greatEXPECTATIONS

Contribute to the department through the University of Maryland's *Great Expectations* campaign and support our mission to transform lives through exceptional educational and research opportunities. Your contributions can support bioengineering initiatives such as graduate fellowships, undergraduate scholarships, and named professorships. Please visit www.greatexpectations.umd.edu to learn more.

Gifts may be made by check to "University of Maryland College Park Foundation (UMCPF)." Please designate "The Department of Aerospace Engineering" in the memo line, and mail to:

Darryll J. Pines, Professor and Chair
Department of Aerospace Engineering
3181 Martin Hall
University of Maryland
College Park, MD 20742

You can help make a difference with a gift of any amount!

AEROCONTACT is published for alumni and friends of Department of Aerospace Engineering at the A. James Clark School of Engineering, University of Maryland.

Your alumni news and comments are welcome. Please send them to: Allison Ernst, Communications Coordinator, Department of Aerospace Engineering, 3158B Martin Hall, College Park, MD, 20742. Visit our web site at: http://www.aero.umd.edu

Department Chair: Dr. Darryll J. Pines
Communications Coordinator:
Allison R. Ernst

AEROSPACE QUICK FACTS

Undergraduate Students = 335
M.S. Students = 51
Ph.D. Students = 82

Average SAT of Entering Undergraduate Students = 1300

Average GPA of Entering Undergraduate Students = 3.74/3.93

Average GRE Score of Entering Graduate Students = 2076

Average GPA of Entering Graduate Students = 3.7

DEGREES AWARDED (06/07)

70 B.S.
47 M.S.
9 Ph.D.

U.S. NEWS RANKINGS (PUBLIC INSTITUTIONS)

5th in the Nation (Undergraduate)
6th in the Nation (Graduate)

A. JAMES CLARK
SCHOOL OF ENGINEERING

The Department of Aerospace Engineering
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FALL / WINTER

AEROCONTACT

AEROSPACE ENGINEERING
A. JAMES CLARK SCHOOL *of* ENGINEERING

www.aero.umd.edu

A NEWSLETTER FOR ALUMNI AND FRIENDS OF THE DEPARTMENT OF AEROSPACE ENGINEERING AT THE A. JAMES CLARK SCHOOL OF ENGINEERING, UNIVERSITY OF MARYLAND, COLLEGE PARK.

IN THIS ISSUE:

UMD Selected as Lead for NASA's Constellation University Institutes Project (CUIP)

The National Aeronautics and Space Administration (NASA) has renewed a research agreement worth $22.8 million over three to five years that involves 20 universities, including the University of Maryland as the Lead Institution. The project will be led by the Clark School's Darryll Pines, professor and chair of the Department of Aerospace Engineering. The renewal program follows the highly successful NASA URETI program spearheaded by Professor Mark J. Lewis, who is now on leave of absence from the University serving as Chief Scientist of the USAF. Pines will serve as the principal investigator for the Constellation University Institute Project, which will develop technologies and analysis methods for future human space exploration. "The project supports NASA's long-term interest in space exploration," Pines said.

In addition to administering the project, the Clark School has several faculty members involved in the research, specifically in the areas of:

- propulsion and combustion (Aerospace Engineering Associate Professors Kenneth Yu, Christopher Cadou and Andre Marshall [joint appointment with fire protection engineering]).

- vehicle integrated structural health monitoring (Pines)

- and vehicle design for re-entry (Aerospace Engineering Professor Mark Lewis and Visiting Professor Robert Korkegi).

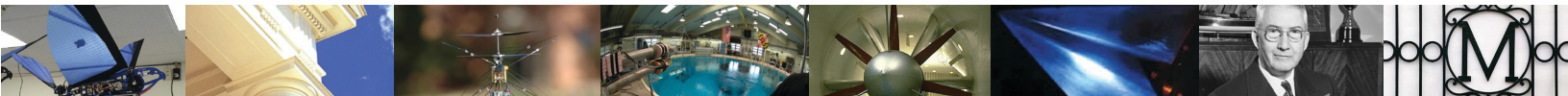
IMAGE COURTESY OF NASA

In the first five years of the project, Clark School faculty Arnaud Trouve (fire protection engineering), Ashwani S. Gupta (mechanical engineering), Norman Wereley (aerospace engineering), and Carol Smidts (mechanical engineering) also participated. The project is managed out of the NASA Glenn Research Center under the supervision and direction of program managers Claudia Meyer and Jeff Rybak.

Darryll Pines takes over administration of the project for Mark Lewis. In the renewal of the project, the Clark School competed against the University of Florida for the leadership role.

"It's a unique honor to be able to lead 19 outstanding universities and support NASA research vision for the Constellation program," said Pines.

Aerospace Engineering is extremely grateful to the gracious cost share support from the College, the Office of the Vice President of Research, Mel Bernstein, Michelle Eastman and Ken Gertz, and for all of the outstanding support from Monique Anderson, Barbara O'Malley, and Evan Creerie in ORAA.



chair's MESSAGE

Dear Alumni and Friends,

Welcome to the Fall/Winter 2007 issue of our AEROCONTACT newsletter. Wow, it has been an exhilarating and exciting first year as your department chair. During my first-year we have accomplished a great deal as a department. Let me attempt to highlight several notable accomplishments that you can read about in more detail as you peruse this newsletter.

