

## Self-healing, *continued from page 25*

fashion. With Sottos, White has helped direct the graduate work of Toohey, who is lead author on this particular research. White leads the Microvascular Autonomic Composites group of which this research is a central part. Other co-authors are Jennifer Lewis, the Thurnauer Professor of Materials Science and Engineering and interim director of the Frederick Seitz Materials Research Laboratory, and Jeffrey Moore, a William H. and Janet Lycan Professor of Chemistry and a researcher at the Frederick Seitz Materials Research Laboratory and Beckman Institute. White, Sottos and Moore co-invented self-healing plastic; Lewis and White pioneered direct ink writing of three-dimensional microvascular networks. The work was funded by the U.S. Air Force Office of Scientific Research and the Beckman Institute.

Media outlets that have featured the self-healing story include:

- The New York Times—Science Section
- Technology Review
- Xinhua News Agency
- exduco.net
- News-Medical.net
- Medical News Today
- PhysOrg.com
- California Computer News magazine
- CBC News
- Mobile Magazine
- Asian News International
- Biology News Net
- Chemistry World
- DailyIndia.com
- Innovations Report
- Science Daily
- ScientistLive.com
- Space.com
- NYTimes.com
- C&E News
- Science Friday by National Public Radio
- Champaign-Urbana News-Gazette

## Seoul National University honors alumnus Lee

**Prof. Ki D. Lee** has received the **Distinguished Alumnus Award** from Seoul National University.

Lee earned his bachelor's degree at the Korean university in 1967, then earned a master's and a PhD from the University of Illinois Aerospace Engineering Department in 1973 and 1976, respectively.

Lee teaches aerodynamics, computational fluid dynamics, and flight mechanics at both undergraduate and graduate levels, and is the director of the Computational Fluid Dynamics Laboratory. Lee's research activities have been in areas of aerodynamic design optimization, grid generation, and computational algorithm. His research projects include development of convergence acceleration methods, high-resolution algorithms for the Navier-Stokes equations, hypersonic flow analysis, transonic drag reduction, high-lift design at take-off and landing configurations, transonic turbomachinery design, multi-block grid generation for complex configurations, solution-adaptive grid generation, and grid-quality improvement.

### AIAA Reno Reception

*You are invited to attend a University of Illinois Alumni Reception at the 45th AIAA Aerospace Sciences Meeting and Exhibit on Monday, January 7, 2008, 6:00 to 8:00 p.m. at the Reno Hilton. The reception will be hosted by J. Craig Dutton, Head of the Department of Aerospace Engineering. At this time the hotel has not assigned a room to us.*

*For the exact location, check the announcement board next to the registration desk at the conference.*

*Questions? Contact Diane Jeffers, [dejeffer@uiuc.edu](mailto:dejeffer@uiuc.edu) or 217/244-8048.*

## FACULTY NEWS

### AE faculty chosen as recipients of the Engineering Council Award for Excellence in Advising

These AE faculty members were chosen as recipients of the Engineering Council Award for Excellence in Advising: **Rodney L. Burton, Victoria L. Coverstone, Eric Loth, John Prussing, and Scott White.** The award is given annually to recognize advisors who students deem as excellent. Each recipient was honored at the Accenture Outstanding Student and Faculty Awards dinner in April 2007.

### Senior project takes third in national competition

**Prof. Victoria Coverstone** led students in a senior design project that placed third at the 2006-2007 AIAA National Undergraduate Team Space Transportation Design Competition.

The Seraph Design Project dealt with transporting humans to Mars, making it possible for them to inhabit the planet's surface, and bringing them home by the year 2028. Student participants were Chung (Mike) Ngan (Team Leader), Rohan Rana, Brad Lyon, Elyse Montejano, Robert Werner, Rymant Urban and Ronald Tam.

### Bragg wins AIAA Aerodynamics Award for 2007

**Prof. Michael B. Bragg** has received the **American Institute of Aeronautics and Astronautics Aerodynamics Award** for 2007.

This award is presented for meritorious achievement in the field of applied aerodynamics, recognizing notable contributions in the development, application, and evaluation of aerodynamic concepts and methods. Bragg was cited "for pioneering research on the aerodynamic effects of ice accretion on aircraft and the aerodynamic phenomena responsible."

