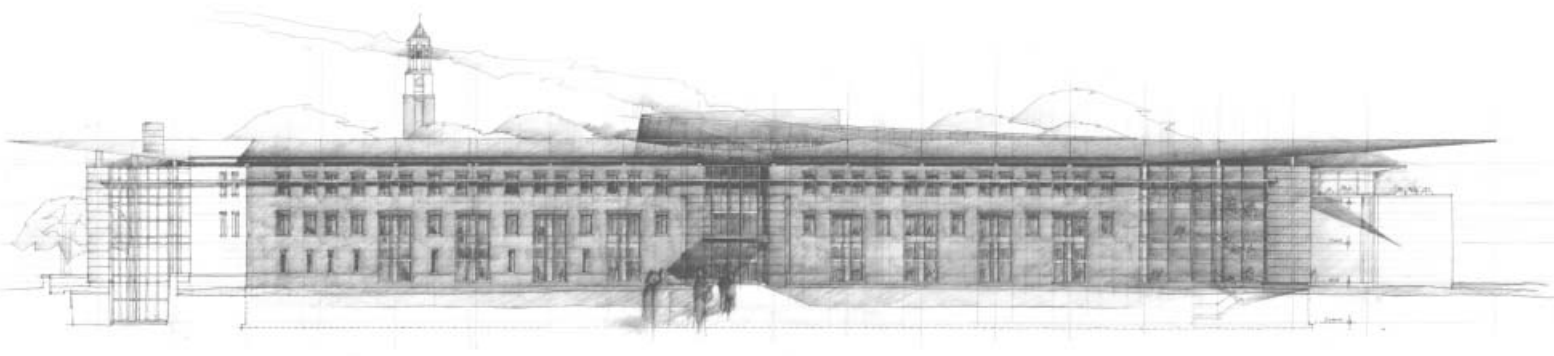
PURDUE UNIVERSITY

AeroGRAM

Fall 2004

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

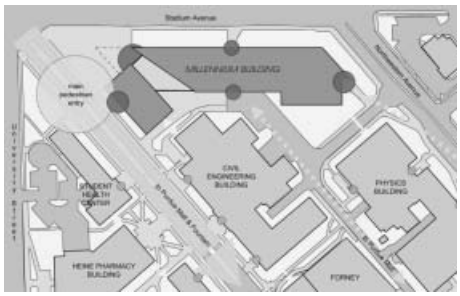
Covering the 2003-2004 academic year



Update on the Millennium Building

The Campaign for Purdue has raised more than $886.2 million since it began in July of 2000. The Campaign strives to raise $1.3 billion by 2007; as we near the end of the fourth year of our seven-year fundraising efforts, 68.2 percent of the total goal had been reached. The Campaign is set up to raise money for scholarships, faculty support, facilities, programs and an unrestricted fund. Our success is due to the profound dedication and enthusiasm of our alumni, friends, community partners, faculty, staff, president and trustees.

The largest piece of the College of Engineering Master Facilities Plan is the building of the Millennium Building. The 123,000 square foot facility will be located on the corner of Northwestern and Stadium Avenues, the building will house the School of Aeronautics & Astronautics, along with the Dean of Engineering's office and other Schools of Engineering. More than 30,000 square feet will be dedicated to AAE activities. Funding for the new building is a partnership between the state of Indiana and friends and alumni of Purdue. The total fundraising goal is $47.7 million. The state of Indiana is providing $37.7 million and Purdue is well on its way to obtaining $10 million from alumni, friends and corporate donors.



"The Millennium Building is a cornerstone of our schools' campaign, accounting for almost half of our much needed expansion," said Linda P.B. Katehi, the John A. Edwardson Dean of Engineering. "The building will not only advance teaching and research, but will also serve as a showcase for the past accomplishments and future direction for the Schools of Engineering." Construction of the building could start by late summer 2004 with a completion tentatively set for 2007.

