

Way to the Future

Scott White Invested as Aerospace Engineering's First Willett Professor

Over 100 faculty colleagues, family, and current and former students gathered at the Beckman Institute auditorium on April 7 to witness Scott White invested as Aerospace Engineering's first Donald Biggar Willett Professor. "I'm extremely honored to get this professorship," he said. "I'm glad to see that Aerospace Engineering now has a named professorship, and I hope that it's the first of many."

The award is named for Donald Biggar Willett (1897-1981), who attended the University of Illinois from 1916 to 1922. Willett left the University just shy of earning a bachelor's degree in civil engineering. He died in 1981. His wife, Elizabeth Marie Henning Willett, was an avid investor who accumulated a fortune. She knew that her husband admired the College of Engineering for its thriftiness and honesty so in his memory, she left the college a



Scott White with the medallion that signifies his status as a Willett Professor.

continued on page 10

Breaking News...

Aerospace Engineering's own **Mike Bragg** ('76, MS '77) is the new Associate Dean for Research and Administrative Affairs at the College of Engineering. He assumed his new position on November 1, 2006. "This was a very difficult decision and not one that came easily. ... We have accomplished much together in the almost eight years I have been privileged to serve as head. I am particularly proud of the outstanding team of faculty and staff we have put together to continue to move the department forward." The college-level position became vacant when Prof. Myron Salamon retired from the University in September. Rod Burton will act as interim head while the search for a new department head is conducted. **Victoria Coverstone** ('85, MS '86, PhD '92) was named associate department head.

Inside

From the Department Head	2
AE Recognizes Director of Next-Generation Missile Warning System	3
Aerospace Engineering Welcomes Three New Faculty.....	6
Illinois Students Host National Space Conference	8
New Lab Is Home to Students on Engineering Team Projects.....	8
AE Space Design Projects Win Big.....	11
Class Notes	12
In Memoriam	16
Faculty News	17
Greetings from Your Alumni Board President.....	19
Donors to Aerospace Engineering for 2005.....	20

Alumnus, Stardust, Win Aviation Week Award

The *Stardust* mission, which sent a spacecraft 2.8 billion miles over 7 years to rendezvous with a comet, was honored with *Aviation Week & Space Technology's* 2006 Program Excellence Award. The other finalist was Lockheed Martin's ATLAS

continued on page 9

Department of Aerospace Engineering

Department Head

Michael B. Bragg (through October 31)

Interim Head

Rodney L. Burton (from November 1)

Associate Department Head

Victoria Coverstone

Professors

Lawrence A. Bergman

Michael B. Bragg

Bruce A. Conway

Victoria L. Coverstone

Philippe H. Geubelle

Ki Dong Lee

Eric Loth

N. Sri Namachchivaya

John E. Prussing

Petros G. Voulgaris

Scott R. White

Associate Professors

Gregory S. Elliott

Jonathan Freund

John Lambros

Michael S. Selig

Assistant Professors

Joanna M. Austin

Daniel Bodony

Timothy Bretl

Ioannis Chasiotis

Cedric Langbort

Natasha Neogi

Emeriti

Charles Bond

John D. Buckmaster

Harry H. Hilton

Allen Ormsbee

Lee H. Sentman

Kenneth R. Sivier

Wayne C. Solomon

Shee-Mang Yen

Adam R. Zak

Administrative Staff

Lori Ballinger

Kathy Gray

Amy Hedrick

Diane E. Jeffers, coordinator of
external relations

Barbara Kirts

Kendra Lindsey

Gregory Parks

Angie Pitard

Staci Tankersley

Alison Fong Weingartner, writer/editor

Machine Shop

Kurt Elam

David Foley

Greg Milner

From the Department Head

This has been an exciting year at Illinois and in the department, with many changes. Prof. John Buckmaster retired last spring after 31 years with the University of Illinois, 21 of them with the department. John is one of the world's leading experts in combustion, and while he is still around the department and active in research, he will be missed. However, we have recently added three new assistant professors in the department. Cedric Langbort and Tim Bretl have joined the department to help build an aerospace information technology group. They join Natasha Neogi and Petros Voulgaris in this important new area in the department.

Cedric joins us after a PhD in Cornell and a post doc at Cal Tech. Tim received his PhD and was a post doc at Stanford before joining us in the fall. We are also pleased to have Dan Bodony join the faculty this fall. Dan also completed his PhD at Stanford and brings his expertise in computational fluid dynamics and aeroacoustics (*see related story in this issue*).

