

AeroGRAM

A newsletter for alumni & friends of the School of Aeronautics & Astronautics

Covering the 2007-2008 academic year

Armstrong dedication weekend

Past, present, and future



- Inauguration of President France Córdova
- Debra Haley – Distinguished Engineer Alumni
- 2007 Outstanding Engineers Award
- Sigmar Wittig – William E. Boeing Distinguished Lecture

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On the Cover:

(L-R with Neil Armstrong)
Lindsay Millard; Masaki Kakoi; Matthew Vavrina; Todd Brown; Martin Ozimek; Diane Davis and baby Ian; Geoffrey Wawrzyniak; Raoul Rausch and Christopher Patterson

AAE Headlines

I am writing this column at my computer in Armstrong Hall. The anticipation for Armstrong Hall has been building for many years. The faculty and staff worked countless hours with the architects and contractors to make our dreams of spaces for student learning and discovery in a real-world teaming environment a reality. Armstrong Hall would not be here without your generous contributions, thank you very much. If you haven't done so, see www.purdue.edu/armstronghalldedication for highlights of the dedication.

Other highlights of the year included the 9th William E. Boeing Distinguished Lecture given by Sigmar Wittig, DLR Chair Emeritus, entitled "Space Policy in an Enlarged European Union." The School celebrated the 9th Outstanding Aerospace Engineers Celebration and the College named Debra L. Haley a Distinguished Engineering Alum during National Engineers Week. These events along with Homecoming and Gala Week are wonderful times for you to return to campus.

Student interest in the School remained strong with an undergraduate enrollment in Fall 2007 of 457 and a graduate enrollment of 250. The graduate enrollment is an all-time high for the School and includes more than twenty students that are pursuing an AAE MS degree with Purdue's Engineering Professional Education Program. The School faculty size continues to grow in part to address the growth in enrollment. We look forward to the arrival of Dr. Karen Marias in January and Dr. Dengfeng Sun in August.

President France Córdova completed her first year with approval by the Board of Trustees of the new six-year strategic plan entitled "New Synergies." Three major goals form the plan's foundation:

- **Launching tomorrow's leaders** by enhancing student success with careers in a dynamic global society, as well as fostering intellectual, professional and personal development for lifelong learning.

- **Promoting discovery with delivery** by conducting field-defining research with breakthrough outcomes and catalyzing research-based economic development and entrepreneurship.

- **Meeting global challenges** by enhancing Purdue's presence and impact in addressing grand challenges of humanity.

The College of Engineering is nearing completion of a new strategic plan. The School will continue to use these plans to guide its efforts.

We always welcome you back to campus so that we might show you up-close the educational opportunities that your support provides our students as we lead them toward making their own impact on the world. Having you back on campus gives us the chance to say thank you for your support and, more importantly, connects you with our present students so that you too can know why we make educating Purdue Aeronautical and Astronautical Engineers our life's work. We strive to make the Purdue education live up to the standards that you remember so well and remind you that we cannot do so without your support. Thanks again for your part in making times at Purdue so exciting.



Thomas N. Farris



Inauguration of Dr. France A. Córdoba as President of Purdue University

April 11 marked the official inauguration of Dr. France A. Córdoba as president of Purdue University. Inaugural events commenced on April 9 and concluded on April 13. The week's activities brought into focus the concept of the global university with a convocation featuring leaders in academia and government from around the world. President Córdoba also shared during her vision for the future of Purdue University during the inaugural address.

The university's charter, presidential medallion and university mace were presented during the inauguration ceremony at Elliott Hall of Music. Among those on stage include former Purdue presidents Martin C. Jischke, Steven C. Beering and Arthur G. Hansen.

(Purdue News Service photo/David Umberger)

NASA's Constellation Program - COLLOQUIUM

Five members of a NASA team working on future human missions to the moon and Mars discussed different aspects of the program during a lecture on Feb. 5 in the Neil Armstrong Hall of Engineering. The team highlighted NASA's Constellation Program, which is committed to send human explorers back to the moon and then onward to Mars and other destinations in the solar system.

The Constellation Program oversees work performed at a variety of NASA centers, prime contractors, and subcontractors located around the country. This work includes the Orion crew exploration vehicle, the Ares I launch vehicle, ground operations, mission operations, and extravehicular activity systems.

Purdue University serves the program through the Constellation University Institutes Project (CUIP), a cooperative agreement with NASA focused on addressing key technical challenges. Dr. Bill Anderson is principal investigator for CUIP with Drs. Stephen Heister, Charles Merkle and Steven Schneider as co-pi's, working in the areas of rocket engine combustion stability and heat transfer.

The five NASA officials included Purdue alumnus Mark Geyer, BSAE'82; MSAE'84; Orion Project Manager; Claudia Meyer and Jeff Rybak, manager and deputy manager, respectively, of the Constellation University Institutes Project; Tom Brown, propulsion systems lead on the Mars lander; and Richard Tyson, special assistant for the exploration office.

In this Special Seminar, NASA team members provided overviews and status of their work in Ares I, Orion, propulsion, and CUIP.

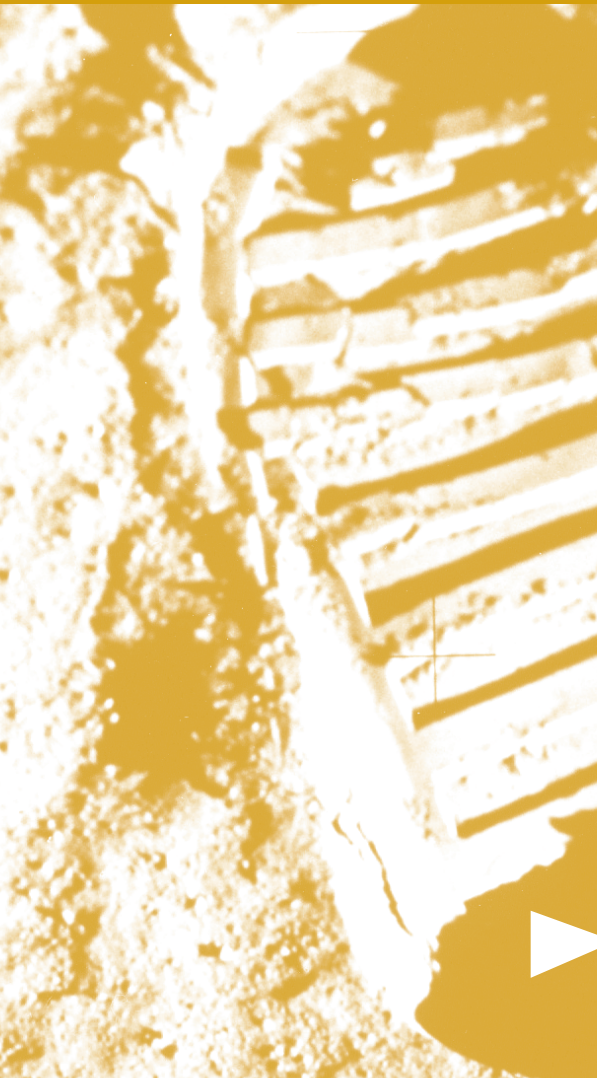


(L-R) Bill Anderson; Mark Geyer, Richard Tyson, Claudia Meyer, Jeff Rybak, and Tom Brown.



Dedication Weekend

Neil Armstrong Hall of Engineering



A reception was held on Friday, October 26 where the astronauts were able to mix and mingle with faculty students and guests.



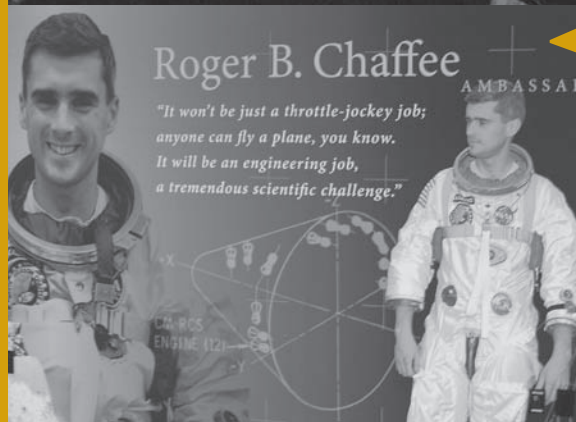
Professors Emeriti Larry Cargino and George Palmer talk with their former student - Neil Armstrong



On **Saturday, October 27** Purdue and 16 of its astronaut alumni dedicated the university's Neil Armstrong Hall of Engineering, hailing the new \$53.2 million building as a gateway to engineering research and education.

The building's distinctive winglike roof extensions are part of a design that mimics the appearance of an aircraft to symbolize Purdue's contributions to flight and the space program.

Walkways inside the building look down on an expansive atrium, which has a 53-foot-high ceiling. Hanging in the atrium is the replica of the Apollo 1 command module identical to the one in which Purdue alumni Roger Chaffee, BSAE'57 and Virgil "Gus" Grissom, BSME'50 and fellow astronaut Ed White died in 1967. The replica is being loaned to Purdue by the Kansas Cosmosphere and Space Center. Neil Armstrong with Gene Cernan in the Armstrong Atrium with Mark Polansky in the background.



A curving 50-foot-long, floor-to-ceiling exhibitory near the atrium on the first floor houses a photomural of Roger Chaffee's life. In the center of the mural is a display of a lunar sample collected during the Apollo 17 mission commanded by Eugene Cernan, the last astronaut to walk on the moon. The sample, on loan from NASA, was provided by Chaffee's widow, Martha Chafee (seen here with Purdue President Dr. France Córdoba).



**First and Last (thus far)
Neil Armstrong and Gene
Cernan, the first and last
on the moon**



The event has drawn together the largest group of Purdue's alumni astronauts since 1999 when all 19 still living were reunited. Since then, Purdue graduate Andrew Feustel has joined the group. In addition to Armstrong, space alumni who were in attendance were John Blaha, Mark Brown, Eugene Cernan, Richard Covey, Drew Feustel, Greg Harbaugh, Michael McCulley, Gary Payton, Mark Polansky, Jerry Ross, Loren Shriver, Janice Voss, Charles Walker, Don Williams and David Wolf.



Dedication Weekend

Neil Armstrong Hall of Engineering



A bronze sculpture of Armstrong, looking pensive and studious as an undergraduate in the 1950s, sits on a stone plinth in front of the building. His right hand rests on a small stack of books, and his slide rule is removed from its case as though ready for action.



Professors Emeriti (L-R) Larry Cargnino, Gus Gustafson, and George Palmer with Purdue Trustee J. Timothy McGinley in Kirk Plaza

Armstrong Hall was paid for with \$37.7 million in state funds, and the balance came from private donors, including Caterpillar Inc.; the John Deere Foundation; and Purdue alumni Stephen D. Bechtel Jr., the late Kenneth O. Johnson, and Hedy Kurz, whose late husband was a Purdue alumnus. Mary Jo Kirk and her husband, Purdue alumnus Bob Kirk of Washington, D.C., donated the money for the sculpture. In recognition, the area where the statue is located has been named Kirk Plaza. An educational interactive exhibit to be housed in the atrium will be open in 2008 and is made possible by a \$1 million gift from the John Deere Foundation.



To the left of the statue is the replica of the footsteps that Armstrong took on the moon, correct to the size and distance taken between each step.

Making the Connection

Mike Barrett BSAE'89

Among the many of Purdue's own who were back on campus during dedication weekend was Mike Barrett, who was on duty with the NASA trailer. Mike graduated from Purdue in 1989 and worked with the propulsion group in NASA's Johnson Space Center for six years. His PhD followed from the University of Houston with employment at NASA Glenn, Valparaiso, and then back to NASA Glenn in 2002.

The NASA educational trailer has a core staff that travels around the country with accompanying volunteer engineers. Mike says NASA didn't have to twist his arm to volunteer when the trailer was due to come to Indiana. Prior to the dedication weekend, he spent the previous weekend in Evansville, where the lines were constant. "The best thing about working the trailer is watching the kids' faces," Mike commented, "we see them getting interested and get some 'Oh cool' and 'sweet', then we know that we are making the connection with them."





PURDUE SPACE DAY

2007

A trip to the final frontier demands that astronauts are made of the 'Right Stuff.' Sitting atop 2,000 tons of high octane explosives waiting for the countdown and liftoff, can only be contemplated by the men and women whose "Right Stuff" is beyond question.



The Right Stuff was fully demonstrated on November 3, 2007 by astronaut Charles D. Walker BSAAE'71, OAE'99, when he headlined the 12th annual Purdue Space Day on the West Lafayette campus.

Walker has participated in NASA's two largest space programs of the past few decades, the Space Shuttle and the International Space Station. He also made early contributions to the Constellation space exploration program to return mankind to the Moon and later to Mars.

Walker has worked in aerospace industry since 1977 and recently retired from The Boeing Company. As the first Purdue astronaut to launch in a space shuttle in 1984, he flew aboard three NASA Space Shuttle missions in the mid-1980s as the first industry-sponsored engineer and researcher, becoming the first private astronaut in space and clocked up an impressive total of accumulating 20 days of experience in space and traveling 8.2 million miles.