PINES & SHEIKH

Our department is growing by leaps and bounds. We have hired two dynamic and exciting new Assistant Professors to help strengthen our space systems and dynamics and control areas this past year. Dr. Raymond Sedwick earned his doctoral degree from MIT and spent considerable time as a postdoctoral researcher working with Professor Dave Miller. Ray's research interests include space power and propulsion. Dr. Derek Paley earned his doctoral degree from Princeton University and is an expert in collaborative autonomous vehicle control. Derek also has a passion for undergraduate education in the area of dynamics and control. We have also added two excellent new staff members to the department. They are Ms. Allison Ernst (Communications Coordinator); and Ms. Laurie Brown (Program Specialist). These two new staff members will contribute greatly to the future success of the department's programs.

Speaking of the department programs, we continue to attract outstanding students to both our undergraduate and graduate programs. For example, this fall's freshman class had an entering weighted GPA of 4.1 and an average combined SAT (Math/Verbal) score of 1300. Similarly, this fall's entering graduate student class had average combined (Quant./Verbal/Analytical) GRE score of 2100 with an average GPA of 3.7. The US News and World report consistently ranks our aerospace engineering undergraduate (5th) and graduate (6th) programs among the top 10 public universities in the nation. Our undergraduate and graduate students continue to win awards. This past spring semester at the AIAA Regional Conference held at NIA in Langley, VA, one of our undergraduate students (Nicholas Yerkes) placed 1st and two (Emil Superfin, David Billingsley) tied for 3rd place overall. In addition, one of our graduate students (Sarah Haack) won 2nd place overall in the graduate competition.

Our undergraduate students continue to seek opportunities to enhance their undergraduate experience by studying abroad (Australia, Spain, France), participating in Engineers Without Borders (EWB), competing in national or international design competitions. For example, in terms of national and international design competitions, our students entered the following competitions:

-NASA RASCAL Competition (2nd Place)
-MAV Design Competition (no entry)
-SAMPE Structures Competition (3rd Place)
-AUVSI Autonomous Underwater Vehicle (13th Place and best new entry out of 26)
-AIAA Design, Build and Fly (23rd Place out of 55 teams)
-International Solar House Competition on National Mall in Washington, DC (2nd Place Overall)

Thus, we will continue to emphasize experiential learning opportunities for our students to enhance their education during their four-year stay at Maryland.

At the faculty level, there were several notable achievements including, Dr. J. Gordon Leishman being selected as a Technical Fellow of AHS along with Dr. Mark Tischler a former graduate student of Dr. Jewel Barlow. Both Drs. Leishman and Tischler will be recognized at the Annual AHS Forum in Montreal, Canada in 2008. Dr. Mark Lewis was awarded the prestigious *Aviation Week and Space Technology* Laureate Award in Aeronautics/Propulsion. Dr. Alison Flatau was awarded Fellow status of ASME based on her contributions to the fields of aerospace and mechanical engineering. Dr. Chris Cadou was named an Associate Fellow of AIAA and will be recognized at the AIAA Aerospace Sciences Conference in Reno, NV in January 2008.

Several of our alumni were recognized for their contributions to the aerospace field including current NASA Administrator, Dr. Mike Griffin (PhD '77), who received the University of Maryland's "President's Award," and Greg Sullivan (BS '81) who was awarded the NASA "Distinguished Public Service Medal". In addition, Professor Farhan Ghandi (MS '89, PhD, '92), of Penn State University, was recently recognized for an innovative telescopic rotor design in the *Popular Science Magazine*.

In terms of research, the department was successful in securing several notable research grants. One of the most significant accomplishments is that the Department, thanks to the work of Ken Yu, Andre Marshall, Ryan Starkey (Now at University of Colorado), and Mark Lewis (former PI), was able to win a renewal award from NASA Glenn Research Center in support of the Constellation University Institutes Project (CUIP). The significance of this renewal award is that it involves 19 subcontractor partner universities funded at a level of $22.8M over the next 3 years. We are quite delighted about leading 19 outstanding partner academic institutions to develop future technologies that enable human spaceflight to the moon and someday to mars.

In addition the department was awarded three NASA NRAs in the past year. Several department faculty including Professors Chopra, Humbert, Leishman, Celi, Baeder, Wereley, and Hubbard, worked together to submit a competitive proposal to the Army CTA program on "Microsystem Mechanics" research. The department partnered with Harvard, Berkeley and CalTech and is anxiously awaiting a final decision on the possibility of funding from NASA.

The Space Systems Laboratory, under the tutelage of Dr. Dave Akin, has received notification that the Institute for Dextrous Space Robotics will receive second year follow-on funding. Dr. James Baeder was awarded a DARPA Phase I award on Helicopter Quieting

which includes Dr. Frederic Schmitz and Dr. Inderjit Chopra as co-investigators. Dr. James Hubbard was also successful in receiving follow-on DARPA funding for his Skywalker research.

This fall the Department will hold two big events: (1) The Academy of Distinguished Alumni Induction Ceremony (Saturday, November 3, 2007) ; and (2) The 25th Anniversary Silver Jubilee celebrating the creation of the Alfred Gessow Rotorcraft Center (AGRC), Friday, November 30, 2007. In the first event we will recognize the accomplishments of five individuals to the field of aerospace engineering. At the second event we will honor and celebrate the contributions of our students and faculty in the field of rotorcraft over the past 25 years. I hope to share with you the highlights of these two events in our Spring 2008 newsletter.