Bragg's two primary areas of research are aircraft icing and unsteady aerodynamics. Both of these areas involve the study of unsteady and highly separated fluid flows. Much of this research is conducted in the wind tunnels of the Aerodynamics Research Laboratory, which Bragg co-directs. The effect of ice accretion and other surface contaminants on the aerodynamic performance of aircraft has been a long-term interest



of Bragg's. His research has provided insight into the relationship between airfoil design and performance loss, the physics of iced airfoils and the detailed flow-field, proper simulation of iced airfoils, and aircraft in icing flight safety. His group has provided PIV and many other measurement techniques to explore the flowfields on iced airfoils and high-performance vehicles. Recently, Bragg and colleagues have developed the concept coined "smart icing systems" that can sense ice accretion including performance and control changes, modify the flight envelope, and, if necessary, adapt flight control in a method consistent with pilot-automation coordination.

Bragg has been involved in national and international technical activities. He is a past chair of the Society of Automotive Engineers Aircraft Icing Technology Committee and has served on four AIAA national technical committees including as chair of the Applied Aerodynamics Technical Committee. Bragg received the 1998 Losey Atmospheric Science Award from the AIAA for his research in aircraft icing and was named an AIAA Fellow in 2004. He has received the College of Engineering Research Award from Ohio State University and the Outstanding Recent Alumnus Award from the Aerospace Engineering (AE) Department at Illinois. Since 1980 NASA Glenn Research Center, the Federal Aviation Administration, and other federal agencies and companies have supported Bragg's research in aircraft icing. He is a consultant for several U.S. companies on matters concerning aircraft icing and serves on the FAA REDAC (Research, Engineering and Development Advisory Committee), the Board of Visitors to the Air Force Institute of Technology, and other advisory committees. Bragg teaches aerodynamics and flight mechanics and has received the AE Department's Teacher of the Year Award, been on the university's "Incomplete List of Teachers Rated as Excellent by Their Students," and in 2004 received the Stanley Pierce Award from the College of Engineering.

Currently Associate Dean for Research and Administrative Affairs in the College of Engineering, Bragg served as head of the AE Department at Illinois from 1999 until 2006. He joined the Department in 1981, after earning his PhD in Aeronautical and Astronautical Engineering from Ohio State University. He earned his bachelor's and master's degrees from AE at Illinois in 1976 and 1977, respectively.

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## FACULTY NEWS, CONTINUED

### Chasiotis receives ONR Young Investigator and Xerox Research Awards

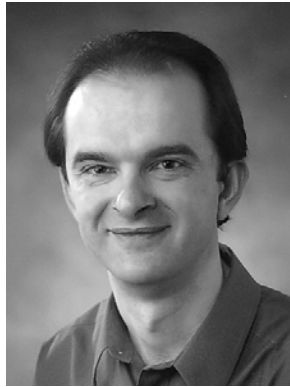
Prof. Ioannis Chasiotis has received the 2007 Office of Naval Research Young Investigator Program Award for his proposal "Continuous Carbon Nanofibers with Modulated Surface for Polymer Nanocomposites".

The ONR's Young Investigator Program seeks to identify and support academic scientists and engineers who have received Ph.D. or equivalent degrees within the last five years and who show exceptional promise for doing creative research. Only 24 Young Investigator Awards are given by ONR each year.

Chasiotis also is a 2007 recipient of the Xerox Awards for Faculty Research. He is among four assistant professors in the College of Engineering recognized for research accomplishments achieved within one year. Chasiotis was cited for his leadership and expertise in the field of scanning probe microscopy in experimental mechanics.

Chasiotis' research interests include experimental mechanics at the nanoscale; mechanical reliability, fracture, and fatigue of MicroElectroMechanical Systems (MEMS); NEMS and thin film electronic materials; failure mechanics of inhomogeneous/anisotropic materials; deformation and damage mechanics of polymer nanocomposites and soft nanophase materials; and applications of scanning probe microscopy in mechanics and biology.

Chasiotis came to the University of Illinois Aerospace Engineering Department in 2005 from the University of Virginia. He earned a diploma in chemical engineering from the Aristotle University of Thessaloniki in Greece, and a master's and PhD in aeronautics from the California Institute of Technology in 1998 and 2002, respectively.



### Conway wins Campus Teaching Award

Prof. Bruce Conway has received the 2007 Campus Award for Excellence in Undergraduate Teaching.