Over 450 school students in grades 3-8 from four states listened to Walker as he chronicled the past, explained the present and made students think about the future. The school students took part in three age-related hands-on activities which were all related to science, technology, engineering and math. (STEM) Charlie Walker was an enthusiastic participant and was tireless to talking to both the school students and the Purdue students.

Purdue Space Day was run by 169 Purdue students from 48 majors. By the end of the day, Charlie Walker has inspired a whole new generation to explore the final frontier.



Class Notes

Dr. Robert L. Swaim; faculty and Associate Head from 1967-1978 will serve as Lt. Governor for Division 16 of the Texas-Oklahoma Kiwanis District in September 2008 for a year. Dr Swaim has been retired for 15 years as Professor and Associate Dean Emeritus, Oklahoma State University and finished a year as President of the 600 member OSU Emeriti Association. He was inducted into the Purdue ROTC Hall of Fame in 2005.

Dr. Marty Ferman BSAE'57; retired from Saint Louis University, Parks College of Engineering, Aviation and Technology after a 56 year career. He worked full time at US Steel and other industries while attending Purdue for his BSAE from June'52 to Dec'56. He started his Master's degree in January 1957, but was then activated as a Reservist in June 1957. He joined McDonnell Aircraft in Feb 1958 and retired after 35 years in 1992. He then joined Parks College and retired in May 2008. Prior to his retirement, Parks College conferred Dr. Ferman with the title Professor Emeritus.

Dr. Walter Eversman BSAE'59 received The American Institute of Aeronautics and Astronautics **2008 AIAA Aeroacoustics Award** during the 5-7 May 2008 AIAA/CEAS Aeroacoustics Conference and Exhibit, Vancouver, British Columbia, Canada. This award is presented for an outstanding technical or scientific achievement resulting from an individual's contribution to the field of aircraft community noise reduction, and consists of a medal, certificate of citation and rosette pin.

John P. Gleiter, BSAE'60, Valley Village, CA. retired in 1998 and is now serving on the Los Angeles County Civil Grand Jury.

Donald Laird, BSAAE'72, Greenwood, IN. Director of Development for OMS International.

Louis Glaros, MSAAE'73, Ocoee, FL. Engineering Fellow, Lockheed Martin.

Randolph C. Shields, BSAAE'79, Wichita, KS. Director, Airworthiness and Certification for Hawker Beechcraft.

Bruce D. Willis BSAAE'79, Huntsville, AL. Engineer with The Boeing Company. He serves as Secretary on the Structural Dynamics Technical Committee of the American Institute of Aeronautics & Astronautics (AIAA). Serves The Rock Family Worship Center as deacon and as the head of the Urban Ranger ministry for inner city boys.

Maureen E. Cunha BSAAE'81, Lumberton NJ. Has worked for 12 years for Lockheed Martin and is Senior Program Manager on the Deepwater Program. Maureen is also a mother of triplets.

Christopher C. Dremann, BSAAE '82; MSAAE '83 Granite Falls, NC. initially worked for Hughes and TRW in Southern California. Following law school, he was the Sr. Patent Attorney and Portfolio Manager for the

Hardware & Equipment division of Corning Cable Systems for several years. In January 2007, he joined the Adams Intellectual Property Law Firm in Charlotte North Carolina as Sr. patent prosecution attorney and associate managing partner.

Paul Faas, BSAAE'82, Senior Logistics Research Engineer with the U.S. (Civ) Wright-Patterson AFB, OH.

Hilary G. Knight, BSAAE'82, Dorsey IL. Senior Configuration Design Specialist. Boeing Corporation/Defense Systems.

Kenneth B. Sanger, MSAAE'82, Madison, AL. Director, European Capability Program, The Boeing Company, Missile Defense Systems. 2008 AIAA Fellow. Boeing Executive Focal to Alabama A&M University.

Christopher C. Dremann, BSAAE '82; MSAAE '83, Sr. Patent Prosecution Attorney and Associate Managing Partner for Adams Intellectual Property Law Firm, Charlotte NC. Chris worked for Hughes and TRW in Southern California, but moved to North Carolina after attending law school. He was Sr. Patent Attorney and Portfolio Manager for the Hardware & Equipment division of Corning Cable Systems. He joined the Adams Intellectual Property Law Firm in Charlotte North Carolina as Sr. Patent Prosecution Attorney and Associate Managing Partner in January 2007.

Greg Edwards, BSAAE'83, Greenville, SC. Leader, Heavy Duty Gas Turbine Test Facility, General Electric.

Dr. Brian K. Anderson, BSAAE'84, Colorado Springs, CO. Professor at the National Security Space Institute and is recently retired from the United States Air Force.

Doug Hale, BSAAE'85, Indianapolis, IN. Systems Engineer for Rolls Royce Corp.

Dr. David B. Spencer, MSAAE'85, Director of Graduate Programs, College of Engineering, Pennsylvania State University.

Raymond E. Stone, MSAAE'85, Saint Charles, MO. Senior Specialist Engineer - Strength for The Boeing Company. Appointed member of the St. Charles County Master Plan Steering Committee, 2007-2012, Citizens For Responsible Community, Vice President & Deputy Treasurer, St. Charles County Pachyderm Club, Secretary.

Don G. Strazzabosco, BSAAE'85, San Diego, CA. Development Test Engineer for Hamilton Sundstrand Power Systems.

Ronald J. Burgess, BSAAE'86, Florissant MO. Structural Engineer with The Boeing Company. He returns to aerospace engineering after a 10 year hiatus into IT.

Rhonda D. Walthall, BSAAE'86, Escondido, CA. Staff Engineer, Systems Engineering with Hamilton-Sunstrand Power Systems. Vice-Chair of the SAE E32 Committee for Aerospace Propulsion Systems Health Management.

Dr. Fred S. Blomshield, PhD'88 Head of Combustion Sciences Branch, Naval Air Warfare Center, China Lake, CA Focus on various aspects of solid propellant combustion including hazards, ship board fires, combustion diagnostics, metal combustion and combustion instability for NAVY, DOD and NASA applications. Dr. Blomshield has worked in the area of combustion instability and has published over 120 articles over 25 years. He was recently awarded recognition as a NAVAIR Associate Research Fellow which represents the top 3% of NAVAIR engineers and scientists.

Steven C. Drury, MSAE'89, OAE'07 Jerrabomberra, NSW, Australia Director General Airlift and Training Systems, Defence Material Organization.

Julie A. Kramer White, BSAAE'90 Orion Crew Exploration Vehicle Chief Engineer at NASA Johnson Space Center. Julie received her 20 year service award with NASA in summer of 2007. She was named Chief Engineer for the Orion Crew Exploration Vehicle Spacecraft in 2006. She lives outside Houston with her husband, Robby and 4 year old daughter, Cecelia.

Daniel Mangel, BSAAE'90, Carmel, IN. B747 pilot with Cathay Pacific Airways. Dan and his wife Jennifer have 3 children, Sarah, Caitlin, and Conner.

Melanie S. Davis, BSAAE'91, Floyds Knobs, IN. Senior Business Analyst, UPS.

David B. Nus BSAAE'91, Arden NC. Director, Volvo Construction Equipment North America.

Dr. Kim B. Blair, PhD'92, Lowell, MA. Vice President of Research and Development for Xenith, LLC from February 1, 2008. He will retain his MIT affiliate appointment.

Brett M. Hoffstadt BSAAE'93, Media, PA. Project Engineer, V-22 Osprey for The Boeing Company, Integrated Defense Systems, Rotocraft Division.

Travis B. Langster, BSAAE'94, Mitchellville, MD. Director Business Development for Analytical Graphics, Inc (AGI).

James S. Cooney MSAAE'97, Friendswood, TX. Engineer IV with United Space Alliance.

Andrew J. Shurtleff, BSAAE'99, Lynn Haven, FL. Pilot with the United States Air Force.

Deepak Bhatia MSAAE'00, Sunnyvale, CA. Manager, Service Parts Strategy, Applied Global Services.

Benjamin M. Curtiss, BSAAE'00, Tucson, AZ. Sr. Sales Representative for Eli Lilly and Company.

Greg A. Bischoff, BSAAE'02, Oak Harbor, WA. Naval Flight Officer for the U.S. Navy.

We have been delighted with the response to the Online Update Alumni Records page on the Aeronautics and Astronautics website. The web page to update your records can be found at:

<https://engineering.purdue.edu/AAE/Alumni/Update/AlumniRecords>

Ted B. Light, BSAAE'03, Portland, OR.

Has recently completed a 2-year commitment with Teach For America on the Rosebud Reservation in South Dakota. Ted taught math & science in an alternative program for repeating freshmen during his first year, and Physical Science and Physics classes in a more traditional classroom in his second year.

Alethean Tan, BSAAE'03, Palmdale, CA.

Flight Test Engineer with Northrop Grumman.

Maizakiah A. Abdullah, BSAAE'04

Field Engineer for Schlumberge, Tanggu, China.

Debanik Barua, BSAAE'04, Seattle, WA.

Flight Controls Engineer for Boeing Commercial Airlines.

David M Goedtel, BSAAE'04

Quality/Inspection and Metrology Lab Supervisor for Chrysler. Chrysler has also helped him in the pursuit of graduate studies with an MBA from Oakland University in Rochester Hills, MI.

Theresa L. McGuigan, BSAAE'04, El

Segundo, CA. Propulsion Systems Engineering with The Boeing Company, Space and Intelligence Systems. Theresa is pursuing an MBA at Pepperdine University, Los Angeles, CA.

Jatin Mehta, MSAAE'04, Austin, TX.

Finance Consultant, Dell, Inc.

Joshua J. Siler, BSAAE'04, Elkhart, IN.

Engineer in Training NTA Inc.

Paul W. Gramm BSAAE'05 Webster, TX.

Flight Controller for United Space Alliance and has recently become engaged to Purdue alumna Hillary DiRenzo.

Robert B. MacDermott, BSAAE'05, Warner

Robbins, GA. C-130 Structural Engineer for the United States Air Force.

Brian Duckett, BSAAE'06, Denver, CO.

Certified Principal Engineer, Lockheed Martin.

Joel A. Falardeau, MSAAE'06, Cape

Canaveral, FL. Aerospace Engineer with Reynolds, Smith and Hills.

Henry R. Kneitz BSAAE'06, Sunset, UT.

F-16 Mechanical Systems Engineer for the United States Air Force at Hill AFB.

Jason Wennerberg, MSAAE'06, Canoga

Park, CA. Systems Engineer for Pratt and Whitney, Rocketdyne

Trent M. Lobdell, BSAAE'07,

received his Peace Corps invitation and left for Samoa on June 4th.

Kyle P. Ryan, BSAAE'07, Seattle, WA.

Stress Analyst for The Boeing Company.

Matthew R. Schmitt, BSAAE'07 Funabashi,

Japan, Field Service Engineer with General Electric, Aviation, Japan Airlines.



(L-R) Gus Gustafson, Sally Dunton, Larry Cargnino, Bill Dunton

Sally BSAE'50 & Bill Dunton BSAE'50

The Class of 1950 has produced many distinguished alumni since their graduation. Among them are Sally and Bill Dunton whose time at Purdue provided the backdrop to their futures.

Our alumni have a very special place in the School of Aeronautics & Astronautics and we are delighted when they come to visit. Sally and Bill and their daughter Kathy visited Grissom Hall in spring 2007 just before the school moved into Armstrong Hall.

Sally Dunton (née Reed) was the only female to graduate in that year and the only girl in any of her classes. Sally came to Purdue as a junior from the University of Maryland as she had to convince her parents that Purdue was the right place for her. After winning a scholarship to learn to fly, Sally earned her pilots license at 16 before she had her driver's license.

Bill and Sally met in Prof. Bruce Reese's Fluid Dynamics class and shared frequent drives back and forth from the labs at the airport and campus. Both Bill and Sally had Prof. Larry Cargnino for class and they were delighted to catch up with both him and Prof. Gus Gustafson during their visit. They were also thrilled that Prof. Cargnino remembered them both. While they were at Purdue, Bill lived in Cary Hall and Sally lived off campus with a family.

Sally and Bill were married the day before graduation at University Church on Grant Street. They were in two separate lines as Sally's diploma was still in her maiden name. After graduation, they both worked at Curtis-Wright but were in different divisions, Sally in flight testing and Bill in Design.

They have three girls Sue, Kathy and Cindy. So far it is only Kathy's son Aaron who has shown any sign of following in the family tradition and is training as Naval Flight Officer, Pensacola, FL.

In addition to meeting the head of school Tom Farris, Gus Gustafson, and Larry Cargnino; they also met Prof. Steven Schneider and Prof. Steven Collicott who talked to them about the about the Zero Gravity program.

NEWS ABOUT *you*

Tied the Knot

CONGRATULATIONS TO THE FOLLOWING HAPPY COUPLES

Matthew Churchfield (Doctoral student) to **Jill Parrin** (M.S. student) July 30, 2007

Nicole W. Pattee, BSAAE'06 to **James Fairbanks BSAAE'06** June 7, 2008

George (Chip) Pollock (Doctoral student) to Amy Spinner May 10, 2008

Family Additions

CONGRATULATIONS TO ALL NEW ARRIVALS

Anastassios Petropoulos & Eleni Tsaggouri a girl Zoe Petropoulos May 30th, 2007 5 lbs 12 oz and four weeks early.