Finally, to adapt to the fundamental research and education challenges associated with aerospace engineering in the 21st Century, the department has launched a strategic planning process to develop a roadmap for the next five to ten years. Towards this goal, the department convened a retreat in August to discuss many aspects of its undergraduate, graduate, and research programs. We hope to finalize our strategic plan and move forward on making our department one of the best in the world. As alumni and friends of the department you can help us achieve our goals through your generous donations to the department. This can be accomplished online at http://www.aero.umd.edu/alumni/giving.html.

I hope you will enjoy reading this issue of our newsletter, and please do not hesitate to get in contact with me about anything that might be of interest to you. If you are in town or nearby, drop in and say hello. We always enjoy finding out how our alumni and friends are doing.

Yours truly,
Darryll J. Pines, Professor and Chair

2006 BURKA AWARD

The 2006 Burka Award was presented to Dr. Darryll J. Pines and Dr. Suneel I. Sheikh (PhD '05) on April 24, 2007 at the Institute of Naviagation's (ION) 63rd annual meeting in Cambridge, MA during the annual awards banquet. Pines and Sheikh were recognized for their outstanding achievement in the preparation of a paper contributing to the advancement of navigation and space guidance.

"Recursive Estimation of Spacecraft Position and Velocity Using X-Ray Pulsar Time of Arrival Measurements," published in the Fall 2006 issue of NAVIGATION, *The Journal of The Institute of Navigation*, Vol. 53, No. 3, p. 149.

Dr. Sheikh is the CEO and chief research scientist of ASTER Labs, Inc. His doctoral research investigated the use of X-ray pulsars for spacecraft navigation. The research included cataloguing sources with characteristics conducive to navigation, deriving navigation algorithms based upon the pulsed radiation, and developing software to demonstrate the performance capabilities of a pulsar-based navigation system. Before receiving his doctorate, Dr. Sheikh worked for nearly ten years in the aerospace industry, first for Martin Marietta Corp. in its Titan IV launch group in vehicle guidance analysis, and later as a scientist at the Honeywell Technology Center in Minneapolis. Dr. Sheikh earned his Ph.D. from the University of Maryland and his M.S. in aeronautics and astronautics from Stanford University. He has bachelors degrees in aerospace engineering and mechanics and in mathematics from the University of Minnesota.

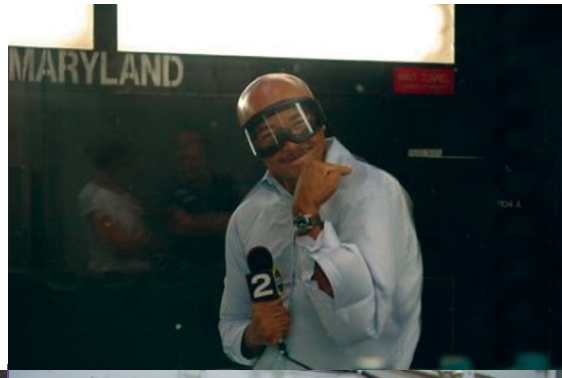
GLENN L. MARTIN WIND TUNNEL NEWS COVERAGE

In the latter part of August, regional reporters were able stand in the University of Maryland's Glenn L. Martin Wind Tunnel to report a simulation of being caught in the eye of a storm.

The Glenn L. Martin Wind Tunnel, in the University of Maryland's A. James Clark School of Engineering, is one of the busiest wind tunnels in the country and is booked months in advance for research activity.

Media Day is held every year typically during the height of hurricane season. Organized by University Relations, the event was held on August 24 this year.

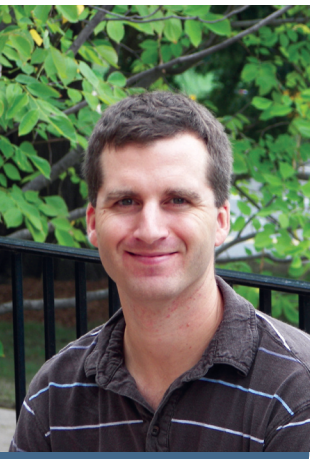
GLMWT Director, Dr. Jewel Barlow, his staff, faculty and graduate students from the department of meteorology, were on hand to discuss hurricanes and the wind tunnel itself.



MEDIA DAY AT G.L. MARTIN WIND TUNNEL

facultyNEWS

NEW FACULTY MEMBERS AND RESEARCH



DR. DEREK PALEY

PALEY JOINS FACULTY

Dr. Derek A. Paley is an assistant professor in the Department of Aerospace Engineering. He received the B.S. degree in applied physics from Yale University in 1997. From 1997 to 2000, he worked as an analyst in the defense industry for Metron, Inc. in Reston, VA, and, from 2000 to 2002, he worked as a software engineer in the autonomous underwater vehicle industry for Bluefin Robotics Corp. in Cambridge, MA. He received the M.A. and Ph.D. degrees in mechanical and aerospace engineering from Princeton University in 2004 and 2007. His teaching and research interests include nonlinear dynamics and control, cooperative control of autonomous vehicles, adaptive sampling with mobile sensor networks, autonomous underwater vehicles, and spatial models of biological collectives.

DR. RAY SEDWICK

SEDWICK JOINS FACULTY

Dr. Ray Sedwick is an assistant professor in the Aerospace Engineering Department and comes from the MIT Department of Aeronautics and Astronautics where he was the Associate Director of the MIT Space Systems Laboratory. Sedwick also obtained his SM and PhD at MIT. His research interests include space power and propulsion, and specifically the application of nuclear fission and fusion to space transportation. Dr. Sedwick will teach classes on space propulsion at both the undergraduate and graduate levels in the Aerospace Department.