This award is the principal campus teaching award, and recipients are selected by their peers. The award recognizes faculty and graduate teaching assistants who display consistently excellent performance in the classroom, take innovative approaches to teaching, positively affect the lives of their students, and make other contributions to improved instruction, including influencing the curriculum. Only five awards are given to faculty on the UIUC campus annually.

Conway was recognized at the Celebration of Teaching Excellence on May 2, 2007. He was introduced by Aerospace Engineering Interim Department Head Rodney Burton, who used the quote, "The art of teaching is the art of assisting discovery," by poet Mark Van Doren, a University of Illinois graduate, and Pulitzer Prize winner, to describe Conway. Said Burton, Conway "not only 'assists discovery,' but also inspires it."

Conway has been a member of the Aerospace Engineering faculty for 27 years. His research interests are orbital mechanics, optimal control, and improved methods for the numerical solution of problems in optimization. Recent work is in the application of optimal control theory to determine optimal low-thrust trajectories for travel from Earth to Mars, from Earth to the Moon, and from Earth to intercept a dangerous asteroid. Another focus of research is the application of new numerical methods for the solution of "differential games" problems including optimization of fighter vs. fighter air combat. Two Ph.D. students are presently working with Prof. Conway on the development of evolutionary methods (especially genetic algorithms) for the solution of "hybrid" optimal control problems, which arise in space mission planning.

Conway earned a bachelor's of arts in physics in 1973 from Macalester College. He earned a masters in mechanics in 1974 from the University of Minnesota, and a PhD in aeronautics and astronautics in 1981 from Stanford University.



### **Elliott receives Collins Award**

**Prof. Greg Elliott** has received the 2007 **Collins Award for Innovative Teaching**.

The recipient of this award is selected for recognition on the basis of outstanding development and/or use of new and innovative teaching methods. This teaching award is made possible through the generous donations for W. Leighton Collins, former faculty member (1929-1965) and also former Executive Director of ASEE (1955-1971). Professor Collins was a pioneer and leader of ASEE and through his subsequent consulting has helped shape engineering instruction in the United States.

Elliott's research interests are thermal and fluid sciences, experimental techniques with an emphasis on laser-based diagnostic techniques, experimental supersonic and subsonic fluid mechanics, combustion, propulsion, thermal spray coating technologies, nanomaterial coatings and synthesis, aerodynamics, turbulence, acoustics, signal processing, engineering design and computational fluid dynamics.

Elliott came to the University of Illinois in 2003 from Rutgers University. He earned three degrees in mechanical engineering from The Ohio State University: a bachelor's in 1987, a master's in 1989 and a PhD in 1993.

### **Geubelle receives Pierce Faculty Award, best paper honor**

**Prof. Philippe Geubelle** has received the 2007 **Stanley H. Pierce Faculty Award** by the student Engineering Council Awards Committee.

This award is given in memory of Stanley H. Pierce who served as an associate dean of the College of Engineering and is given annually to a faculty member who is selected as having done the most to develop empathetic student-faculty cooperation.

In addition to the Pierce Award, Geubelle and his colleagues also have been recognized as the authors of the best fatigue and fracture paper published in the



*Journal of Engineering Materials and Technology* between July 2006 and June 2007.

The paper, "Continuum and Molecular-Level Modeling of Fatigue Crack Retardation in Self-Healing Polymers," was co-written by Spandan Maiti, Chandrashekar Shankar and John Kieffer. It appeared in the journal's October 2006 issue.

Geubelle has been a faculty member in the Aerospace Engineering Department since 1995. He has served as the department's chief undergraduate since May, and is Director of the Illinois Space Grant Consortium.

Geubelle's research interests are theoretical and computational solid mechanics, (dynamic) fracture mechanics, multiscale modeling of complex materials, computational aeroelasticity, massively parallel computing, solid mechanics issues in manufacturing, and computational design of novel (autonomic) materials.

### **John Lambros promoted to full professor, earns Xerox research award**

**John Lambros**, Aerospace Engineering faculty member since 2000, was promoted from associate professor to full professor effective August 16.

Lambros also earlier was a 2007 recipient of the **Xerox Awards for Faculty Research**. He was among four associate professors recognized in the College of Engineering for research accomplishments achieved within five years.

Lambros was cited for his excellent record of accomplishments in research in the area of experimental applied mechanics, and in particular, in the characterization of material response under static and dynamics loading.