Diane (Craig) and Jonathan Davis a baby boy, Ian Craig Davis, August 7, 2007 (see photo on front cover)

Theresa Debban and her husband Matt Kowalkowski a daughter Miranda Jane June 7, 2007 5 lbs 6 oz & 17 1/2 inches long.

Nathan and Adrienne Strange, a girl Phoebe Stefania Strange, November 5, 2007 7 lbs 10.4 oz, (14 nanograms on Saturn's moon Phoebe) and 22 inches long. Younger sister to Ian, Lily and Quincy.

Alex (BS AAE '02) and Kacie (BS AAE '01) Fleck a girl Gretchen Elise on July 27, 2007.

David MSAAE'95 and Stacey Stone, Huntsville, AL. a son, Cameron Thomas, March 13, 2008. David is materials engineer supporting Army Aviation at the U.S. Army Aviation & Missile Command, Redstone Arsenal, AL.

Gene BSAAE'97; MSAAE'99 and Kimberly Bonfiglio Twin girl and boy March 19, 2008. Brianna (5 lbs 4 oz) and Brian (6 lbs 2 oz) born about 30 minutes apart.

Scott BSAAE'98 and Stephanie Schoenherr, a daughter Alexandra Lynn, May 25, 2007, a sister to 3 year old Isabella. Scott is an Investment banker with Deutsche Bank in Houston, TX.

Matthew BSAAE'07 and Freda Grinham, 30 October 2007, a daughter, Lauren Christine. 5 lbs 8 oz and three weeks early.

Matt and Jill Churchfield, March 30, 2008, a boy, Emmett, 6 lbs 14 oz and 20 inches long.

Mike MSAE'95 and Beth MSAE'94 Moses, February 14, 2008, a daughter, Lauren Michelle, 7 lbs 6 oz and 19 inches long.

In Memoriam



Robert E. "Bob" Bateman BSAE'46, DEA'74; HDR'92; OAE'99

During four decades as a Boeing engineer and executive, Robert E. Bateman worked on some of the company's most recognizable planes, including the B-52 and the 747.

"Bob" Bateman aged 84 died in his sleep March 23, 2008. He enlisted in the United States Naval Reserve in June 1941, received a commission in April 1946 and retired in 1962 as a Lt. Cdr. He attended Purdue University 1943-1946 as part of the Navy's V-12 program, which trained prospective officers. He graduated with a degree in aeronautical engineering. It was at Purdue that he met his wife of 61 years Sarah Elizabeth Hayes. Bob maintained a lifelong attachment to Purdue, raising money and making annual visits to speak with engineering students. He was an active & life member of the Alumni Association & the Presidents Council and received its Distinguished Service award in 1993. He was named a Purdue Distinguished Engineering Alumni in 1974, an "Old Master" in 1988 and received an Honorary Doctorate of Engineering in 1992. He received the Purdue Engineering Alumni Association Presidents Lifetime award in 1998 and the School of Aeronautics & Astronautics Outstanding Aerospace Engineers award in 1999. He also received one of Purdue's highest honors, the Order of the Griffin from Purdue in 2005. "He was one of our most distinguished and loyal alumni," said former Purdue President Steven Beering.

Bob retired from Boeing in 1988 as corporate vice president for governmental and international affairs. Bob was an Associate Fellow of the AIAA, served as President of the Boeing Management Assoc., President of the Seattle World Affairs Council, Chairman of the Board of the Museum of Flight in Seattle and Chairman of the National Sea Space Symposium.

He was a member of the Board of Trustees of the Naval Aviation Museum, the Navy Memorial Foundation, the Atlantic Council and the Naval War College Foundation. He was on the National Board of Directors of the Navy League of the United States for 34 years. He was awarded its National President's award in 1971 & 1973, the Distinguished Service award in 1986 and was inducted into the Navy League Hall of Fame & received its Scroll of Honor and was made a Director Emeritus in 1996. The Secretary of the Navy awarded him the Meritorious Public Service award in 1968 and the Distinguished Public Service award in 1972.



Charles T. Force BSAE'57

Charles T. Force, BSAE'57, a former associate administrator for NASA's Office of Space Communications passed away August 9, 2007. A native of Shoals, IN., Force was born on February 22, 1935 and was 72 years old.

He joined NASA in 1965 as director of the Guam tracking station used to support the Apollo lunar landings. He later helped develop, construct and employ NASA's Tracking and Data Relay Satellite System, known as TDRSS. The users of TDRSS read like a who's who of the space program. Programs such as the Hubble Space Telescope and LANDSAT relay their observations to their respective mission control centers through the network.

Force left NASA in May 1996 after an aerospace career that spanned more than four decades.



Dr. Thomas Scott Gates
BSAAE'81; MSAAE'83; Ph.D. '89; OAE'05

Dr. Thomas Scott Gates born April 29, 1959, a native of Fort Wayne, Ind., and resident of Poquoson, passed away peacefully with his family at his side on April 18, 2008.

Prior to earning his doctorate in Aeronautical and Astronautical Engineering from Purdue, Tom worked for Rockwell International in California. Following his Ph.D. in 1989, he moved to NASA Langley Research Center and held the position of head, Mechanics of Structures and Materials Branch. His NASA activities focused on basic and applied research in the area of multi-scale modeling and test, mechanics of materials, and constitutive model development for advanced materials, including nanostructured materials, polymers, and polymeric composites.

Specifically, his area of interest had been the formulation of new analysis methods and associated test techniques for characterizing the time, rate, environmental, and temperature-dependent mechanical response of aerospace materials and structures. His research topics included multi-scale modeling, nanotechnology, aging, accelerated test methods, and long-term durability. His dedicated service to his country and the NASA community over the last 18 years was unflinching.

Dr. Gates has written 40-plus peer-reviewed journal publications and 90 conference papers. He had served on the editorial boards of the Journal of Composite Materials and Experimental Mechanics and had appeared as a guest editor for Composites Science and Technology. He was an associate fellow of the American Institute for Aeronautics and Astronautics and had been an active member of both the Society of Experimental Mechanics and the American Society for Composites.



Sally, Elizabeth, Woody, Clay and Tom Gates at the 2005 Outstanding Aerospace Engineers Award



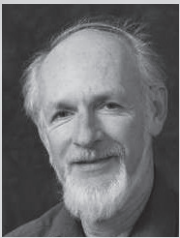
Robert Goulard

Robert Goulard passed away on October 28, 2007 in Washington D.C. at the age of 81. He lived a full and interesting life. Robert was born and educated in France. He immigrated to Canada in 1950 and then to the United States in 1953.

As a professor of aeronautics and astronautics at Purdue from 1954 to 1975, he was involved in work with NASA and its 1960s space program, National Science Foundation, Navy, Air Force, and other research institutions. He continued his professorial work at George Washington University from 1975 to 2000.

He is remembered by his family for his integrity, value of education, curiosity, generosity, and sense of humor. Robert is survived by his wife Irene, his children Frank of Oregon, and Alexandra, Paula, and Christopher of California.

Professor Emeritus George M. Palmer was saddened by the news of Goulard's passing and said that they had worked together on a number of things. In addition to teaching, Palmer was on The Dean's Committee running the Aero School at a time there was no Head appointed and Bob Goulard was the Chairman.



Dr. John H. McMasters
Ph.D.'75, OAE'02

John H. McMasters passed away on February 12, 2008. He had a long and illustrious career and joined Boeing Commercial Airplanes in 1976 as a research aerodynamicist.

Prior to joining Boeing, Dr. McMasters held faculty positions at Arizona State University and Purdue. In addition to teaching airplane design courses at Boeing and the University of Washington, he had been a member of The Boeing Company University Relations Process Council. He authored over 100 publications and technical papers and lectured to a broad range of university, government and professional society audiences, in all these topic areas. He holds patents for an airplane designed on low-speed/high-lift aerodynamics, airplane design, biomechanics, paleontology and engineering education and for an airplane designed under a NASA contract circa 1993-5. He was awarded the Air Force Commendation Medal in 1965 for work on an air-to-air guided missile he conceived and helped develop through initial flight testing while on active duty in the USAF.

He was a Boeing Technical Fellow and an Associate Fellow of the AIAA. He has twice served as an AIAA Distinguished Lecturer - from 1992-94 and again in 2002-05. He was selected in 2004 to be the 29th SAE/AIAA Littlewood Memorial Lecturer. He also had been selected as a Sigma Xi Distinguished Lecturer for 2005-07. In 2002, he was named an Outstanding Aerospace Engineer by the School of Aeronautics and Astronautics.



Isabella L. Williams

Isabella L. Williams, wife of AAE Associate Head Dr. Marc Williams, passed away on July 26, 2008 after several months of illness.

Born April 21, 1947 in Pittsburgh, Pennsylvania, to Paul and Isabella Lewis, she grew up in McKeesport, Pennsylvania. In 1966, Isabella married Marc H. Williams. She was the first married woman to graduate from Princeton University, class of 1972. In 1981, the Williams family moved to Lafayette.

She is active in community affairs, graduated in the first Lafayette Leadership Academy class, and devoted much time and effort to the Greater Lafayette Museum of Art. Isabella was a member and served as secretary of the museum's Foundation Board. She was also president of the Museum Board. In 1992, she received the Louis Weil Award for Outstanding Service and is a Lifetime member of the Museum.

She is survived by her husband Marc; sons Richard (wife Sarah) of Portland, Oregon, and Juri Jatskevich (wife Natasha) of Vancouver, BC; a brother Paul of Austin, Texas; grandchildren Alexander, Meridith and Nicholas Williams; and Alexander and Elizabeth Jatskevich. (Reprinted from the *Lafayette Journal and Courier*).

Access and Success Campaign

Starting this fall, new students enrolling at Purdue University will benefit from a \$304 million campaign called Access and Success that will expand student aid and programs, President France A. Córdoba announced April 9, 2008.



The fund drive and internal reallocations will expand the university's student aid contribution to at least \$77 million annually. Much of the money raised will be placed in endowments, and endowment earnings will be used to fund the efforts.

Student access and success is one of the major goals in the university's strategic plan, which was introduced at the April 11 board of trustees meeting and presented for approval in June.

There will be two parts in this seven-year campaign. Phase I is Student - Athlete support and the upgrade of Mackay Area with a goal of \$32 million. Phase II is the Scholarship and Program Support, with the overall goal at \$304 million, and the School of Aeronautics and Astronautics Campaign goal \$3.5 million.

Within Phase II, there are seven initiatives:

- Presidential and Trustees Scholarships
- Purdue Promise
- Purdue Marquis Scholarship Program
- Summer Reading Program
- Learning Communities Expansion Effort
- College Guide Initiative
- Boiler Gold Rush Scholarship Program

More details about each of these initiatives can be found at:

www.purdue.edu/success



Purdue Astronaut Alumni assigned to STS - 127

Due to launch in 2009, STS-127 will deliver the final components of the Japan Aerospace Exploration Agency's Kibo laboratory to the station. Expedition 19 doubles the size of the resident crew on the complex, expanding it to six people.

Assigned to STS-127 are two Purdue astronaut alumni. **Mark L. Polansky** (BSAAE'78, MSAE '78) will command the shuttle Endeavour and **David A. Wolf** (BSEE'78) will serve as Mission Specialist.

STS-127 will install the Kibo Japanese Experiment Module Exposed Facility and Experiment Logistics Module Exposed Section. The facility will provide a type of "front porch" for experiments in the exposed environment and a robotic arm that will be attached to the Kibo Pressurized Module and used to position experiments outside the station. The mission will include five spacewalks.

Polansky first flew as pilot of STS-98 in 2001 and then commanded STS-116 in 2006. Wolf will be making his fourth spaceflight. He first flew on STS-58 in 1993. He next flew a 128-day mission to the Russian space station Mir, launching aboard STS-86 in September 1997 and landing on STS-89 in January 1998. His third flight was on STS-112 in 2002. In addition to his bachelor's from Purdue University, Wolf also has a doctorate of medicine from Indiana University.



Mark Polansky



David Wolf

Purdue Graduate – Flight Director STS-123



Purdue graduate **Mike Moses** MSAE'95 was Lead Shuttle Flight Director on STS-123 (Endeavour). Launched on March 11, 2008, it was the twenty-fifth shuttle mission to visit the ISS. STS-123 delivered the first module of the Japanese laboratory, Japanese Experiment

Module (Kibo), and the Canadian Special Purpose Dexterous Manipulator (SPDM). The completion of the mission will leave nine flights remaining in the Space Shuttle program until its end in 2010.

The flight director sees the big picture during a spaceflight; leading a team of flight controllers, support personnel and engineering experts, a flight director has the overall responsibility to manage and carry out Space Shuttle flights and ISS expeditions.

He earned a bachelor of science degree in physics from Purdue in 1989, a master's in space sciences from Florida Institute of Technology in 1991, and a master's in aerospace engineering from Purdue in 1995.