Dr. Ray Sedwick, was awarded the first Bepi Colombo Prize in 2006 for individual research at Penn State University. The 50,000 euro prize is sponsored by a consortium of Italian regional, civic, scientific and educational organizations in honor of the late Giuseppe Colombo.

Colombo was known for his work in new concepts concerning space transportation, large space structures and evolution of space technology for space sciences and applications. Sedwick's prize was for his research on electromagnetic formation flight.

LEISHMAN: PUBLICATION AND AHS AWARD

Professor J. Gordon Leishman, Minta Martin professor of aerospace engineering, has authored the book "The Helicopter: Thinking Forward, Looking Back." This book opens an invigorating discussion of technical problems influencing the performance of the helicopter, and provides a unique perspective into future challenges and new opportunities in realizing its full performance.

Dr. Leishman is a former aerodynamicist at Westland Helicopters. He has written extensively on topics in helicopter aerodynamics and helicopter technology. He is also the author of the book "*Principles of Helicopter Aerodynamics.*"

Professor Leishman was also named a 2007 Technical Fellow of the American Helicopter Society. An AHS Technical Fellow receives this honor based on their career-based accomplishments towards the goals and objectives of the vertical flight industry constitute an outstanding technical achievement.

DR. SEAN HUMBERT

HUMBERT: AWARDS AND MURI GRANT

Dr. Sean Humbert, Assistant Professor in aerospace engineering, has been awarded a Department of Defense grant under the DoD Multi-disciplinary University Research Initiative (MURI) program as part of a research team including the University of Michigan (lead) and the University of Florida. The program seeks to develop the fundamental scientific foundation necessary to enable agile, autonomous MAV flight operations in an urban environment. The grant will provide the team with $3.5 million for five years. A portion of the funding will be overseen by Dr. Humbert to study biologically-inspired flight for micro air vehicles.

Dr. Humbert has also been awarded a DARPA grant, titled "Insect-Inspired Autonomous Guidance, Navigation, and Control Using Infrared Imagery". He and the students in the Autonomous Vehicle Laboratory will develop a compact avionics package for micro-air vehicles that enables autonomous operation under conditions of degraded visibility, where the presence of obscurants (smoke, dust, low light, and darkness) reduces the performance and reliability of standard visual sensors.

DR. JAMES BAEDER

BAEDER: DEPARTMENT OF DEFENSE GRANT

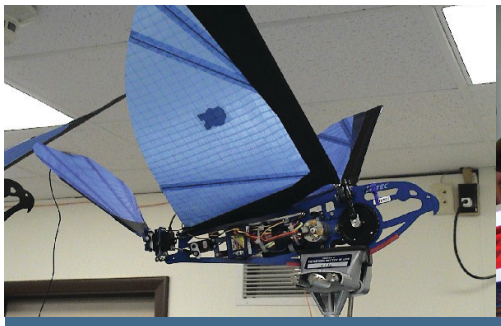
Associate Professor of aerospace engineering, James Baeder, received a grant from the

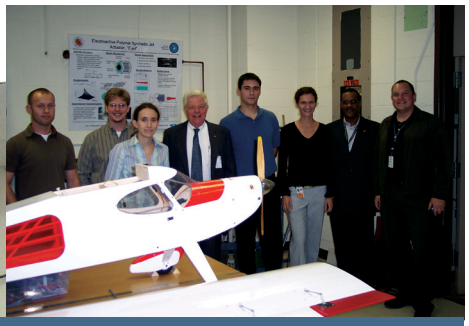
Department of Defense for equipment related to micro hovering air vehicles. This grant is from the DoD's Defense University Research Instrumentation.

CADOU: ASSOCIATE FELLOW OF AIAA

Associate Professor, Christopher Cadou has been elected to the grade of Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA). This grade is awarded to AIAA members who have demonstrated a successful practice in the arts, sciences, or technology of aeronautics.

Dr. Cadou will be honored at the AIAA Foundation Associate Fellows Dinner in conjunction with the 46th AIAA Aerospace Sciences Meeting and Exhibit. There he will be presented with his Associate Fellow pin and certificate. The dinner will be held on Monday, 7 January 2008 in Reno, NV.





DONALD FRASER VISITS THE MORPHEUS LAB

ON MONDAY OCTOBER 15TH, THE MORPHEUS LAB RECEIVED A VISIT FROM DR. DONALD FRASER, FORMER DEPUTY UNDERSECRETARY OF DEFENSE UNDER DICK CHENEY DURING THE PREVIOUS BUSH ADMINISTRATION. DR. FRASER IS A MEMBER OF THE NATIONAL ACADEMY OF ENGINEERING, A FORMER COO OF DRAPER LABS AND DIRECTOR OF THE BOSTON UNIVERSITY PHOTONICS CENTER. HE REPRESENTS THE HIGHEST LEVEL OF VIP VISITORS THAT THE NATIONAL INSTITUTE OF AEROSPACE (NIA) HAS SEEN IN RECENT YEARS. HE CAME HERE EXPRESSLY ON THE INVITATION OF THE MORPHEUS LAB. DR. FRASER SPENT THE DAY TOURING NIA AND THE MORPHEUS LAB AND MEETING WITH OUR DEPARTMENT'S GRADUATE AEROSPACE ENGINEERING STUDENTS.