Head of the School of Aeronautics & Astronautics Tom Farris said the Millennium Building will feature learning spaces that facilitate student teamwork, especially for design work, one of the most important facets of any engineering education. In addition to the improvements to undergraduate education, the School of Aeronautics & Astronautics is focusing on strengthening and investing in its core areas, such as aerodynamics, structures and materials, dynamics and control and propulsion. The Millennium Building will house learning modules that support research and hands-on learning experiences, and classrooms will be located with labs and discussion areas designed to facilitate small-group work. Farris said these "team-learning modules" will give students a more integrated educational experience, easier access to the tools needed for the classroom and lab assignments, and rooms for groups to spread out, share ideas and build solutions. These areas will be strategically located near research and graduate labs so faculty can expose undergraduates to large-scale experiments and undergraduate research opportunities. It will also feature state-of-the-art research laboratories crucial to recruiting the best possible faculty and students, these facilities will continue to be complemented by research laboratories at the Aerospace Science and Zucrow laboratories.

The Campaign for PURDUE

in this issue...

AAE Headlines

Thomas N. Farris

I am excited to report a ground breaking ceremony will be held on October 16, 2004 (Homecoming) for the Millennium Engineering Building (MEB). See page 1 for a description of progress towards the MEB. I take this opportunity to offer many thanks to faculty, staff, and students that have contributed countless planning hours for the MEB. The prospect of completion and moving into the MEB is very exciting for all of us.

The 2003-04 Academic Year brought much excitement to the School and Purdue. Purdue University's Schools of Engineering announce the creation of eight signature areas, which represent considerable multidisciplinary strength across Purdue's engineering and related disciplines and present exciting opportunities for field-defining research, educational innovation, and IP spin-off. These eight areas address national priorities and promise tremendous international impact. Purdue University and the Schools of Engineering are investing substantially in 75 new tenure-track faculty positions and a $400 million facilities expansion and upgrade to ensure unparalleled excellence in pursuing these interests. The School plans to increase the size of its faculty to 30 in part through the signature areas: advanced materials and manufacturing; global sustainable industrial systems; information, communications, and perception technologies; intelligent infrastructure systems; nanotechnologies and nanophotonics; renewable energy and power systems; system of systems; and tissue and cellular engineering.

The School's undergraduate enrollment again increased by 17% to 476 in the fall of 2003, again giving it the largest undergraduate enrollment among its peers. There were also 191 graduate students enrolled, an all-time high for the School. Faculty and staff were responsible for more than $4.8 million in externally sponsored research that leads to path-breaking discovery while enhancing the learning environment for the students.

Highlights of the year included the 5th William E. Boeing Lecture given by Dr. Mike Howse, CTO of Rolls-Royce. While on campus, Dr. Howse "cut the ribbon" for Purdue's High-Mach Propulsion University Technology Center (UTC), a collaboration between Purdue and Rolls-Royce. We are proud that this is the first UTC that Rolls-Royce has established in the USA. The School also celebrated the 5th Outstanding Aerospace Engineers Celebration. These events along with Homecoming and Gala Week are wonderful times for you to return to campus. We always welcome you back to campus so that we might show you up-close the educational opportunities that your support provides our students. 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

Purdue University and Rolls-Royce
SET TO PROPEL AVIATION INTO THE FUTURE

Purdue University and Rolls-Royce formally kicked off their joint University Technology Center (UTC) on September 4, 2003; an alliance in which researchers will work together in research to develop propulsion technologies for future aircraft that may fly as fast as seven times the speed of sound – as fast as 5,000 miles per hour. They will also and study the behavior of jet fuels at the high temperature and pressure required for "High-Mach Propulsion" aircraft. Researchers also will focus on creating a new class of fuel injectors for jet engines. The High-Mach Propulsion UTC at Purdue is the first Rolls-Royce UTC in the United States.