**Chairman
of Raisbeck
Engineering, Inc.
and its subsidiary
corporation Raisbeck
Commercial Air
Group, Inc.**

James D. Raisbeck BSAE'61; DEA'79; OAE'99; HDR'05

Raisbeck Engineering's Founder and CEO, James D. Raisbeck, BSAE'61; DEA'79; OAE'99; HDR'05; has been the recipient of many prestigious awards in his career. Purdue honored Raisbeck in 1979 with the Distinguished Engineering Alumni Award, again in 1999 with the Outstanding Aerospace Engineer Award. In May 2005, he received an Honorary Doctorate in Engineering.

More recently, Sherry and James Raisbeck were honored with the **69th annual Seattle - King County First Citizen Award** in May 2007, which recognizes their extraordinary philanthropy and commitment to local communities, both in human services and the arts.

In October 2007, Seattle's Museum of Flight honored Raisbeck with entry into the **Pacific Northwest Pathfinders Group**, recognizing his lifetime contributions to aviation.

In January 2008, Raisbeck received the **Lifetime Aviation Entrepreneur Living Legends of Aviation** award in honor of his contributions in the field of aviation and aeronautics spanning a 50 year period. Raisbeck, already a member of the Living Legends group of 80 elected members, was chosen to be recognized for his lifetime virtual catalogue of aerodynamic design contributions to commercial, business, and general aviation aircraft.

Raisbeck credits Purdue for his excellent analytical skills and, in gratitude for the excellent education he received, he wanted to do something for Purdue students. In 1999, James and his wife Sherry L. Raisbeck established the **Raisbeck Engineering Distinguished Professorship for Engineering and Technology Integration**. This Distinguished Professorship bridges the School of Aeronautics and Astronautics and the Department of Aviation Technology to teach graduate and undergraduate students the art and science of mixing theory and application in the Design/Build/Test process. Dr. Alten F. (Skip) Grandt was the inaugural recipient of this prestigious award.

NASA Celebrates 50 Years

During 2008, NASA will celebrate 50 years of scientific and technological excellence. NASA has powered us into the 21st century through signature accomplishments that are enduring icons of human achievement. Among those accomplishments are technological innovations and scientific discoveries that have improved and shaped our lives on Earth in a myriad of ways. NASA celebrates the past and look forward to a promising new era of inspiration, innovation, and discovery.



This design incorporates the Hubble Space Telescope image of the "grand design" spiral galaxy M81 located 11.6 million light years away in the constellation Ursa Major. For more information, visit the web site: <http://www.nasa.gov/50th/home/index.html>



John Blaha



Loren Shriver

Two Purdue Astronaut Alumni inducted into the U.S. Astronaut Hall of Fame

More than forty Hall of Fame astronauts gathered at the Kennedy Space Center on May 2–3, 2008, to induct the U.S. Astronaut Hall of Fame Class of 2008. Of the four astronauts inducted this year, two are Purdue graduates and include **John Blaha (MSAE'66)** and **Loren Shriver (MSAE'68)**. The 2008 class is the seventh group of shuttle astronauts to be named to the Hall since 2001.

John E. Blaha (Colonel, USAF, Ret.), a U.S. Air Force Aviator and test pilot, became an astronaut in 1980 and piloted Discovery on STS-29, STS-33, STS-43 and STS-58. STS-79 docked to the Russian Mir Space Station and Blaha set the then-U.S. men's record for time in space during his four months on orbit. He returned to earth on STS 81 on January 22, 1997.

Blaha also served on several NASA panels, including chairing the NASA Flight Safety Panel. He retired from NASA in 1997 to return to his home-town of San Antonio, TX, where he joined the Executive Management Group of the United Services Automobile Organization.

Loren J. Shriver (Colonel, USAF, Ret.) was selected as an astronaut with the first class of shuttle astronauts in 1978. He first flew as pilot of STS-51C in 1985; on his second flight in 1990 he led the deployment of the Hubble Space Telescope as commander of STS-31, beginning the telescopes nearly 20 years of imaging the universe.

Shriver's third spaceflight was on STS-46 in 1992, deploying the European Retrievable Carrier satellite. Prior to accepting his current position as Vice President of Engineering and Integration Chief Technology Office at United Space Alliance, he was the company's VP and Deputy Program Manager. Shriver was previously Deputy Director of the Kennedy Space Center from 1997 to 2000.

LOST FIGHTERS: A History of U.S. Jet Fighter Programs That Didn't Make It

William Holder (BSAE'60) discusses the "Lost Fighter" turbojet and turboprop propulsion systems of the exciting jet fighter era in the United States since the mid-1940s.

Covering fighters from those that did not reach beyond an artist's concept stage, to those that were cancelled after an evaluation of flight capabilities, to others that were cast aside after losing a fly-off competition; this book makes use of previously unpublished, primary-source material. It provides a coherent picture of U.S. jet fighter development and evolution. This book also includes hundreds of photos, drawings, and illustrations of the many "Lost Fighters."

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Date Published: December 2006



PURDUE UNIVERSITY

Engineering Professional Education

AAE Distance Graduate Education

The School of Aeronautics & Astronautics offers online master's-level engineering courses designed for working professional engineers, providing an opportunity to earn non-thesis online MSAAE degrees via distance learning. The distance courses from the renowned engineering program of Purdue's School of Aeronautics and Astronautics are administered by **Engineering Professional Education (ProEd)**.

The online MSAAE degree provides the opportunity to advance knowledge and expertise in this dynamic engineering field. School of Aeronautics & Astronautics graduates will gain the knowledge and expertise it takes to impact the ongoing development and refinement of the world's aviation, defense, and space exploration systems.

To pursue a non-thesis online MSAAE degree, students must be admitted to the School of Aeronautics and Astronautics following the same criteria as on-campus students. In addition to the non-thesis MSAAE degree, it is possible to pursue advanced studies relevant to aerospace engineering and earn an Interdisciplinary MSE or MS degree from Purdue. Students will work with a graduate Aeronautics & Astronautics program committee composed of a lead advisor from the AAE faculty and at least two additional engineering faculty members to determine course selection. 10 courses must be taken, for a total of 30 credit hours. A major area of study in AAE (at least four courses) as well as a minor area (at least two courses) and a minor area in mathematics (at least two courses) should be selected.

Online MSAAE degree classes are available primarily through streaming video over the Internet or MPEG-4 podcast. Select MSAAE program courses are available via CD, DVD or videotape.

AAE courses offered to distance students for Fall 2008 include: AAE 532 Orbital Mechanics, AAE 550 Multidisciplinary Design Optimization, AAE 554 Fatigue of Materials and Structures, AAE 615/ME 615 Aeroacoustics, and AAE 624 Laminar-Turbulent Transition.

For further information visit the ProEd web site <https://engineering.purdue.edu/ProEd/> or call 877-598-4233. Also, visit the School of Aeronautics and Astronautics web site at: <https://engineering.purdue.edu/AAE/Academics/Grad/DistanceGradEd>



DEBRA L. HALEY BSAE'78; OAE'05; DEA'08

Distinguished Engineer Alumni 2008

For her civilian leadership activities in the United States Air Force, the School of Aeronautics and Astronautics is proud to announce **Debra L. Haley BSAE'78** as 2008 Distinguished Engineer Alumni.

Haley recently retired as Special Assistant to the Command of the Aeronautics Systems Center at Wright-Patterson Air Force Base in Dayton, Ohio. Her responsibility and accomplishments were recognized with a presidential award for meritorious service from President Bush in 2005. She also holds master's degrees in management from the Massachusetts Institute of Technology and the Air Force Institute of Technology.

In her 29-year civilian career with the U.S. Air Force, Haley led several organizations at Wright-Patterson AFB. As CIO, she and her team operated and maintained the \$4 billion communications infrastructure of Air Force Materiel Command, enabling 100,000 people to communicate effectively and securely around the world. As executive director, she led a team of people responsible for buying and implementing software to run the business processes of the Air Force.

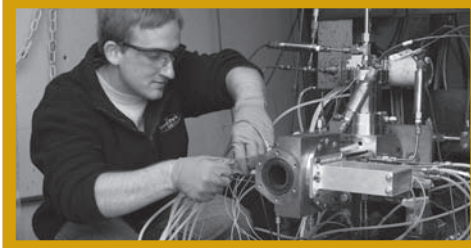
A dedicated mentor, Haley has given career development seminars across the Department of Defense. Now, in retirement, she is devoting her time in Florida to many faith-based, not-for-profit organizations. These include an after-school program for underprivileged children, hospice, mission work at church, and hospital chaplaincy.

New Purdue facility aims to improve NASA moon rocket engine

Purdue University engineers are conducting experiments using a new hydrogen facility to help NASA create designs to improve the cooling efficiency and performance of the J-2X rocket, a critical component for future missions to Mars and the Moon.

The new facility allows Purdue researchers led by **Dr. William Anderson** to study fundamental processes in hydrogen-oxygen engines, such as the J-2X and the space shuttle's main engine, in which hydrogen is the fuel that reacts with liquid oxygen. In such engines, liquid hydrogen is used as a coolant before it enters the combustion chamber. The cold liquid hydrogen, which is about 400 degrees below zero Fahrenheit, circulates through channels in a cooling jacket surrounding the combustor, absorbing heat and turning into a gas before it is injected into the chamber.

The J-2X rocket is an upgraded version of the J-2 rocket, which was part of the Saturn V vehicles that carried astronauts to the moon in the Apollo missions. The J-2X will be part of the Ares rocket used to launch the Orion spacecraft to the International Space Station after the end of the Space Shuttle program in 2010. The rocket also will be needed to carry materials into Earth orbit for retrieval by other spacecraft bound for the moon



Timothée Pourpoint, a senior research scientist in Purdue's School of Aeronautics and Astronautics, adjusts valves needed to direct the flow of hydrogen and nitrogen in bulk high-pressure hydrogen storage and feed system. (Purdue News Service photo/David Umberger)

and Mars. This research is directly supporting the refined development of the J-2X engine.

The work is based at the High Pressure Laboratory at Purdue's Maurice J. Zucrow Laboratories. High purity hydrogen is provided by the new

hydrogen facility, located at the High Pressure Laboratory and shared by another facility at the Zucrow Laboratories.

The hydrogen source is made possible by an intricate feed system designed by Timothée Pourpoint, a senior research scientist for the School of Aeronautics and Astronautics who is in charge of the hydrogen facility.

The research is being funded through NASA's Constellation University Institute

Program (CUIP). The new hydrogen facility is funded primarily by General Motors, with additional support from NASA, the Indiana 21st Century Research and Technology Fund and Purdue's Energy Center at the university's Discovery Park.

Recent findings were detailed in two research papers presented summer 2007 during the American Institute of Aeronautics and Astronautics' joint propulsion conference in Cincinnati.

William E. Boeing Distinguished Lecture 2008



Sigmar Wittig with head of school Tom Farris

The former council chairman of the European Space Agency and Purdue professor **Sigmar Wittig** was on campus on April 10 to talk about Europe's space policy during the William E. Boeing Distinguished Lecture.

The William E. Boeing Distinguished Lecture was established in 1999 in honor of its founder and The Boeing Co.'s support of Purdue. The School of Aeronautics and Astronautics has benefited from the university's long relationship with Boeing with the creation of the Boeing Wind Tunnel, Ludwig Tube and the McDonnell Douglas Composites Materials Laboratory. The lecture series features an internationally-known speaker from the aerospace or air transportation industry.

Sigmar Wittig, who also is chairman emeritus of the German Aerospace Center board of directors, served as the European Space Agency's council chair from 2005-2007.

"It's a great honor for Purdue to have someone of Sigmar Wittig's stature come to campus to talk with our students and faculty," said Thomas N. Farris, head of the Purdue School of Aeronautics and Astronautics, "his talk centered on the development of space policy as the agency brings in more nations. He addressed how national goals of those countries have to be balanced with international goals and cooperation."

Wittig was at Purdue from 1967-1976 as a mechanical engineering faculty, teaching thermal sciences and fluid mechanics and has a long and illustrious career in Germany. He is a member of several industrial boards and governmental advisory groups, including the Industrial Advisory Board of Purdue's School of Mechanical Engineering.

"It's a great honor for Purdue to have someone of Sigmar Wittig's stature come to campus to talk with our students and faculty."

Thomas N. Farris, head of the Purdue School of Aeronautics and Astronautics

Royal Australian Air Force

To commemorate the long and productive relationship with The Royal Australian Air Force, Tom Farris, head of the School of Aeronautics & Astronautics, presented a commemorative plaque to Air Commodore Steven C. Drury, MSAE'89; OAE'07 during the celebrations for the Outstanding Aerospace Engineers Award in October 2007.

Initiated in 1984, the goal was to provide RAAF officers with the required technical expertise in the general area of aircraft fatigue technology.

Fourteen graduates have been through this program. Upon their return to Australia, the Purdue/RAAF alumni have all received assignments to aerospace engineering positions that utilize their structural integrity education obtained at Purdue. Those who have remained on active service have achieved significant levels of responsibility within the RAAF.