THE MORPHEUS LABORATORY ("MORPHEUS") FOCUSES ON DEVELOPING DISRUPTIVE AEROSPACE TECHNOLOGIES BASED ON SMART MATERIALS. WE CONCENTRATE ON FINDING REVOLUTIONARY SOLUTIONS TO REAL-WORLD PROBLEMS, WITH AN EMPHASIS ON SIMPLICITY OF CONCEPT AND ELEGANCE OF DESIGN.

MORPHEUS INTENDS TO BENEFIT SOCIETY THROUGH THE GENERATION OF SCHOLARSHIP IN THE FIELDS OF ADAPTIVE AEROSPACE STRUCTURES AND SMART MATERIALS. IN DOING SO, MORPHEUS HOPES TO BRING A NEW VITALITY AND VISION TO THE AEROSPACE INDUSTRY.

WE AT MORPHEUS BELIEVE THAT ALL OF OUR EXPERIMENTS SHOULD BE ABLE TO STAND UP TO THE RIGORS OF ACTUAL FLIGHT, AND AS SUCH WE MAINTAIN A SMALL SQUADRON OF FLYING TESTBEDS FOR THIS PURPOSE.

Visit the Morpheus Lab online at:
http://research.nianet.org/morpheuslab/

LEWIS RECEIVES LAUREATE & AIAA AWARDS

Mark Lewis, professor of Aerospace Engineering, was awarded the prestigious *Aviation Week & Space Technology* Laureate Award in Aeronatuics/Propulsion. This international award honors select individuals and teams who make significant contributions to aviation and aerospace.

Additionally, Professor Lewis was selected to receive the 2007 American Institute of Aeronautics and Astronautics (AIAA) Energy Systems Award. The award is presented for significant contribution in the boradfield of energy systems, specifically as related to the application of engineering sciences and systems engineering to the production, storage, distribution and conservation of energy.

Professor Lewis is currently serving as Chief Scientist for the United States Air Force and has been selected as the Willis Young, Jr. Faculty Fellow in Aerospace Engineering as of Fall 2007.

Lewis holds a Sc.D. from the Massachusetts Institute of Technology in Aeronautics & Astronautics. He is the author of several publications. His research is in Research in hypersonic aerodynamics, advanced propulsion, and engine-airframe interaction.

Dr. Lewis joined the faculty of Aerospace Engineering in 1988. He is the author of more than 275 technical publications and adviser to more than 60 graduate students. He is active in national and international professional societies, with responsibilities for both research and educational policy and support. In addition, Lewis has served on various advisory boards for the Air Force and DOD, including the Air Force Scientific Advisory Board, where he participated in several summer studies and chaired a number of science and technology reviews of the Air Force Research Laboratory.

DR. MARK LEWIS

studentNEWS

2007 SAMPE AWARDS

Four student teams from the University of Maryland, College Park participated in the light wing competition at the 2007 SAMPE International Conference. The University of Maryland's CORE lab team placed 3rd in the overall competition. They were also the best placed team from the University. The 2007 SAMPE International Conference was held in Baltimore, MD from June 3rd to June 7th.

The competition consisted of designing a wing within precise constraints specified by the contest rules. With a given cross section and a weight limit, the wing entirely made of real composite materials was tested by setting a reacting fixture at wing ends and applying a load at the wing center.

Please join us in congratulating CORE team, our faculty advisors, Dr. Pavlin and Dr. Wereley, and all four of the University of Maryland teams that participated in the 2007 SAMPE INTERNATIONAL Conference.

ABOUT SAMPE

The Society for the Advancement of Material and Process Engineering, SAMPE®, an international professional member society, provides information on new materials and processing technologies through chapter technical presentations, two journal publications, symposia and commercial expositions in which professionals can exchange ideas and air their views. As the only technical society encompassing all fields of endeavor in materials and processes, SAMPE provides a unique and valuable forum for scientists, engineers, designers and academicians.

Material and Process engineering is the technology by which materials are developed or selected and manufacturing processes chosen which will convert those materials into products which meet the design, performance, producability, quality, and cost effective criteria required. Fields of research and application include, but are not limited to:

- Composite materials
- Advanced matrix resin development
- Advanced reinforcement fiber development
- Nano materials
- Metal and composite adhesive bonding
- Ceramics, carbon-carbon and metal matrix composites
- Fire properties of composite materials
- Design and analysis of composite structures
- Platform design-manned and unmanned air vehicles
- Composite materials in ground transportation and advanced marine architecture
- Composite materials in oil exploitation and wind energy development
- Composite materials in recreational products
- Composite materials in infrastructure development
- Blast mitigation and homeland security
- Technical information exchange under ITAR guidelines

VANESSA GENTZEN

GENTZEN RECEIVES GRADUATE FELLOWSHIP

Vanessa Gentzen is the first recipient of the Aerospace Corporation Graduate Fellowship Award. The Aerospace Corporation donated funds in 2007 to the college of engineering and the department to recognize graduate students who either were children of veterans or actual veterans themselves. The recipient receives an award of $2,500.

Vanessa is originally from Ashburn, VA and completed her BS in aerospace engineering from Virginia Tech in 2006. Since 2004, she has been a member of the U.S. Navy Electromagnetic Railgun program at the Naval Surface Warfare Center in Dahlgren, VA, with a focus on the aerodynamic and thermal design of the program's hypersonic projectile. Currently, she is a second year MS student working as a research assistant under Dr. Norman Wereley and Dr. Darryll Pines. Vanessa's research focuses on the utilization of wave mechanics and smart materials for damage detection in composite panels.

