniques category.

**MS&E Featured on PBS Show**

On October 8th, Lehigh was promi-

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