Chair of the Graduate student selection board Tasos Lyrintzis, Air Commodore Steven Drury and head of school Thomas N. Farris

Outstanding AEROSPACE ENGINEER AWARDS



PURDUE UNIVERSITY



(L-R) Nancy (Brandon) Anderson with Pi Beta Phi pledge sisters (1958) Jill (Sweet) and Mic Mead, Bob and Cheryl (Kutchins) Kaliebe, and Sally (Carlson) Weist.



(L-R) Tom Farris; Head of School; Michael W. Hyer; Miroslav A. Simo; Steven C. Drury; Andrew H. Kasowski; Nancy L. B. Anderson; Thomas J. Beutner; Rune C. Eliassen



Seven alumni received The Outstanding Aerospace Engineers Award in October 2007. Each recipient demonstrated excellence in industry, academia, government service, or other endeavors which reflect the value of an aerospace engineering degree.

With this year's recipients, 115 graduates of the school have received the award since its inception in 1999. This number represents about 1.5% of more than 7000 alumni of the School.



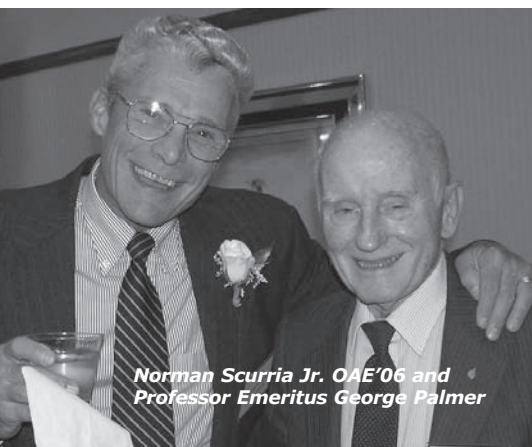
Nancy L. B. Anderson (BSESc.'61; MS'62) who received a bachelor's degree in Engineering Science in 1961 and a master's degree in 1962. She retired as Director of Technical Operations - Hughes Space & Communications (now Boeing)



Thomas J. Beutner (BSAAE'87) earned a bachelor's degree from the school in 1987 and is program manager in the Defense Advanced Research Projects Agency (DARPA) Tactical Technology Office in Arlington, Virginia



Steven C. Drury (MSAAE'89) is the Director General of Airlift and Training Systems - Defence Materiel Organization (Australia) and earned his master's degree in 1989



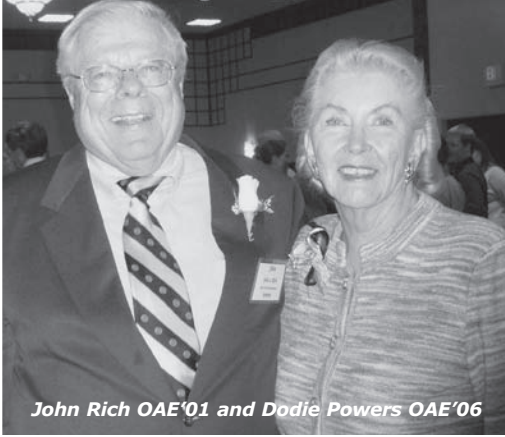
Norman Scurria Jr. OAE'06 and Professor Emeritus George Palmer



Ron Miller OAE'03



Martha and General Jack Hudson OAE'03 with Tom and Bernadette Farris



John Rich OAE'01 and Dodie Powers OAE'06



(L-R) Ronnie Miller, "Skip" Grandt and Professor Emeritus "Gus" Gustafson



Professor Emeritus Larry and Francis Cargino



Past and Present OAE
(L-R) Ronnie Miller; Brad Belcher; Dodie Powers; Jack Hudson; John Rich; Tom Farris; Michael Hyer; Miroslav Simo; Steven Drury; Andrew Kasowski; Nancy Anderson; Thomas Beutner; Rune Eliassen; Richard Rivir; Steven Ehlers; Thomas McKane; Norman Scurria



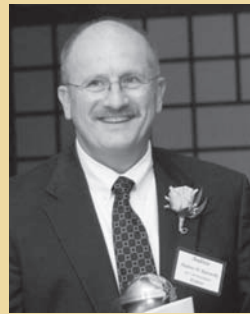
Student Master of Ceremonies Mark Glover and Dorrie Byford



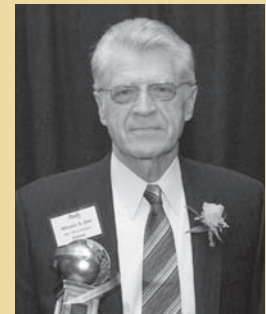
Rune C. Eliassen (BSAAE'77) earned his bachelor's degree in 1977 and retired as Vice President, Product Planning - Ariba Inc.



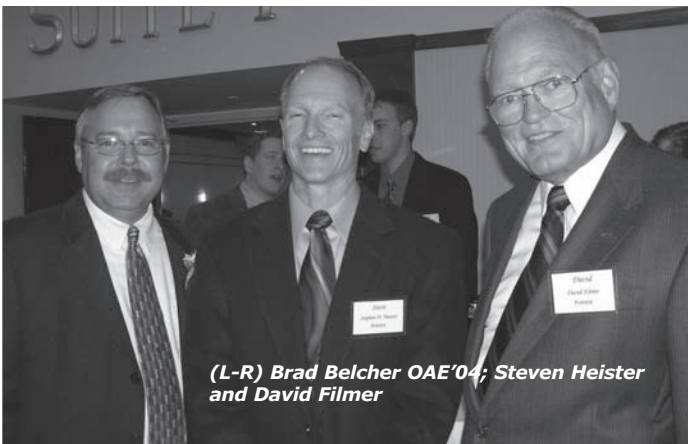
Michael W. Hyer (MSAE'66) earned his master's degree in Engineering Science in 1966 and is N. Waldo Harrison Professor of Engineering Science and Mechanics at Virginia Tech



Andrew H. Kasowski (BSAAE'72) is Vice President, Product Development - Cessna Aircraft Company and earned his bachelor's degree in 1972



Miroslav A. Simo (BSAE'61) received his bachelor's degree in 1961 and is President/Founder - New Archery Products



(L-R) Brad Belcher OAE'04; Steven Heister and David Filmer



Professor Greg Blaisdell with Sally and Gus Gustafson



(L-R) Richard Rivir OAE'06 and Norman Scurria Jr. OAE'06

AAE Faculty Roster

Aerodynamics

A. Alexeenko

Assistant Professor; Ph.D., Penn State, 2003; computational rarefied gas dynamics, kinetic theory of gases, numerical methods for model kinetic equations, direct simulation Monte Carlo techniques, microscale gas flows, coupled thermal-fluid analysis of microdevices, high-altitude aerothermo dynamics, two-phase plume flows.

G. A. Blaisdell

Associate Professor; Ph.D., Stanford, 1991, computational fluid mechanics, transition and turbulence.

S. H. Collicott

Professor; Ph.D., Stanford, 1991, experimental fluid mechanics, low-gravity fluid dynamics, optical diagnostics, applied optics.

M. C. Jischke

President Emeritus; Ph.D., Massachusetts Institute of Technology, 1968.

A. S. Lyrantzis

Professor; Ph.D., Cornell, 1988, computational aeroacoustics, aerodynamics, with applications to rotorcraft and jet flows.

S. P. Schneider

Professor; Ph.D., Caltech, 1989. Focuses on hypersonic and supersonic laminar-turbulent transition. Experimental research includes the development of the Boeing/AFOSR Mach-6 Quiet Tunnel and associate instrumentation.

J. P. Sullivan

Professor; Sc.D., MIT, 1973, experimental aerodynamics laser instrumentation, luminescent sensors for temperature and pressure measurements.

M. H. Williams

Professor and Associate Head; Ph.D., Princeton, 1975, aerodynamics, computational fluid mechanics.

Aerospace Systems

D. Andrisani

Associate Professor; Ph.D., SUNY at Buffalo, 1979, estimation, control, dynamics.

B. Caldwell (By Courtesy)

Associate Professor of Industrial Engineering; Ph.D., University of California-Davis, 1990; Human factors engineering; Distributed human supervisory control; Team coordination and performance using information technology

W. A. Crossley

Associate Professor; Ph.D., Arizona State, 1995, optimal design methods, genetic algorithms and aerospace applications, aircraft and rotorcraft conceptual design, composite and smart structure design.

D. DeLaurentis

Assistant Professor: Ph.D., Georgia Institute of Technology, 1998; Design Methods, Aerospace Systems and Flight Vehicles; System-of-Systems.

I. Hwang

Assistant Professor; Ph.D., Stanford University, 2004; hybrid system theory, information inference of complex dynamical systems, safety verification, and their application to the control of multiple-vehicle systems, especially air traffic surveillance and control.

J. P. Sullivan

Professor; Sc.D., MIT, 1973, experimental aerodynamics laser instrumentation, luminescent sensors for temperature and pressure measurements.

T. A. Weisshaar

Professor; Ph.D., Stanford, 1971, aircraft structural mechanics, aeroelasticity, integrated design.

Astrodynamics and Space Applications

D. Filmer

Adjunct Professor; Ph.D., Wisconsin, 1961, satellite design, ground station design for acquisition of satellite data

J. L. Garrison

Associate Professor; Ph.D., University of Colorado at Boulder, 1997, Satellite Navigation, GPS, Remote sensing.

K. C. Howell

Hsu Lo Professor of Aeronautical and Astronautical Engineering; Ph.D., Stanford, 1983, orbit mechanics, spacecraft dynamics, control; trajectory optimization.

J. M. Longuski

Professor, Ph.D., Michigan, 1979, spacecraft dynamics, orbit mechanics, control, orbit decay and reentry.

Dynamics and Control

D. Andrisani

Associate Professor; Ph.D., SUNY at Buffalo, 1979, estimation, control, dynamics.

M. J. Corless

Professor; Ph.D., Berkeley, 1984, dynamics, systems, control.

D. DeLaurentis

Assistant Professor: Ph.D., Georgia Institute of Technology, 1998; Design Methods, Aerospace Systems and Flight Vehicles; System-of-Systems.

D. Filmer

Adjunct Professor; Ph.D., Wisconsin, 1961, satellite design, ground station design for acquisition of satellite data

A. E. Frazho

Professor; Ph.D., Michigan, 1977, control systems.

J. L. Garrison

Associate Professor; Ph.D., University of Colorado at Boulder, 1997, Satellite Navigation, GPS, Remote sensing.

I. Hwang

Assistant Professor; Ph.D., Stanford University, 2004; hybrid system theory, information inference of complex dynamical systems, safety verification, and their application to the control of multiple-vehicle systems, especially air traffic surveillance and control.

Propulsion

W. Anderson

Associate Professor; Ph.D., The Pennsylvania State University, 1996, Chemical propulsion and design methodologies.

J. Gore (By Courtesy)

Vincent P. Reilly Professor of Mechanical Engineering; Ph.D., The Pennsylvania State University, 1986, combustion, turbulent reacting flows and pollutant reduction, radiation heat transfer, biomedical heat transfer and fluid flows.

S. D. Heister

Professor; Ph.D., UCLA, 1988, rocket propulsion, liquid propellant injection systems.

I. Hrbud

Assistant Professor; Ph.D., Auburn University, 1997; Electric Propulsion, Space Power, Advanced In-Space Propulsion

N. Key (By Courtesy)

Assistant Professor of Mechanical Engineering; Ph.D., Purdue University, 2007; Aerothermal aspects of turbomachinery, Axial and radial compressor performance, Experimental methods in fluid mechanics

C. L. Merkle

Reilly Professor of Engineering; Ph.D., Princeton University, 1969, Computational Fluid Dynamics and Mechanics, Two Phase Flows, Propulsion Components and Systems

L. Qiao

Assistant Professor; Ph.D., University of Michigan, 2007; Combustion and propulsion (low and high speed), experimental flow dynamics, micro-scale power generation, alternative fuels, fire research, environmental impact of combustion.

J. J. Rusek

Adjunct Assistant Professor; Ph.D., Case Western Reserve, 1983, Propulsion, Energy Conversion, Power Generation.

S. Son (By Courtesy)

Associate Professor of Mechanical Engineering; Ph.D., University of Illinois, 1993; Multiphase combustion, particularly related to propellants, explosives, and pyrotechnics; Nanoscale composite energetic materials; Advanced energetic materials; Microscale combustion.

Structures & Materials

W. Chen

Professor; Ph.D., California Institute of Technology, 1995, Mechanical Response of Solids and Structures under Extreme Conditions, Microstructural Effects on Mechanical Behavior, Fatigue Behavior of Engineering Materials, Experimental Solid and Structural Mechanics.

W. A. Crossley

Associate Professor; Ph.D., Arizona State, 1995, optimal design methods, genetic algorithms and aerospace applications, aircraft and rotorcraft conceptual design, composite and smart structure design.

J. F. Doyle

Professor; Ph.D., Illinois, 1977, structural dynamics, experimental mechanics, inverse problems, wave propagation.

T. N. Farris

Professor and Head; Ph.D., Northwestern, 1986, tribology, manufacturing processes, fatigue and fracture.

A. F. Grandt

Raisbeck Engineering Distinguished Professor for Engineering and Technology Integration; Ph.D., Illinois, 1971, damage-tolerant structures and materials, fatigue and fracture, aging aircraft.