We also have many, very impressive award winners. Prof. Scott White was invested as the Willett Professor in Aerospace Engineering last spring. Endowed professorships enable us to recognize and reward the very best faculty and Scott is definitely in this group. Scott is best known for his research in self-healing composite materials and now leads the research thrust on campus in autonomic materials. We are very proud of Scott and his achievements. Also last spring, the college awarded Burt Rutan an honorary degree during the annual spring graduation convocation, upon the recommendation of the department. It was exciting for the students and faculty to interact with Burt and learn more about his SpaceShipOne and efforts to develop commercial space flight. Mark Crowley, vice president and director of the Space-Based Infrared System Program (SBIRS) for Lockheed, was one of the alumni winners at our annual Aerospace Awards dinner, where we also recognized many outstanding students and faculty for their many accomplishments throughout the year. It is always inspiring to have someone like Mark back on campus while we acknowledge the next generation of aerospace leaders in our own students.

On campus, we have been busy in the strategic planning process with plans developed for the University, campus, college, and departments. We have several new initiatives in Aerospace Engineering, from exciting new research programs in informatics, energy, and the environment, to new educational programs like the proposed MS degree in Aerospace Systems Engineering.

And one last change: on November 1, I stepped down as Head of Aerospace Engineering to take the position of Associate Dean for Research and Administrative Affairs in the College of Engineering. I will still continue faculty duties in Aerospace Engineering, but my administrative time will be spent in this new role. I look forward to this new challenge and will be available to continue to support Aerospace Engineering as it continues to move forward.



Mike Bragg



The University of Illinois at Urbana-Champaign is an equal opportunity, affirmative action institution.

Aerospace Engineering Recognizes Director of Next-Generation Missile Warning System

What: Department of Aerospace Engineering's annual awards banquet

When: April 27, 2006

Where: Illini Union, Urbana-Champaign campus of University of Illinois

Distinguished Alumnus Award

"It's great to have an opportunity to come back to where I did my undergraduate degree," said **Mark Crowley** ('83), when he was called to the podium to accept his award as a distinguished alumnus of the department. The next day, Crowley delivered the department's 2006 Stillwell Memorial Lecture on systems engineering in the context of an aerospace engineering degree.

Crowley is the vice president and director of the Space-Based Infrared System Program (SBIRS) for Lockheed Martin Corporation in Sunnyvale, California. This program will become the nation's next-generation missile warning system, which will also provide expanded capabilities for intelligence, surveillance, and reconnaissance missions. "When fully operational, SBIRS High will comprise two payloads in highly elliptical orbit, four satellites in geosynchronous orbit, as well as fixed and mobile ground-based assets to receive and process the infrared data," he said.

Before he assumed his current duties, Crowley was the vice president of Program, Subcontract and Product Management for Lockheed Martin Space Systems Company, and before that, vice president of Technical Operations. Crowley has over 22 years of technical and program management experience in spacecraft and missile and re-entry vehicle systems. He began his engineering career at General Electric; then at GE/Martin Marietta Astro Space, he led the design and development efforts for planetary entry probes, endo- and exo-atmospheric guided projectiles, and Earth remote-sensing spacecraft.

In addition to his bachelor's degree from Aerospace Engineering, Crowley holds a master's degree in mechanical engineering from Drexel University and earned a master's in management from Stanford University's Sloan Program. He is a graduate of the GE Edison Engineering Program. Crowley also serves on AE's alumni advisory board.

Outstanding Recent Alumnus Award

None awarded this year.



Photos by Harry Zanotti

Department Head Mike Bragg congratulates Mark Crowley as AE's Distinguished Alumnus for 2006.

H.S. Stillwell Memorial Award

Bradley DeBlauw of Rockford, Illinois, was recognized for his outstanding scholastic achievement and extra-curricular activities with this award. He also received one of the evening's two AIAA Scholastic Achievement Awards, recognizing him as "one of the top two seniors in Aerospace Engineering," according to Prof. Victoria Coverstone. DeBlauw hopes to find a job that will focus on space access systems when he graduates.

To that end, he has sought relevant experience in addition to his coursework. He coordinated work on



Brad DeBlauw receives the Stillwell Award from Prof. Victoria Coverstone.

Awards, *continued from page 3*

the attitude control system of ION (Illinois Observing Nanosatellite), the University of Illinois' first-ever, student-designed satellite and helped the mechanical team to mount its hardware. He received a grant from the Illinois Space Grant Consortium and Lockheed Martin to design a 5" x 5" Mach 4.2 wind tunnel as part of an undergraduate research initiative. During semester breaks, he worked as an engineering intern for Hamilton Sundstrand in Rockford and ATK Thiokol in Promontory, Utah.