IQBAL: NASA MUST

Sarah Iqbal, a Aerospace Engineering freshman, has been selected to participate in a newly established NASA program at Goddard Space Flight Center in Greenbelt, Maryland. The Motivating Undergraduates in Science and Technology (MUST) Program, funded by NASA, is a joint partnership with the Hispanic College Fund, the United Negro College Fund Special Programs and the Society for Hispanic Professional Engineers.

GREENWOOD: NASA/AHS

Eric Greenwood II was selected as the first NASA/AHS Lichten Internship Award winner based on his paper, "Helicopter External Noise Radiation in Turning Flight: Theory and Experiment, which was submitted to the AHS International 2007 competition.

RASC-AL SPACE DESIGN COMPETITION

The University of Maryland took second place in the Graduate and Undergraduate divisions at this year's NASA RASC-AL space design competitions held in May in Galveston, Texas. The Graduate team finished second to Georgia Tech. The Undergraduate team competed against seven other groups and finished second to the University of Michigan. Eleven total students attended the competition supported by travel funds from RASC-AL and the Maryland Space Grant.

AIAA CONFERENCE

AIAA REGIONAL CONFERENCE

The AIAA Student Conference is a technical paper competition for AIAA student members at the undergraduate and graduate levels from regional campuses. Students are invited to submit technical papers and give formal presentations, which are judged for technical content and clarity of communication. Winners are awarded cash prizes and may advance to the AIAA Foundation International Student Conference, typically held the following January at the AIAA Aerospace Sciences Meeting & Exhibition Center in Reno, NV.

In addition to the competition, the conference provides a venue for students to interactively share AIAA experiences, participate in social activities, and exchange ideas about current topics in aerospace engineering.

Last year's student award recipients include:

1ST: NICK YERKES
University of Maryland
"Pneumatic Artificial Muscle Activation for Trailing Edge Flaps"

3RD (TIE): DAVID BILLINGSLEY
University of Maryland
"Passive Wing Morphing for Improved Lift in Flapping Wing Ornithopters"

3RD (TIE): EMIL SUPERFIN
University of Maryland
"Evaluation of an Image Interpolation Technique for Optic-Flow Estimation in Navigation Applications"

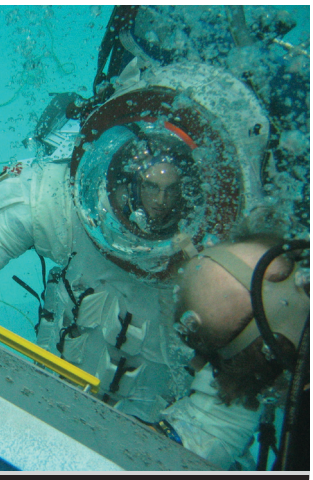
MASTERS DIVISON

2ND: SARAH HAACK
University of Maryland
"Comparative Study of Active Flow Control Effectiveness on a Circular Cylinder"

Department Annual Faculty Awards Include:

Dr. Alison Flatau, Mentor Award
Dr. Sean Humbert, Best Professor Award
Dr. Rob Sanner, Broken Propellor Award

The Region I-MA Student Conference will take place at the University of Maryland College Park on April 11-12, 2008. Students from all regional universities are encouraged to submit papers and attend this great showcase of academic talent. Preparations are already underway! If you have any further questions or concerns, do not hesitate to contact the conference co-chairs, Nate Niles (nniles@gmail.com) or Bree McNerne (bmcnerne@umd.edu).



SSL STUDENTS

SPACE SYSTEMS LABORATORY TEAM

In April 2007, the SSL team of Ali Husein, Heather Bradshaw, and Adam Mirvis took first place in the Sci/Terp Science/Engineering/Technology video competition for a video about their work on the MX-2 space suit project. Their video was featured during Maryland Day and can be seen at http://www.ssl.umd.edu/projects/MARSsuit/index.shtml.

AIAA GRADUATE AWARDS

Josh Johnson, doctoral candidate, was chosen to receive the Willy Z. Sadeh Graduate Student Award in Space Engineering and Space Sciences.

Additionally, Justin Richeson, doctoral candidate, was chosen to receive the Orville and Wilbur Wright Graduate Award. Both awards are from AIAA. These awards allow both students to conduct research in the Space Vehicle Technology Institute (SVTI).

SHANE JACOBS

JACOBS TO SPACE UNIVERSITY

Shane Jacobs received a full scholarship to attend the International Space University Summer Session Program in Beijing, China. This extremely competitive, world-wide program chose Mr. Jacobs to represent his home country of Canada. Mr. Jacobs spent two intensive months over the summer attending lectures, seminars, working on group projects and of course, networking.

HARRINGTON

As a intern at the Army Research Laboratory (ARL), Aerospace Engineering student, Aaron Harrington, published a research paper in ARL's scientific journal and received second place honors including a $300 cash prize.

During the summer of 2007, Harrington had the opportunity to design an entire autopilot. Using programmable integrated circuits (PIC chips), as a 16-bit processor that would drive the autopilot, Harrington applied his C programming knowledge and developed his own software using Ubuntu Linux. Harrington was the sole developer of this software, and was provided assistance for debugging through a fellow employee. In addition, he learned how to use EAGLE (Easily Applicable Graphical Layout Editor) to design printed circuit board designs and used a CNC mill to cut the boards out.

His first prototypes used DIP size electronic parts. Once the PCB layouts were more optimized, he learned how to make boards using SOIC chips and surface mount parts. This enabled him to make the platform completely autonomous by using a differential GPS and pre-programming missions that consisted of up to 50 GPS points.