P. Imbrie (By Courtesy)

Associate Professor of Engineering Education; Ph.D., Texas A & M, 2000, Engineering epistemologies and assessment of teaming and teamwork, of student success and retention, and of global awareness, values, and competencies. Development of reliable data preservation, access, integration, and analysis capabilities for engineering education. Outcome-based assessment.

R. B. Pipes

John L. Bray Distinguished Professor of Engineering; Ph.D., University of Texas, 1972; application of nanotechnology to engineering disciplines including aerospace, composite materials, and polymer science and engineering.

C.T. Sun

Neil A. Armstrong Distinguished Professor; Ph.D., Northwestern, 1967, composites, fracture and fatigue, structural dynamics, smart materials and structures.

T. A. Weishaar

Professor; Ph.D., Stanford, 1971, aircraft structural mechanics, aeroelasticity, integrated design.



Zero G Display in Armstrong Hall

Since fall 1996, the School of Aeronautics and Astronautics has been involved in the NASA Reduced Gravity Student Flight Opportunity program.

Prof. Steven Collicott specializes in research and engineering on low gravity fluids topics and he advised the first few teams of students. Collicott then created an upper-level undergraduate course for students to design zero-gravity flight experiments specifically for the NASA program which then became part of the curriculum. In all, it is a team-based, hands-on multidisciplinary experience.

The selection process is very competitive and teams of undergraduate students from all over the country send in proposals for experiments to be performed in a reduced-gravity environment. The experiments have to be designed and fabricated to meet NASA's safety regulations and only the best are chosen to be carried out by the student teams during a flight on NASA's C-9 aircraft, also known as the Vomit Comet.

Periods of weightlessness lasting about 25 seconds during downward "parabola" give students scant time to ready their experiments for the next parabola. The plane varies the steepness of its maneuvers, and this varying steepness produces different degrees of weightless. Most of the maneuvers reproduce the weightlessness experienced by space shuttle astronauts flying in orbit around Earth, but a few of the maneuvers reproduce the gravity on Mars and the moon.

A new graphic display unveiled in December 2007, recognizes and celebrates AAE undergraduate student success and achievement in the program. The new artwork boasts of the remarkable performance in this challenging and competitive engineering educational program. Our many visitors, from research sponsors to prospective students, will view AAE students at their best. The display has been situated just east of the AAE student lounge area on the 3rd floor in Armstrong Hall.

The display also contains the ongoing totals of Parabolas flown and minutes in zero gravity, lunar gravity and Martian gravity. Faculty member Prof. Barrett Caldwell flew with NASA on a lunar gravity flight test in the same aircraft used for zero-gravity testing on April 10. He led a multi-disciplinary student team in this effort and flew 28 lunar-gravity parabolas, 1 Martian gravity parabola, and 3 zero-gravity parabolas. The 11th AAE student Shira Okon flew the following day which brought the totals to the following:

AAE Totals			
	Zero-g	Lunar	Martian
Purdue Total Parabola Count	4648	280	143
Purdue Time, minutes (0.417min/parab)	1936.7	140	95.333
Hours	32.3	2.33	1.59
Purdue 100-min Earth Orbits	19.4		



Prof. Barrett Caldwell in the Vomit Comet



Dr. Steven Collicott flew aboard the "Vomit Comet" in 2004

Engineers rescue aging satellites, SAVING MILLIONS

Researchers from Purdue University and Lockheed Martin have used a new technique to save \$60 million for broadcasters by extending the service life of two communications satellites.

The successful "rescues" are detailed in a research paper published in the July-August 2007 issue of the *Journal of Spacecraft and Rockets*. The paper, *Thermal Gauging and Rebalancing of Propellant in Multiple Tank Satellites*, was written by Dr. Boris Yendler, an engineer with Lockheed Martin Mission Services in Sunnyvale, CA; Timothy A. Martin, an engineer with Lockheed Martin Space Systems Co. in Denver, CO; and AAE professor Steven H. Collicott.

An unbalanced propellant load in a geosynchronous communications satellite with multiple tanks can dramatically reduce satellite life and revenue. Depending on the details of the propellant plumbing system, significant fuel may become unusable in several tanks when the least full tank empties.

The research paper details two portions of the work needed to accomplish the fuel equalization: how to perform the "thermal gauging" that determines how much propellant is contained in the tanks, and then how to accomplish the rebalancing. Professor Collicott's research and engineering experiences in low-gravity fluid dynamics led to his involvement with the Lockheed-Martin team.

The new technique works by using a ground-based computational simulation to determine the precise three-dimensional distribution of fuel in each tank. Then, engineers analyze data from the satellite showing how the tanks respond when they are heated by onboard heaters. Data related to how the tanks respond to the heating can be analyzed to reveal precisely how much fuel remains in each tank.

Modern satellites generally have a single fuel tank, but there are a number of older satellites in orbit that could benefit through thermal gauging and rebalancing. Professor Collicott and his Lockheed-Martin teammates are marketing their expertise to satellite owners and operators who are interested in maximizing their revenue from communications satellites.

Faculty Update

National Science Foundation Career Award

Professor Inseok Hwang has been chosen for an NSF CAREER Award for his proposal entitled "Hybrid Estimation and Real-Time Computational Algorithms for Networked Embedded Hybrid Systems."



The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of the early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of the mission of their organization. Such activities should build a firm foundation for a lifetime of integrated contributions to research and education.

Congratulations to Inseok on this recognition of professional achievement and thanking him for the visibility that his efforts bring the School and Purdue.

W. A. Gustafson Teaching Award

Congratulations to **Professor Dominick Andrisani II** for winning this year's W.A. Gustafson Teaching Award. The award is for student recognition of teaching activities and voting for this nomination is by all students with junior and senior standing. Dominic Andrisani is now the School's nominee for the Murphy Outstanding Undergraduate Teaching Award 2008. Additional faculty members receiving votes included **Professor Weinong Wayne Chen** and **Professor Ivana Hrbud**.



Elmer F. Bruhn Teaching Award 2008

Presented annually to an Outstanding Teacher in the Purdue University School of Aeronautics & Astronautics, selected by the undergraduate student body for excellence in teaching and made possible by the interest and generosity of friends and alumni of the school.



Professor James Longuski is this year's winner of the **Bruhn Award**, and is now the School's nominee for the engineering wide **2009 A. A. Potter Best Teacher Award**. Other top candidates for the Bruhn Award are; **Professor Greg Blaisdell**; **Professor Kathleen Howell** and **Professor John Sullivan**. Congratulations to all for this recognition of their teaching efforts.

AAE Professor Chin-Teh Sun named to Institute for Scientific Information list of "Highly Cited Researchers"

The Institute for Scientific Information (ISI) named Professor Chin-Teh Sun to its list of "Highly Cited Researchers" for his work in the Materials Science category.

The citing of scientific papers is an important benchmark used to determine the progress and the state of scientific research. Inclusion in ISI's list is a distinct honor signifying the influence of the cited researcher's work.

As noted by ISI, "Citation is a key measure of influence in science and technology, because it is a highly informed decision." Namely, it is a decision formed by independent input from peers. Researchers on the list are considered to have formed or changed the course of research on a subject. Professor Sun is one of only fifteen Purdue professors to be so honored.



The C.T. Sun School of Aeronautics and Astronautics Excellence in Research Award

School of Aeronautics faculty member **Dr. Steven P. Schneider** is the 2008 recipient of the **C.T. Sun School of Aeronautics and Astronautics Excellence in Research Award**. He was recognized at the Outstanding Aerospace Engineers Award on October 4, 2007.



Head of School Thomas N. Farris and Steven P. Schneider

Purdue Aeronautics and Astronautics Course going to *serious gaming* format

Students in the second-year AAE class, *Introduction to Aerospace Design*, will use the concept of serious gaming to simulate the real working world. Beginning in 2009, the class will become an interactive serious game course. Engineering professors **Dan DeLaurentis**, Sean Brophy and David Ebert collaborated on the project that won the Discovery Learning Center's *Games to Teach* competition.

The three professors won \$150,000 to develop the serious game. They will have a prototype in 2008 and it will be introduced as a credit course in 2009.



WELCOME NEW FACULTY MEMBERS

The School of Aeronautics and Astronautics welcomes new faculty members **Dr. Dengfeng Sun** and **Dr. Karen Marais** as Assistant Professors.

Thank you to the AAE Search Committee of Bill Anderson, Wayne Chen, Art Frazho, Jim Longuski, John Sullivan and Terry Weisshaar, as well as the SoS Search Committee, including Bill Crossley, Dan DeLaurentis, Inseok Hwang and Steve Landry, who played key roles in recruiting these outstanding candidates to Purdue.

Dr. Dengfeng Sun

Assistant Professor of Aeronautics and Astronautics

Dr. Sun will begin his assistant professorship in August 2009 after completing research at NASA Ames.

He completed his Ph.D. from the University of California at Berkeley in May 2008; his Masters degree in Industrial and Systems Engineering from The Ohio State University in August 2002; and his Bachelor of Science degree in Mechanical Engineering from Tsinghua University, Beijing, China in July 2000, where he was ranked No 1 for 5 consecutive years in a class of 110 students.



Dr. Karen Marais

Assistant Professor of Aeronautics and Astronautics

Dr. Karen Marais is a Senior Lecturer in the Department of Industrial Engineering at the University of Stellenbosch.

Dr. Marais received her Ph.D. from the Department of Aeronautics and Astronautics at MIT in 2005. She also holds a master's degree in space-based radar from MIT. She holds a B.Eng. in electrical and electronic engineering from the University of Stellenbosch and a B.Sc. in mathematics from the University of South Africa.



Quiet' Mach 6

WIND TUNNEL

at Purdue helps shape future aircraft

A TEAM OF RESEARCHERS led by Dr. Steven Schneider is using the only wind tunnel capable of running quietly at "hypersonic" speeds, to conduct experiments to yield critical data in designing a new hypersonic aircraft prototype called the X-51A, powered by engines called scramjets.

The X-51A test vehicle is expected to evolve into missiles capable of flying at Mach 6 - or six times the speed of sound. Scramjets also may propel future military and civilian space planes and could be in use by 2015.


The team has been perfecting the wind tunnel for over a decade. NASA pioneered quiet facilities many years ago, but Purdue maintains the only such facility in the world capable of operating at Mach 6. Engineers are compiling detailed information about when and how airflow changes from laminar (or smooth) to turbulent as it speeds over the X-51A's surfaces.

The X-51 project is led by the Air Force Research Laboratory and the Defense Advanced Research Projects Agency, and the vehicle is being built by Pratt & Whitney

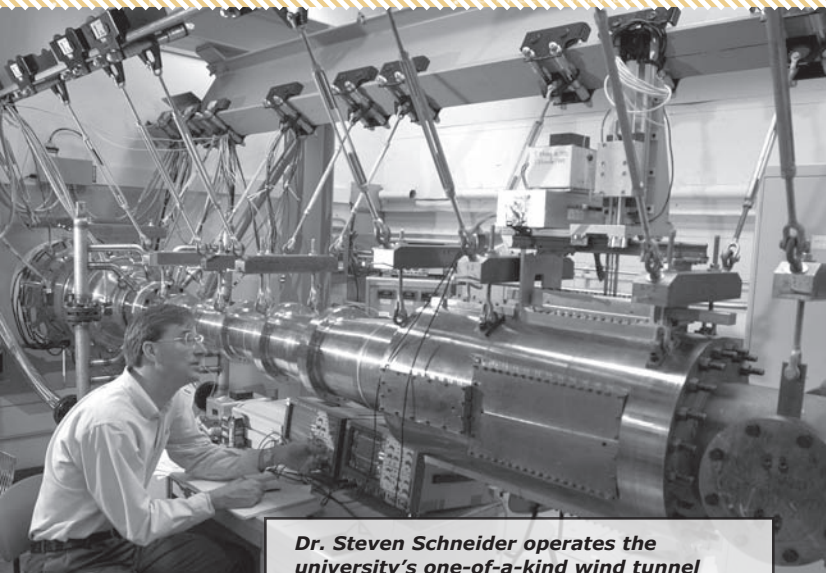
and the Boeing Co. Purdue engineers are part of a national team of researchers from government, academia and industry handling different aspects of the vehicle.

The Purdue research focuses on the forebody, using a foot-long model for wind-tunnel testing. Research findings are providing information in two vital areas: maintaining the turbulent flow of air into the engine's combustor to keep the scramjet running properly, and increasing the amount of smooth airflow over the vehicle's upper surface to reduce friction and heat that could damage or destroy the vehicle. The higher the Mach number, the greater the friction and heat generated in flight.

The X-51A is a wedge-shaped vehicle with a scoop like cowl on its underbelly, where air rushes into the inlet of the engine's combustor. It is critical for air entering the inlet to be turbulent at hypersonic speeds, or the engine could "unstart," causing it to crash. Air has to be converted to a turbulent flow before entering the inlet, which is accomplished using a raised strip of metal placed near the inlet to



Purdue doctoral student Matthew P. Borg holds a model of an advanced aircraft X-51A



Dr. Steven Schneider operates the university's one-of-a-kind wind tunnel
(Purdue News Service photo/David Umberger)

"trip" the air from smooth to turbulent. Wind tunnel tests are helping engineers better understand this "roughness-induced transition."