Lambros' research areas are development of fracture criteria for dynamic and quasi-static crack initiation and propagation in multiphase systems; supersonic crack growth; quasi-static and dynamic fracture of Functionally Graded Materials (FGMs); investigation of dynamic fracture, failure and wave propagation in composite materials; dynamic constitutive response of advanced materials (ceramics, composites, FGMs and amorphous metals); thermo-mechanical fatigue of advanced aerospace structures; and microscale and nanoscale digital image metrology techniques.

Lambros came to the U of I AE Department from the Mechanical Engineering Department at the



## FACULTY NEWS, CONTINUED

University of Delaware. Working under the direction of Prof. Ares J. Rosakis, Lambros earned from the California Institute of Technology a master's degree in aeronautics in 1989 and a doctorate in material science in 1994. He earned a bachelor's in aeronautical engineering from the Imperial College of Science and Technology at the University of London.

Among his honors, Lambros was selected as 2005 Teacher of the Year for the local student chapter of the American Institute of Aeronautics and Astronautics, and was named to the 2005 Outstanding Advisors List

*Written by Susan Mumm*

*Posted on August 1, 2007*

### Neogi featured in TV spot about air traffic

WCIA-TV based in Champaign, Illinois, interviewed AE Assistant Prof. Natasha Neogi in October about research aimed at solving delays travelers experience with air transportation.

Using model airplanes to simulate air traffic, Neogi's research indicates that delays would be decreased if air traffic management depended less on the centralized view of air traffic controllers and more on the decisions of individual pilots.

On faculty with AE since 2002, Neogi focuses her work on systems and control. She holds a bachelor's in mechanical engineering from McGill University (1996) and a bachelor's and master's in physics from Cambridge University (1998). She earned a master's and PhD in aeronautics and astronautics from Massachusetts Institute of Technology (1999 and 2002, respectively).

### Wayne Solomon elected AIAA Fellow

**Emeritus Prof. Wayne Solomon** has been elected **Fellow** of the American Institute of Aeronautics and Astronautics.

AIAA and its Board of Directors bestows the distinction of Fellow to members who have made notable and valuable contributions to the arts, sciences, or technology thereof in aeronautics or astronautics.

Solomon came to the University of Illinois as Head of Aerospace Engineering in 1988, and served in that capacity until 1999. Prior to joining the AE faculty he had worked 15 years in industry for Bell Aerospace Textron in New York, and, before that, had worked for the Air Force Astronautics Laboratory at Edwards Air Force Base in California.

Solomon's research is broad-based and covers several aspects of propulsion and non-equilibrium flow as well as the research with high energy lasers. He earned his bachelor's degree in chemistry at the University of Idaho in 1956, and his PhD in chemis-

try at the University of Oregon in 1963. Among his honors are the 1995 Outstanding Alumni Award from the University of Oregon, and the Silver and Gold Award from the University of Idaho.

He and other AIAA Fellow recipients were honored at the 2007 AIAA Fellows Dinner in May.

### AE Faculty Ranked as Excellent by Their Students

These AE faculty members were among those on the University's Incomplete List of Teachers Ranked as Excellent by Their Students:

**Spring 2006:** Bruce A. Conway, Gregory S. Elliott, Philippe H. Geubelle, Thomas L. Jackson, John E. Prussing.

**Fall 2006:** Bruce A. Conway, Gregory S. Elliott, John Lambros, John E. Prussing, Scott R. White.

**Spring 2007:** Daniel J. Bodony, Bruce A. Conway, Gregory S. Elliott, Philippe H. Geubelle, Natasha Neogi, John E. Prussing.

### White named Centennial Fellow at Penn State

**Prof. Scott White** has been named **Centennial Fellow** in the Department of Engineering Science and Mechanics at Penn State University.

The unique award of Centennial Fellow recognizes a select group of alumni who lead in disciplines and professions in Engineering in this year. The Centennial Fellows provide a benchmark of excellence as the Department enters its second century. They are an exclusive group of alumni representing academia, the corporate and private sectors, and government.

Professor White received his Ph.D. in Engineering Mechanics from Penn State in 1990. He earned a bachelor's (1985, University of Missouri-Rolla) and master's degree (1987, Washington University) in mechanical engineering.

Research in White's labs is directed toward the creation of new materials systems that exhibit autonomy—the ability to achieve adaptation and response in an independent and automatic fashion. The research is concerned with the synthetic reproduction of autonomic biological functions, achieved through the creation and integration of complex materials systems. Two main thrusts of the research are materials with self-generating function and materials with