From left to right are: Tom Martin, a graduate student majoring in aeronautics and astronautics; Linda P.B. Katehi, dean of the Schools of Engineering; Rolls-Royce executive Michael Howse; Purdue Provost Sally Mason; and Stephen Heister, a professor of aeronautics and astronautics. **(Purdue News Service Photo/David Umberger)**

Top Rolls-Royce executives and Purdue officials were on hand for the event at the recently renovated High Pressure Laboratory, one of six School of Mechanical Engineering facilities at the Maurice J. Zucrow Laboratories. Engineers working within the complex of labs, located west of campus, perform propulsion-related research in rockets, jet turbines and other internal combustion engines.

Mike Howse, director of engineering and technology for Rolls-Royce PLC in Great Britain, toured the High Pressure Lab and other facilities and later delivered the fifth William E. Boeing Distinguished Lecture, sponsored by the School of Aeronautics & Astronautics.

"The center will help Purdue meet research and educational goals that call for engagement with Indiana industries for collaborations that help the state's economy by creating new high-technology jobs," said Linda P.B. Katehi, the John A. Edwardson Dean of Engineering at Purdue.

Engineers working in the laboratory will perform research sponsored by the National Aeronautics and Space Administration, U.S. Air Force and Army, other federal agencies and aerospace companies, said Stephen Heister, a professor in the School of Aeronautics & Astronautics. Prof. Heister is the founding Director of the UTC.

Purdue and Rolls-Royce have a long history of partnership. Thousands of Purdue graduates have worked at the Indianapolis facility since its founding in 1915. A number of Rolls-Royce employees serve on University advisory councils and in 1999, Purdue and Rolls-Royce formalized their association with a Memorandum of Understanding supported by a Master Sponsored Research Agreement.

Rolls-Royce has about 4,400 employees in Indianapolis, primarily at a research and development facility and a main production plant. They employ over 600 Purdue alumni and of those, 80% have engineering or engineering technology degrees. Howse said that the university "forms a part of what you might call the fabric of Rolls-Royce."

Rolls-Royce will benefit from the skilled faculty, students and staff and laboratory facilities of the various departments at Purdue, while the company will provide technical oversight and financial support, enhancing current research projects and educational goals at Purdue, Heister said.

The Campaign for PURDUE

Homecoming – October 4, 2003

Neil A. Armstrong

At the 2003 Homecoming celebration around the bell tower, one of the most famous alumni Purdue has ever graduated – Neil A. Armstrong - showed up to speak about Purdue's legacy. His previously unannounced visit roused huge cheers from the crowd when he stood at the lectern to speak. Armstrong, a member of the class of 1955, talked about how Purdue's original mission as a land-grant university was to provide research and instruction on engineering and agriculture.

Earlier Purdue President Martin C. Jischke announced that Purdue had raised almost all the funds needed for its planned $46 million Millennium Building. The University raised $6.5 million in private gifts from more than 50 donors to complement state funding, leaving $3.5 million yet to be raised.

The Homecoming celebration took on a special significance for the School of Aeronautics & Astronautics, as a second astronaut alumnus was also present. Fellow astronaut Mark Brown BSAAE '73 took center stage along with Jayleen Guttromson, a junior in the School of Aeronautics & Astronautics from Fargo N.D. Armstrong became the first man to walk on the moon in 1969 and Brown is a veteran of the shuttle program with more than 249 hours in space. They are among 22 astronauts who are Purdue alumni with 14 graduating from the School of Aeronautics & Astronautics.


School of Aeronautics & Astronautics alumni Neil A. Armstrong & Mark N. Brown with AAE junior Jayleen L. Guttromson

SAVE THE DATE

Celebrate ground breaking for the Millennium Engineering Building; Discover hands-on activities from various Purdue schools and departments; re-connect with faculty and alumni; listen to live performances and speakers on the main stage, enjoy lunch, and march with the Purdue's "All-American" Marching Band to the stadium and cheer on the Boilermakers as they take on the Wisconsin Badgers. For more information visit: http://www.purdue.edu/homecoming

Game time is 4:30 p.m.