Another major application will be to design a generation of aircraft that will use scramjets to travel more than 7,000 mph, allowing them to leave the atmosphere and fly halfway around the world in a few hours. A future fleet of space planes using Scramjets, or supersonic combustion ramjets might be less expensive to operate than the current space shuttles, making it more affordable to haul payloads into orbit. The space planes would use a combination of scramjets and rockets. Because scramjets use air from the atmosphere as the "oxidizer" to combust fuel, they do not require the liquid oxygen needed for rockets. That means vehicles equipped with scramjets would carry less liquid oxygen – only enough needed to operate rockets at high altitude.

Purdue, the Air Force and private industry have invested about \$1 million in this tunnel over that time, and it's finally working and getting results that are affecting the design of these vehicles.

To obtain quiet flow, the throat of the Mach 6 nozzle must be polished to a near-perfect mirror finish, eliminating roughness that will trip the flow near the wall from laminar to turbulent. Then, for the wind tunnel to remain quiet, it must be entirely free of particles.

Findings are detailed in a research paper were presented on Jan. 8 during the American Institute of Aeronautics and Astronautics' 46th Aerospace Sciences Meeting and Exhibit in Reno, Nev. The paper, Effect of Freestream Noise on Roughness-Induced Transition for the X-51A Forebody, was written by Schneider and graduate research assistant Matthew P. Borg and Thomas J. Juliano.

Purdue's wind tunnel, which has been funded by the Air Force Office of Scientific Research, NASA, Sandia National Laboratories, the Ballistic Missile Defense Organization and the Boeing Co., is named the Boeing/AFOSR Mach 6 Quiet Tunnel.

Engineering Challenges in Aviation Accident Investigations – COLLOQUIUM SERIES

As part of the AAE Spring 2008 Colloquium Series, AAE alumnus Thomas E. Haueter BSAAE'74 presented Engineering **Challenges in Aviation Accident Investigations** on March 20, 2008 in Armstrong Hall.



Mr. Haueter is the Director of the National Transportation Safety Board's Office of Aviation Safety and has over 25 years experience in aircraft accident investigation. He joined the Safety Board as an aircraft structures investigator, then became an Investigator-in-Charge (IIC) of domestic air carrier accident investigations and the U.S. Accredited Representative for foreign aviation accidents. Subsequently, Mr. Haueter served as Deputy Director and the Chief of the Major Investigations Division. In these roles, he provided management oversight of major aviation investigations such as the TWA Flight 800 and American Airlines Flight 587 and was responsible for the Safety Board's support of the FBI's investigation of the September 11, 2001 terrorist attacks. He was the IIC for the investigation of September 8, 1994 accident involving USAir flight 427, which resulted in the redesign of the rudder system on Boeing 737 series.

Additionally, Mr. Haueter was an advisor to the space shuttle Columbia accident investigation Board. As the Director of the Office of Aviation Safety, he is responsible for the investigation of all domestic aviation accidents and the Safety Board's response to major foreign aviation accidents.

Mr. Haueter is an alumnus of Purdue University where he received a BS in Aeronautical and Astronautical Engineering; he received an MBA in Operations Research and International Business from George Mason University. Mr. Haueter holds a commercial pilot's license with multi-engine and instrument ratings and regularly flies a 1943 Stearman airplane that he restored.

Web site photos

The School of Aeronautics and Astronautics Web Site now contains photos from various events. Lisa Crain is getting more photos on when time allows. Thus far, Lisa has posted photos from the following events:

- AAE 439 Rocket Launch
- Armstrong Hall
- Family Day
- Graduations
- Outstanding Aerospace Engineer Awards

The photos can be found at the following link <https://engineering.purdue.edu/Intranet/Groups/Schools/AAE/AAEPhotos>

Or by first going to **Information for Alumni and Friends** (on left side bar). **AAE Photos** is on left hand side bar under Alumni Links.

Purdue graduates urged to reach for stars while charting futures



Congratulations to our graduates 2007-2008

During the 204th commencement ceremony, President France A. Córdoba encouraged new graduates to not only reach for the stars when pursuing their own dreams, but to advance the dreams of people everywhere. Córdoba spoke to candidates during four spring commencement ceremonies taking place the weekend of May 9-11 in Elliott Hall of Music.

During the 2007-08 school year, the School of Aeronautics & Astronautics awarded 116 BSAAE degrees, 57 MS degrees, and 24 Ph.D. degrees.

Congratulations to all of our graduates.

August 2007

B.S. CANDIDATES

Mohammad Abdul
Derek Dalton
Manish Handa
Nicole Risley
Ryan Scott

M.S. CANDIDATES

Jennifer Byron
Lloyd Droppers
Amit Gujarathi
Gregory Henning
Jacqueline Jaron
Jacob Pinheiro
Reuben Schuff
Gregory Wilson

PH.D. CANDIDATES

A. Nusawardhana
Myounggu Park
James Sisco



May 2008

December 2007

B.S. CANDIDATES

Joshua Altchuler
 Alexandru Andrei
 Brett Ballard
 John Barker
 Michael Bianco
 Dorothy Byford
 Elizabeth Candee
 Christopher Carlen
 Neelam Datta
 Alexandria Estes
 Joseph Fallon
 Colin Ford
 David Gagnon
 Jummie Garba
 Christopher George
 Adam Hamlin
 Nicholas Harp
 Lynn Hendricks
 Xin Zhao Huang
 Mark James
 Michael Kowalkowski
 Andrew Krieger
 Atul Kumar
 Kevin Kwan
 Kibum Kwon
 Brian Lee
 Julim Lee
 Johnson McRorie
 Andrew Meyer
 Nivas Nagappan
 Sangtae Nam

Takayuki Nishiie
 Zubin Olikara
 Abel Ooi
 Michael Pugh
 Sara Reinebold
 Lucas Robinson
 Courtney Rogge
 Matthew Romanotto
 Benjamin Shoemaker
 Sara Tassan
 Michael Valentine
 Gail Wallintin
 Jacob Watt
 Alvin Yip

M.S. CANDIDATES

Ameya Alkari
 Christopher Ballard
 Daniel Brophy
 Erle Case
 Erik Dambach
 Navindran
 Davendralingam
 Gabriel Dufraise
 Joseph Ewing
 Richard Kloeden
 David Link
 Jonathan Nierling
 Jeffrey Onken
 Hiren Patel
 Rodrigo Segura

B.S. CANDIDATES

Brian Acker
 Jerald Balta
 James Bearman
 John Beasley
 Christopher Beckett
 Andrew Berger
 Stephen Bluestone
 Scott Breitenegross
 Amanda Briden
 Andrew Brinker
 Nicole Bryan
 Dean Bryson
 Brian Budzinski
 Albert Chaney
 David Childers
 Matthew Conrad
 Jason Darby
 Joshua Dias
 Jessica Doyle
 Bradley Ferris
 Matthew Fosler
 Brian Gershkoff
 Kuo Guo
 Allen Guzik
 Elizabeth Harkness
 Daniel Heacock
 Joseph Henrich
 Lance Henricks
 Richard Hinton
 Patrick Horney
 Paul Imel
 Steven Izzo
 Junichi Kanehara
 Matthew Kayser
 Peter Krupski
 Dana Dianne -
 Lattibeaudiere

Alfred Lynam
 Laura Markee
 Joshua Mason
 Seann Mckenna
 Amir Mehmedagic
 Ryan Milmoie
 Pritesh Mody
 David Norris
 Kyle Noth
 Jonathan Olsten
 Robert Paladino
 Jamie Rosin
 Jessica Schoenbauer
 Alan Schwing
 Sarah Shoemaker
 Stephan Shurn
 Aaron Smith
 Ross Spoonire
 Christopher Strauss
 Vincent Teixeira
 Camrand Tucker
 Elisabeth Wahl
 Adam Waite
 William Waltke
 Brandon White
 Nicole Wilcox
 Dennis Wilde
 Alexander Woods
 Danielle Yaple
 Jayme Zott

M.S. CANDIDATES

Albert Antaran
 Robert Aungst
 Jonathan Braun
 Jasmine Cashbaugh
 Annie Cheng
 Sruti Chigullapalli

James Eckstein
 Cyril Galitzine
 Joseph Gangestad
 Jeeyeon Hahn
 Ernest Harriss
 Miles Hatem
 Shih-Hsuan Huang
 Xing Huang
 Tatsuya Kotegawa
 Andrew Kovach
 Anant Kumar
 Nikolaus Ladisch
 Kevin Linke
 James Moore
 Matthew
 Otterstatter
 Alejandro Puga
 Aaron Sengstacken
 Jason Tichy
 Justin Voo
 Sarah Weise
 Vincent Werner

PH.D. CANDIDATES

Jeremy Corpening
 Joshua Frommer
 Rushabh Kothari
 Carlos Lana
 Lindsay Millard
 Haiyang Qian
 Seetha Raghavan
 Chul Syn
 Chit Hong Yam

STUDENT *awards*

The Outstanding Senior Award

Each year the Aeronautics Honorary Society, Sigma Gamma Tau, sponsors the outstanding senior award. The nominees are selected by the faculty, and the Outstanding Senior is selected by a student vote. Congratulations to

SGT Outstanding Senior Award

Amanda Briden



School of Aeronautics & Astronautics Outstanding Graduate Student

Jeremy Corpening

School of Aeronautics & Astronautics Outstanding Senior

Kathryn Mitchell

Martin Ozimek won an AIAA Wright Brothers Graduate Award for 2007. He was recognized at the 46th AIAA Aerospace Sciences Meeting and Exhibit in Reno, Nevada, in January 2008. The AIAA Foundation Orville and Wilbur Wright Graduate Awards have been established by the AIAA Evolution of Flight Campaign and the AIAA Foundation in commemoration of the 100th anniversary of powered flight. The Awards recognize the Wright brother's aeronautical achievements and contributions to the evolution of flight.

2007-2008 Magoon Award Winners

Rebecca Browning
Thomas Pavlak
George Pollock
Wayne Schlei
Cody Short
Kelly Walsh
Shae Williams

2008 - Herbert F. Rogers Scholarship

Alan Schwing; Pritesh Moody;
 Mark Guiles; Allissa Battocletti;
 Michael Mueterthies

2008 - Warren G. Koerner Scholarship

Akshay Ashok; Bryce Petersen;
 Brandon Kan; Christopher Spreen;
 Georg Wurzel; Jerald Balta; Stephanie Sumcad; Christopher Heims;

2007-2008 Warren G. Koerner Graduate Scholarship

Michael A. Kowalkowski;
 Brian Pomeroy; Shah Rashmi;

David O. and Linda Schimmel Swain Scholarship

Taner Kipfer; Timothy Rebold;
 Aamod Samuel; Brittany Waletzko
 Robert McCabe

2007 Purdue Forever Fellowships

Thomas Juliano; A. Brandon Oliver;
 Randolph Smith

The Marc Christopher Weaver Memorial Scholarship

Dean Bryson; Christine Troy;
 David Replogle; Timothy Rebold

Astronaut Scholarship Foundation Award

Christine Linda Troy

2007 Elmer F. Bruhn Undergraduate Research Assistantship

Akshay Ashok
 Ryan Garwood
 Yan Chua
 Michael Bianco
 Joseph Moore

2007 - 2008 Donald C. and Marion E. Currier Scholarship

Lynn M. Hendricks; Kevin M. Zaseck; Amir Mehmedagic;
 Jonathan A. Coughlin

2007 - 2008 John and Patricia Rich Scholarship

Edward Londner; Alinda Aligwesa

Orrin Arthur Austin Memorial Scholarship

Paul A. Johnson

Boeing Undergraduate Scholarship

Mintae Kim; Megan Bartholomay;
 Andrew Ross; Brittany Waletzko;
 Sheldon Murphy; Michael Zander

David L. Filmer Scholarship

Paul Moonjelly

Joe Melroy Umbreit Scholarship

John L. Tapee; Alejandro Puga;
 Sheila Milton; Joshua Dustin;
 Loral O'Hara; Andrew Ritchey

Winners of the ATK AAE 251 Thiokol Propulsion S.P.A.C.E. Awards



**Spring 2007
 First Place Team**

(L-R) Brian Erson; Kara Akgulian; Shyam Veerasankar; David McGrath; Andrew Rettenmaier; Nick Piercy; Clara Garman;

Diane Barney
 Matt Cherry
 Chris Spreen

Patrick Brennan
 Andrew Hoft
 Ben Weiss

**Fall 2007
 First Place Team**

Space Shuttle Memorial Scholarship

Courtney Rogge; Alan Schwing

MathCounts Recipient

Christopher Heims

2007-08 Excellence in Teaching Awards from the Mathematics Department

Govindarajan Kothandaraman

2008 National Science Foundation Fellows

Loral O'Hara (advisor W. Anderson)
Zubin Olikara (advisor K. Howell)

Bisland Strategic Initiatives Fellowship

Kay Johnson

NDSEG Fellowship

Brian Pomeroy (advisor W. Anderson)

National Science Foundation Discovery Learning Center GK-12 Fellowship & Bisland Strategic Initiatives Fellowship

Matthew Churchfield
(current NSF Fellowship holder)

Nominee for Chorafas Foundation Award & Bisland Dissertation Fellowship 2008-09

Kristin (Gates) Medlock
(current NASA Fellowship holder)

Lindsay Millard, AAE Grad Student, wins Best Paper Award at the AAS/AIAA astrodynamics conference

Congratulations to Lindsay Millard, who received the Best Paper Award at the AAS/AIAA astrodynamics conference Sedona, Arizona, January 2007. This is a further very prestigious addition to Lindsay's outstanding record and the School and Purdue University are proud of this achievement.