AIAA DESIGN, BUILD, FLY TEAM

AARON HARRINGTON

STUDENT AWARDS

Aerospace Engineering congratulates our graduate and undergraduate students who also received awards during the Spring and Summer semesters including:

BRAD JOHNSON
Best Paper (Aerodynamics)
American Helicopter Society
NDSEG Award

TIMOTHY LEE
Colonel J. Logan Schultz Omicron Delta Kappa Leader of the Year Award
Maryland Medallion Society and H.C. Byrd Award Recipient

HOLLY SCHURTER
Omicron Delta Kappa
Spring 2007 Initiates

JOSH JOHNSON
Willy Z. Sadeh Graduate Student Award in Space Engineering and space Sciences

JOSEPH GLAND
NDSEG Award

VERTICAL FLIGHT FOUNDATION AWARD RECIPIENTS:
Joe Conroy
Eric greenwood
Greg Hiemenz
Ben Woods
Brad Johnson

DEPARTMENT GRADUATE AWARDS
MS Winner: Rama Balar
PhD Winner(s): Maria Ribera & Saju John

SSL ALUMS WIN YOUNG ALUMNI AWARD

Alumi Andrew Long (BS '03) and Brian Roberts (MS '99) placed second in the Young Alumni category of the University of Maryland $50k Business Plan Competition on April 27th. Their pitch was to integrate two existing, incompatible lab technologies, (Ranger NBV1 and the SAMURAI manipulators), to form a space-tug capable of disposing of geosynchronous communications satellites.

BOND NAMED PRESIDENT OF BAE SYSTEMS

Sean Bond (BS '89) was named president of BAE Systems' Platform Solutions business, based in Johnson City, New York. Platform Solutions is a major defense and commercial electronics business with 6,000 employees at 11 locations in the United States and United Kingdom.

Bond previously held the position of VP and General Manager of Defense Avionics within Platform Solutions.

AEROSPACE ENGINEERING GRADUATE PROGRAM

The Aerospace Engineering Department offers a broad program in graduate studies leading to the degrees of Master of Science (thesis and non-thesis) and Doctor of Philosophy. Graduate students can choose from the following areas of specialization: aerodynamics and propulsion; structural mechanics and composites; rotorcraft; space systems; and flight dynamics, stability and control. Within these disciplines, the student can tailor programs in areas such as computational fluid dynamics, aeroelasticity, hypersonics, composites, smart structures, finite elements, space propulsion, robotics, and human factors.

FALL 2008 PRIORITY DEADLINE: DECEMBER 1, 1007

VISIT: http://www.aero.umd.edu/grad/
FOR MORE DETAILS

alumniNEWS

KOTHARI HOSTS 30TH GRADUATION ANNIVERSARY DINNER

JOBE, GRIFFIN, DIWAKAR PARTHASARATHY, KOTHARI

The first ever formal meeting of past alumni was held at the home of Mr. Ajay Kothari who who is an M.S. graduate and the CEO of Astrox Corporation. Astrox has been performing advanced technical research contracts since 1987 and has developed a firm background in many areas of aerospace industry. Past achievements have included development of innovative design approaches for Hypersonic Air-breathing (RBCC) SSTO and TSTO vehicles, Trans-Atmospheric vehicles, Rocket engines and Rocket systems, and Hypersonic and Supersonic Missiles. Of particular mention are the fifteen years of experience in the development of inward turning inlet methodology and analysis for which Astrox Corporation holds a patent.

The dinner event, held on June 30, 2007, was attended by faculty members Jewel Barlow, Mark Lewis, Darryll Pines and Everett Jones. Former students in attendance included Ajay Kothari, Mike Griffin, Karungulam Parthasarathy, Ramachandra Diwakar and Mike Jobe.

MOSZEÉ, PINES, LEWIS, KOTHARI, PARTHASARATHY

NEW STAFF

LAURIE BROWN

Laurie Brown joined the staff of the Department of Aerospace Engineering as the Program Management Specialist. Laurie has been with the University of Maryland since 2005, working in both the Department of African American Studies and Building Security Services. Ms. Brown serves as the first point of contact for department visitors.

Allison Ernst has joined the Department of Aerospace Engineering as the Communications Coordinator. Allison is an award-winning graphic designer with 12 years of higher education experience, having worked in arts administration for Towson University and in Student Affairs for the Maryland Institute, College of Art before coming to the University of Maryland.

ALLISON ERNST

MILESTONES

Nicole Roop has been elected as Member-At-Large for Mid-Level Professionals to the Governing Board of the American College Personnel Association (ACPA). She will serve one year as elect and two years in that position.

ACPA was founded in 1924 and has nearly 8,000 members. The mission of the ACPA is to support and foster college student learning through the generation and dissemination of knowledge for student affairs professionals and the higher education community.

NICOLE ROOP

Nicole is associate director of undergraduate studies for the department of aerospace engineering and recently received her Ed.D. in Higher Education Administration.

The Department of Aerospace Engineering, in conjunction with the University of Maryland, would like to thank **Debora Chandler** for thirty years of service. This is an admirable accomplishment for any member of our campus community to achieve. Ms. Chandler's commitment has been unwavering and we are proud to call her one of our own. In recognition of her 30 years of service, Debora was presented with an award by President C.D. Mote at this year's Service Award Banquet.