Homecoming 2004 Celebration

October 16th
11a.m. – 3:30 p.m.
Purdue Mall

Kenneth O. Johnson BSAAE '50

Kenneth O. Johnson BSAAE '50 of Cincinnati gave a lead gift of $1 million. Johnson who holds more than 20 patents from his five-decade career, said that he wanted to give back to Purdue because of the importance of his education to the successes of his life.

"My dream had always been to design things that could improve people's lives," said Johnson. "Purdue helped me to achieve those dreams. I only hope that the improvements that the Millennium Building will make possible will help the next generation to achieve their dreams in the same way."

"This Millennium Building represents a renewed commitment to excellence by Purdue engineering," Purdue President Martin C. Jischke said, "Kenneth Johnson and all other donors share this vision.

Their gifts will make it possible to launch students today on their mission to tomorrow." Johnson also received the Distinguished Pinnacle Award - recognition for leadership gifts and philanthropic gifts to the university.

L-R Dean Linda P.B. Katehi; Purdue President Martin C. Jischke; K.O Johnson; Sally Mason and Neil A. Armstrong

Kenneth O. Johnson BSAAE '50 ***Writer Matt Holsapple Purdue News Service***

K.O. Johnson's career in aeronautics began before he came to Purdue. After graduating from high school in 1941, he learned to rivet aircraft assemblies as he worked to support the war effort. In 1943, he joined the Air Force as a second lieutenant and flew ground support air missions in Germany.

Following the war, Johnson enrolled Purdue to study structural and aerodynamic design. In 1950, he began working for General Motors, where he analyzed and designed gas turbines and rocket engines, contributing significantly to the design and development of the Minuteman rocket engine.

Johnson worked for General Electric from 1966 until his retirement in 1986. While at GE's Large Gas Turbine Design Operation, in Cincinnati, he helped develop, introduce and patent the unducted fan engine, a breakthrough that led to reduced fuel consumption for commercial aircraft.

He continues to perform research and development for Belcan Engineering in Cincinnati. He is an associate fellow for the American Institute of Aeronautics and Astronautics, to which he had belonged for 52 years. Johnson was inducted into the General Electric Aircraft Engineering Hall of Fame in 1987 and was awarded a NASA Certificate of Recognition.

Purdue Celebrates National Engineers Week with a Generous Gift Announcment

One very important event that took place during National Engineers Week was the announcement of the generous gift of Heddy Kurz to name the Herman and Heddy Kurz Atrium in the Millennium Engineering Building. Her lead gift of $1.9 Million was announced on February 26th, 2004. Heddy is from Louisville, KY and is very proud to be associated with Purdue University. Heddy's late husband, Herman, was a graduate of the School of Electrical Engineering and she made the lead gift last fall to name the Herman and Heddy Kurz Lobby in the new Computer Science Building. At the gift announcement, she put her permanent mark in the building's atrium with her handprints in concrete. "I have seen them do this in Hollywood, but thought this would never happen to me," said Heddy Kurz, as she stuck her hands into the wet concrete. Heddy is excited about the building and looks forward to the next step – ground breaking which is tentativley set for Homecoming 2004 on October 16.

Heddy Kurz at the announcment

University Development Office and Purdue Alumni Association have new offices

The Purdue Alumni Association and the University Development Office moved into a new home in mid-April 2004. The Dick and Sandy Dauch Alumni Center, 403 W. Wood St. is located at the corner of Grant and Wood streets, one block south of the Purdue Memorial Union and is the gathering place for Purdue's alumni and friends. The building dedication is set for October 15, 2004 as part of the Homecoming celebrations.