CONTROL OF INTERFEROMETRIC SPACECRAFT ARRAYS FOR (u, v) PLANE COVERAGE IN MULTI-BODY REGIMES
- Lindsay D. Millard and Kathleen C. Howell

Seetha Raghavan, AAE Grad student wins first prize in the Student Abstract/Presentation Competition at SES 2007

Seetha Raghavan, an AAE graduate student working under the supervision of Dr P.K. Imbrie won first prize in the Student abstract/Presentation Competition at the 44th Annual Technical Meeting of the Society of Engineering Science.



Her abstract and presentation was titled, "A 3D Stress Measurement Model for Chromium-Doped Alumina." Seetha received a certificate and a monetary award sponsored by the Office of Naval Research (ONR) and the Air Force Office of Scientific Research (AFOSR) as well as a travel award for the conference.

Purdue Black Caucus of Faculty and Staff Annual Academic and Service Award

Congratulations to Dana-Dianne Lattibeaudiere and Kamwana Mwara who were presented with academic achievement awards at the 33rd Annual Award Program held on April 12, 2008

AAE graduate student honored by College of Engineering International Chorafas Foundation Award

Congratulations to James Sisco who received a prize for the Top Dissertation Award for the Chorafas competition. The Chorafas Foundation was created in 1992, and prizes are awarded to students at more than 20 universities around the world for exceptional doctoral research projects and to help stimulate research among young doctoral candidates.

John Tsohas has been accepted to the 2008 Applied Management Principals (AMP) program sponsored by the Krannert Business School

AAE Research Symposium

The 2007 AAE Research Symposium Series awards are given to recognize excellence in technical presentation skills.

First place - *Lindsay Millard*
(Control of Spacecraft Imaging Arrays in Multi-Body Regimes)

Second place - *Liaquat Iqbal*
(Application of an Integrated Approach to the UAV Conceptual Design)

Third place - *Marty Ozimek*
(Optimal Low-Thrust Trajectories to Earth-Moon Libration Point Orbits via the Stable Manifold)

Best undergraduate presentation - *Pritesh Mody*
(Armstrong Hall Server Room Cooling Simulation)

Best Abstract - *Randy Smith*
(Computational Modeling of Combustion Instability in a Single-Element Rocket Combustor using a Response Function)



(L-R) Bottom Row
Marty Ozimek, Lindsay Millard, Liaquat Iqbal, Pritesh Mody, Randy Smith

(L-R) Top Row - Judges;
Chris Patterson; Dr. Kathleen Howell, Marriner Merrill; Bob Manning; and Govindarajan Kothandaraman

The Research Symposium Series is a department-sponsored forum for graduate students and advanced-level undergraduates to present their research to a general audience. Feedback is provided to all presenters both by the audience and symposium judges. This symposium has been held each week during the Fall Semester for the past 6 years.

U.S. News & World Report's Graduate Rankings

Purdue University's programs maintained high rankings in the *U.S. News & World Report's* survey of the nation's top graduate schools released March 28, 2008.

Purdue's College of Engineering ranks 15th overall in the survey with Aerospace/aeronautical/astronautical at **No. 5**, tied with University of Michigan, up from 6th place at the same time last year.

The rankings and related articles are available on the *U.S. News & World Report* Web site <http://www.science.purdue.edu>.

Awards of Excellence — Engineering Staff Recognition

The College of Engineering Awards of Excellence was initiated in 2002 to honor outstanding faculty and administrative, professional, clerical and service staff. Now in its fifth year **Paula Kerkhove**, Development Assistant in the School of Aeronautics and Astronautics, was awarded the Customer Service Award.

Nominated by Head of School Dr. Thomas N. Farris, Paula was presented with the Award at a banquet held on November 2, 2007 in the Shively Club in Ross Ade Stadium. Paula is the key member who among other things, organizes the Outstanding Aerospace Engineers Award banquet and makes the school's alumni relations function smoothly. During the Award ceremony, Paula was commended for her generosity, hospitality and determination.



Four VIP's took part in the **Students for the Exploration and Development of Space (SEDS) Spring Space Forum on Friday April 11, 2008, where the panel was asked such questions as: "Should humans go to Mars" and "What challenges will we face to get there?"**

SEDS Spring Space Forum Humans on Mars



(L-R) left to right is Sigmar Wittig, Joseph Palaia, Frank Bauer

Frank Bauer is the NASA Headquarters Chief Engineer for the Exploration Systems Mission Directorate (ESMD), NASA's initiative to develop a sustained human presence to the moon, promote space exploration, and serve as a stepping stone to the Mars and beyond. Bauer has served in several systems engineering leadership roles primarily at the Goddard Space Flight Center in Greenbelt, Maryland and most recently at NASA Headquarters in Washington, DC. He received his Bachelor's and Master's degree in Aeronautics and Astronautics from Purdue University.

Sigmar Wittig has served as Chairman of the Board for the German Aerospace Center since 2002, and was Chairman of the Council of the European Space Agency (ESA) from 2005 through 2007. He holds Honorary Doctorate Degrees from Universities in Germany, Russia, Greece, Hungary, and from Purdue University and is a member of several Academies of Science such as the Leopoldina and the International Academy of Astronautics. Wittig was a professor in the School of Mechanical Engineering from 1967 to 1976, and remains a member of the Industrial Advisory Board.

Robert Zubrin is the founder of the Mars Society, a non-profit activist organization that seeks to encourage Martian exploration and colonization. He has developed a number of concepts for space propulsion and exploration, and is the author of over 200 technical and non-technical papers and five books. He was also a senior engineer with the Martin Marietta Astronautics company, working as one of its leaders in development of advanced concepts for interplanetary missions.

Joseph Palaia is a co-founder of 4Frontiers Corporation a Florida-based company. This new company seeks to design, fund, build and operate the first permanent settlement on Mars, and to pursue in the economic development of the inner solar system. He served in an organizational and leadership role during 4Frontiers Generation II Mars Settlement Design Effort in 2006 and 2007. Sponsored by the School of Aeronautics and Astronautics, the Purdue Engineering Student Council, and the Indiana Space Grant Consortium, SEDS Spring Space Forum is an educational, community-driven event geared toward generating interest in both students and the public on issues concerning space exploration. The panel responded to audience questions about the possibility of sending humans to Mars and the possible risks and benefits that we would encounter.

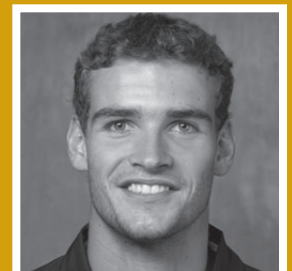
Senior AAE Student sets sights on Olympics

Senior AAE student **Romain Maire** has been swimming competitively since middle school and attended the Olympic time trials in France in April.

Maire was born in Dijon, France and he hopes to get a place on the French Olympic team and swim for his country. He began swimming at the age of seven and quickly realized his love for the sport and his natural talent in swimming.

He learned about both the Purdue swimming and the school's engineering programs while at school in France. After visiting the campus, he loved Purdue and it offered him the two things he wanted that French universities didn't - engineering and swimming. He wanted to swim competitively and study engineering at the same time and Purdue offered the perfect solution.

Maire quickly settled in and his teammates became his family in the U.S. With his time as a student-athlete at Purdue at a close, he said he is going to miss swimming in the Boilermaker Aquatic Center, but that he has plenty of goals after he graduates. Along with his drive to become an Olympic record-holder, he also plans to go to the University of Madrid in Spain to get his master's degree.



The Professor Ervin O. Stitz Faculty and Student Leadership Fund

A faculty and Student leadership fund has been set up by the late Charlotte M. Stitz in memory of her late husband **Professor Ervin O. Stitz** who died on April 27, 1997.

The Professor Ervin O. Stitz Faculty and Student Leadership Fund has been established to assist faculty in starting research projects and/or to fund student scholarships and/or fellowships based on academic merit.

A long-time member of SESNSEM, Prof. Stitz served as Chairman of the Publications Committee and was on the Executive Committee in the 1950's. He received the M. M. Frocht Award in 1972 and was elected Fellow in 1978. He was a founding member of the Indiana Section of the SESA and was very active in that section for several years.

Professor Stitz was a native of Lafayette, Indiana, attended Purdue University, and was a member of the faculty until his retirement in 1975. He was a superb teacher who won the Elmer F. Bruhn Teaching Award in 1972.

Purdue NEXT

Organized by the Department of Engineering Education, Purdue NEXT aims to familiarize admitted high school seniors with Purdue in preparation for the following academic year. In addition to explaining the First Year experience, co-ops and internships, an engineering academic fair showcases the different areas of engineering.

AAE students **David Cronin, Tim Duquette, Ian Meginnis** and **Colin Morgan** represented the School of Aeronautics & Astronautics at this event.



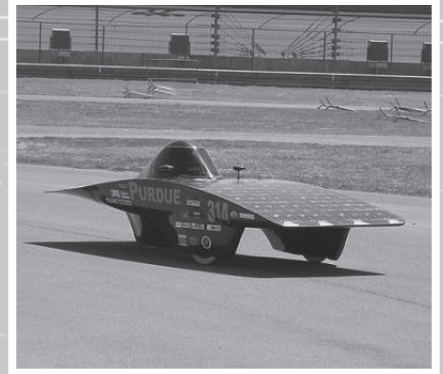
Colin Morgan and Ian Meginnis



Colin Morgan talks to admitted high school seniors

Family Day 2007

AAE students Jummie Garba, Mike Bociaga, Tara Palmer and Jim Tancred represented the School of Aeronautics and Astronautics on Family Day on Saturday September 15, 2007.



Purdue's solar vehicle beats competition in Eco-marathon Americas

A team of Purdue University students finished first in the solar category of the 2008 Shell Eco-marathon Americas held in April 2008 at the California Speedway in Fontana, Calif.

The event drew 300 students on 32 teams from four high schools and 23 universities from Canada, Mexico and the United States. The teams had to design, build and drive a vehicle the farthest distance using the least amount of fuel.

The Purdue team, which constructed a three-wheel solar-powered car called the Pulsar, achieved the equivalent of 2,861.8 miles per gallon, the best of any of the vehicles competing. The entries included 25 vehicles powered by combustion engines, four by fuel cell/hydrogen technology, one by diesel fuel, one by liquid petroleum gas and two by solar power.

The Purdue team won \$1,600 for the first-place finish in the solar division and included AAE student senior **Bill Waltke** and December graduate **Matt Romanotto**.

The Eco-marathon concept started as the Shell Mileage Marathon in 1939 between employees of Shell at a research laboratory in Wood River, Ill. Today, the Americas event extends to student teams from across North and South America and the 2008 Eco-marathon project took place May 22-24 in Nogaro Circuit, France.

Your financial support leaves a lasting impact on Purdue and the School. These gifts help us to achieve our mission in preparing students to be leaders in the aerospace field. Our annual Donor Honor Roll lists our alumni and friends and corporate donors who have given generously of their financial resources to support the School of Aeronautics & Astronautics. Many thanks for your investment in us. Listed are those who have generously donated during the period July 1, 2007 – June 30, 2008. Thank you for your support.

Purdue Launches Access & Success Campaign

Following the success of the "Campaign for Purdue," President France Cordova found an opportunity where Purdue can really make an impact on our students. With the cost of college tuition today, students need financial support more than ever to achieve a great Purdue education. On July 1, 2008, Purdue University, along with President Cordova's vision, launched the Access & Success Campaign. This seven-year campaign is focused on seeking scholarship support for students.

When you recall your Purdue tuition and fees, you may think what you paid was inexpensive for the quality of the degree. Just after the turn of the century, the cost of a Purdue education increased fairly significantly. For the '08-'09 academic year, in-state students will pay just over \$7,500 for tuition/fees, and out-of-state students will pay just over \$23,000. The School of Aeronautics & Astronautics is committed to providing the best aerospace education we can. In order to do this, we will need your help! Each year our alumni give back because they feel their Purdue degree was the ticket for a successful career. We look forward to seeking your support and discussing how you may impact current and future aero/astro students. The School is forever grateful for your generous annual support. We will do our best to keep you informed and involved as we move forward. THANK YOU!!

Hail Purdue!



Nathan L. Wight
Director of Development

Development updates

Due to an error by Development Reports Charles J. Yaber was left off the 06-07 Honor Roll. We apologize and include Charles for this year. We appreciate your donations and thank you for support of the school.

The Purdue Foundation can no longer accept anonymous stock gifts.

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