DEBORA CHANDLER WITH PRESIDENT MOTE

GRIFFIN RECEIVES 2007 PRESIDENT'S AWARD

MICHAEL GRIFFIN, PH.D. '77 AND ACADEMY OF DISTINGUISHED ALUMNI '99, WAS CHOSEN AS THE RECIPIENT OF THE 2007 PRESIDENT'S AWARD PRESENTED AT THE SAMUEL RIGGS IV ALUMNI CENTER IN APRIL. PRIOR TO BEING NOMINATED AS NASA ADMINISTRATOR, GRIFFIN WAS SERVING AS SPACE DEPARTMENT HEAD AT JOHNS HOPKINS UNIVERSITY'S APPLIED PHYSICS LABORATORY IN LAUREL, MD. HE WAS PREVIOUSLY PRESIDENT AND CHIEF OPERATING OFFICER OF IN-Q-TEL, INC., AND ALSO SERVED IN SEVERAL POSITIONS WITHIN ORBITAL SCIENCES CORPORATION, DULLES, VA., INCLUDING CHIEF EXECUTIVE OFFICER OF ORBITAL'S MAGELLAN SYSTEMS DIVISION AND GENERAL MANAGER OF THE SPACE SYSTEMS GROUP.

STARKEY: AIAA AWARD

Ryan Starkey (MS '98) received the 2008 AIAA Lawrence Sperry Award in Aeronautics. Dr. Mark Lewis served as Dr. Starkey's advisor and supervisor.

Starkey is an Assistant Professor and McAnally Faculty Fellow for Aerospace Engineering Sciences at the University of Colorado in Boulder, CO. His research focus is in Vehicle Systems, Aerodynamics, Systems & Controls.

AIAA presents the prestigious Lawrence Sperry Award to a Young Professional Member for notable achievement in the advancement of aeronautics and astronautics.

GANDHI RECEIVES POPULAR MECHANICS BREAKTHROUGH AWARD

Farhan Gandhi (MS '89, PhD, '92), associate professor of aerospace engineering, is a recipient of the Popular Mechanics 2007 Breakthrough Award. Gandhi is one of only eight inventors to receive the award this year from the magazine. He received the honor at a gala in New York City. The award winners and their work will be featured in the magazine's November issue.

Gandhi was honored for designing a morphing helicopter rotor blade. The blade can adjust its length to the speed by a finely calibrated spring. When the blade is moving fast, the spring stretches and expands the blade. When it moves slower, the spring contracts and decreases the blade's length. This design allows helicopters to be more versatile and achieve higher performance.

Gandhi's other awards and honors include a U.S. Army Rotorcraft Fellowship and the American Helicopter Society Francios Xavier Bagnoud Award. He also has served as the chairperson of the American Helicopter Society Aircraft Design Technical Committee and is currently serving on the AHS Dynamics Technical Committee.

ALUMNI NOTES

Richard Day, B.S. '79, aerospace engineering, has been appointed assistant center director for management systems at Goddard Spaceflight Center.

Scott Adams, B.S. '86, aerospace engineering, completed a stint as commanding officer of the nuclear-powered, fast-attack submarine USS Norfolk in July. His efforts to improve the crew's morale earned him the 2006 Battle "E" award.

Clifton Nichols, B.S. '89, aerospace engineering, has been assigned as commander of operation flights (reconnaissance) at Ramstein Air Force Base in Germany.

ROTORCRAFT 25TH ANNIVERSARY

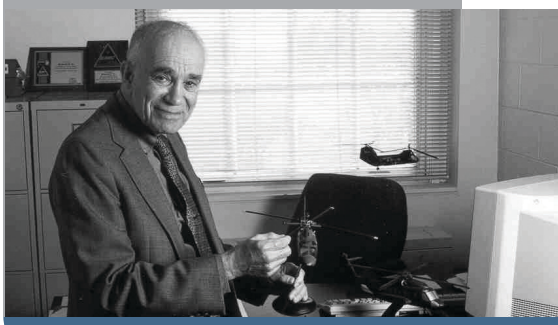
This year marks the 25th Anniversary of the Alfred Gessow Rotorcraft Center. Professor Gessow joined the faculty of the University of Maryland in 1980 as Chair of the Department of Aerospace Engineering. At Maryland, he founded the "Center for Rotorcraft Education and Research" in 1982, which was renamed as the "Alfred Gessow Rotorcraft Center" in 1997. The AGRC has been at the forefront of rotorcraft education, research, and technology since its founding.

Under Professor Gessow's direction, the department greatly increased its research activities and developed an international reputation for rotorcraft education and research. A U.S. Army Center of Excellence in helicopter technology for many years, the AGRC is a recipient of the American Helicopter Society's Glover Bell Award twice for fostering research and experimentation in helicopter development. Over 250 students have graduated from the Center, and it has consistently employed an interdisciplinary team of faculty members in its program.

The University of Maryland's Department of Aerospace Engineering invites you to a special celebration honoring the 25th Anniversary of the Alfred Gessow Rotorcraft Center on Friday, November 30, 2007 at the Riggs Alumni Center.

Since its inception in 1982, Alfred Gessow Rotorcraft Center at the University of Maryland reminisces its research accomplishments and graduate placements in industry, laboratories and academia. On the occasion of its silver-jubilee celebrations, the Center hosts a one-day workshop to highlight key research activities during the past three decades and chalk out future research directions. The format of the Workshop will be a single session open forum with invited speakers and panel discussions.

REGISTRATION AVAILABLE ONLINE THROUGH NOVEMBER 29TH AT http://www.aero.umd.edu.



ALFRED GESSOW