For more information, log onto: http://www.purdue.edu/UDO/dauch/

Paul Bevilaqua

21st Annual Design News Awards

Dr. Paul Bevilaqua, MS '68, Ph.D.'73, OAE '02, was honored on February 24, 2004 as the Design News' Engineer of the Year. Bevilaqua is the chief engineer of Advanced Development Projects at Lockheed Martin, and was selected by the magazine's readers. He has been honored for his invention of the Lift Fan Propulsion system that has made possible the stealthy, supersonic, vertical–lift Joint Strike Fighter, a new-generation fighter to be used by the U.S. Air Force, Marines and Britain's Royal Navy. Bevilaqua's propulsion system was the only one of several proposed that achieves both supersonic flight and vertical lift. Bevilaqua also serves as a member of the Industrial Advisory Council (IAC).

Janice Voss

Astronaut Alumni Back on Campus

Astronaut alumni Janice Voss came back to the West Lafayette campus on September 25, 2003 for meetings, seminars and to attend to annual Outstanding Aerospace Engineers Award. As part of the President's Council Back to Class session Voss also took part in "Biology at the Speed of Light" Voss also spoke with about 90 first – year Women-in-Engineering Seminar students about how she became an astronaut and her experiences during her five space flights. Voss recalled being a student at Purdue and wondering how to become an astronaut. Though the path is clear with hindsight, it wasn't at the time she told the seminar. She recalled excelling at math and science at high school and she was interested in the space program.

Students for the Exploration and Development of Space

(Purdue SEDS)

By SEDS first president Robert Bayt

Robert Bayt *graduated with his Master's in 1995, and went on to pursue a PhD in MEMS-based propulsion systems at MIT. Upon graduation in 1999, he joined the United Technologies Research Center, where he was principal investigator for developing an integrated concurrent engineering approach to the design of aircraft propulsion and power systems. He currently leads the Integrated Total Aircraft Power Systems (ITAPS) project, which develops integrated power system solutions within the UTC business units of Pratt & Whitney, Hamilton Sundstrand and on certain applications Sikorsky. He currently lives in Hebron, CT with his wife, Heather, and son, Evan, and they are expecting a baby in September 2004.*

The mid-90s was a time full of promise but little action. Space Station was stalled, and the shuttle was not realizing its full potential at 6 flights per year. The nation's aerospace graduate schools were filled with students waiting for the next big opportunity. SEDS was begun by a group looking for a way to promote space achievements and activism. Jose Guzman and I had met the national president of SEDS at a summer internship at NASA. It was there we learned what a national presence this organization had, and the substantial network of people working to further the goals of space exploration. We both knew that Purdue was lacking this connection to a grassroots organization, it was Jose's idea to start the chapter, and it was his enthusiasm that encouraged me to organize its kick-off.

We recruited a few of our friends that shared our excitement for space, Steve Tragesser, Jon Sims, and Trent Pancake, and knew we had to get buy-in from the faculty. During a quick brainstorming session, we all quickly arrived at Prof. James Longuski, because of his enthusiasm for space exploration displayed in the classroom and on his research team. We organized our first meeting to garner interest, which had Prof. Longuski as the headline act, with an overview of the Galileo mission. It was an overwhelming success with nearly one hundred people in attendance.

The end of the year brought an opportunity to propose for funding for special projects. SEDS put in three proposals, and won two. One for general support and one geared for developing a hybrid propellant sounding rocket. To get this recognition early-on was a boost for the organization. SEDS first year at Purdue was everything that the national organization had promised. It was a success because of the ideals it put forth and the energy of the members. SEDS was an outlet to express our desires to reach beyond academia, and dream about ways to head toward the stars.

SEDS 1994 Officers List

President
Robert Bayt

Treasurer
Steve Tragesser

Planning Office
Jon Sims

Project Officer
Trent Pancake

National Representative
Jose Guzman

Purdue SEDS Advisor Steps Down

After 10 years, Prof. James M. Longuski has stepped down as faculty advisor for the Purdue chapter of the Students for the Development and Exploration of Space (Purdue SEDS). Longuski has been faculty adviser since the chapter's inception and has seen many students go through SEDS and go on to be very successful in their career. Robert Bayt was the first President of SEDS who received his Masters from the School of Aeronautics & Astronautics in 1995. Bayt went on to pursue his PhD at MIT.