DeBlauw serves as the chair of the department's Undergraduate Advisory Board; in his junior year, he was the board's class liaison between students and faculty members. At Rock Valley College in Rockford, he was the vice president of scholarship for his chapter of Phi Theta Kappa, the international honor society of the two-year college. He was instrumental in leading his chapter to international recognition as one of the top 25 in scholarship.

He has received the College of Engineering's Pierce Award for developing empathetic student-faculty relationships and the Accenture Outstanding Student Award. He is also a James Scholar, a UI honors program that encourages and recognizes outstanding academic students.

Robert M. McCloy Memorial Award

Vedran Coralic of Urbana received the McCloy Award, recognizing him for outstanding academic performance. It is an achievement of note because he and his parents left Bosnia and Herzegovina only eight years ago and settled in Urbana, where Coralic attended Urbana High School.

Space and anything related to it was always a big draw for Coralic. Initially, he wanted to study astro-

physics but realized that he also wanted the hands-on aspect that an engineering education would provide, which eventually led him to study aerospace engineering.

In his first year as an undergraduate, Coralic worked as a research assistant in Civil and Environmental Engineering on the effect of aerosols in the global environment. In summer 2005, he participated in the Illinois Space Grant Consortium's Undergraduate Research Opportunity Program (UROP), where he and two others worked to acquire knowledge on modeling and dynamics of motor proteins.

In January 2006, he also began working with the Shock Tube and High Pressure Combustion Laboratory in the Department of Mechanical Engineering. There, he helps with laboratory setup and contributes to drafting and constructing new setups for studying the underwater behavior of shaped charges.

Out of class, Coralic is involved with Tau Beta Pi, the engineering honor society, as its chair for the Engineering Open House and the society's cataloguer and historian. He is the Engineering Council representative to Sigma Gamma Tau, the aerospace honor society. He is a James Scholar and has been on the Dean's List since 2003.

Roger A. Strehlow Memorial Award

A little over a decade ago in India, **Rajeev Kumar Jaiman** was being recognized by the governor of the state of Rajasthan with a high school merit award. Fast forward to April 2006, and Jaiman is being recognized by the Department of Aerospace Engineering for his outstanding research accomplishments. "He has a real passion for his work," said his advisor, Philippe Geubelle. "I act as the go-between between



Prof. John Prussing presents the McCloy Award to Vedran Coralic.



Rajeev Jaiman shows his Strehlow Award plaque to Mrs. Jo Lee Stillwell, whose husband founded the department in 1944.



Guests sit down to dinner at the Illini Union. In the foreground are plaques awaiting their recipients.

Rajeev and Eric Loth (Jaiman’s other advisor) in arguments.” Jaiman’s enthusiasm for research has produced two peer-reviewed papers; he has another paper in press, and a fourth in preparation. “Rajeev has been working on a method to couple fluid and structure solvers for aeroelastic simulations that allows a very accurate and conservative transfer of the loads along the interface between fluid and structure domains,” said Geubelle. “This method provides results that are orders of magnitude more accurate than the load transfer schemes used in the computational aeroelasticity community.”

In 2000, Jaiman received a Bachelor of Technology degree in Aerospace Engineering from the Indian Institute of Technology in Mumbai. After graduation, he worked as a research assistant for several months for the Center for Development of Advanced Computing in India. He also spent several months working as a computational fluid dynamics engineer with Analytic and Computational Research, Inc. in Bangalore.

In 2004, he worked as a research consultant for the American Bureau of Shipping in Houston, Texas. He also interned one summer with General Electric’s Global Research Center in Niskayuna, New York.

Jaiman’s other research experience included working for two years (2001–2002) on a detailed computational analysis and validation of a flow control concept to regulate shock-wave/boundary-layer interaction in supersonic inlets. From January 2003 onwards, he worked on the development and analysis of stabilized and accurate coupling algorithms for fluid-structure interaction using non-matching meshes in the Center for Simulation of Advanced Rockets.

He has achieved a perfect 4.0 GPA as he nears completion of his PhD in aerospace engineering, with a minor in computational science and engineering. Jaiman hopes to join a research and development laboratory that will focus on computational

continued on page 23



Chung “Mike” Ngan

Chung “Mike” Ngan is recognized with the Margerum Award for his extracurricular leadership activities. The presenter is Prof. Ki Dong Lee.



Jasmin Coralic and Mira Damjanovic look at the picture they had just taken of their son, Vedran, accepting the McCloy Award.