SEDS president Cynthia Fitzgerald and Daniel Gillies presented Longuski with a commemerative plaque to show their appreciation of his advice and commitment to SEDS.

Cynthia Fitzgerald and Daniel Gillies present Prof. James Longuski with commemorative plaque.

Students receiving instructions on the satellite launch

Enthusiastic students watch their Egg Drop activity

space

FALL 2003

Col. John E. Blaha

Purdue University alumnus and astronaut Col. John E. Blaha shared his excitement of space flight with over 300 enthusiastic students from grades 3-8. The 8th annual Fall Space Day took place on the West Lafayette campus on Saturday October 25, 2003. Organized by the Students for the Exploration and Development of Space (Purdue SEDS) student director Jen Watson chose the theme for 2003 as "Celebrating the Centennial of Flight" where each activity had a connection with 100 years of flight.

John Blaha helps out with an activity

The elementary and middle school students had the opportunity to learn about aeronautical and astronautical engineering by taking part in hands-on activities dealing with rockets, nanorovers, and the students were able to trace the advance of flight from early biplanes to space exploration.

In addition to spending the entire day with Fall Space Day, Col. Blaha also gave two presentations, one in Prof. James Longuski's AAE 507 Principals of Dynamics course and a public presentation in the Stewart Center where it was standing room only for his well received talk.

Blaha earned a master's degree in aeronautical and astronautical engineering from Purdue in 1966. A retired Colonel and 31-year veteran of the Air Force, he logged 161 days in space on five missions from 1989 through 1997. On his final mission, he spent four months on the Russian space station MIR.

The day was sponsored by: the Indiana Space Grant Consortium; the School of Aeronautics & Astronautics; Great Lakes Chemical Corp; Students for the Development and Exploration of Space and the American Institute for Aeronautics and Astronautics.

The 9th annual Purdue Fall Space Day will take place on Saturday November 6, 2004 with Col. Guy S. Gardner as the guest astronaut.

day

Student Director Jen Watson welcomes the students to Fall Space Day

Testing the Nanorovers - will it work?

Meteorologist Mike Prangley from TV station WLFI acted as Master of Ceremonies at Fall Space Day

Purdue students are good role models for the younger students

NEWS ABOUT *you*

Class Notes 2003-2004

Robert L. Swain Former Associate Head of the School of Aeronautics & Astronautics and faculty member 1967-1978 retired 11 years ago as Professor and Associate Dean emeritus, College of Engineering, Architecture, and Technology, Oklahoma State University. Currently Docent at a restored one room school house in Stillwater teaching the 100-year curriculum to 4th grade students.

Dwight Abbott BSAAE'58 is on the city council and is the planning commissioner in Palos Verdes Estates, CA.

Bill Holder BSAAE'60 retired after working with Boeing with the BOMARC and Saturn IV programs and the U.S. Air Force Intelligence. He is the author of two dozen aviation/aerospace books and many articles. Bill is currently consulting with Northrop–Grumman Corp.

John F. Unger BSAAE'63 has retired from Parker Hannifin Corp.'s United Aircraft division in Findlay, OH.

Kenneth J. Held BSAAE'66 is an engineering consultant for Raytheon in El Segundo, CA.

Robert A. Oakley BSAAE'68 is the Shepard Executive-in-Residence at The Ohio State University's Fisher College of Business in Columbus, OH.

Jim Fuller BSAAE'70 retired as director of defense nuclear nonproliferation at the Pacific Northwest Laboratory in Richland, WA.

Edward Hiltebeitel BSAAE'70, MS '77, is a lead engineer for Thrustmaster of Texas Inc. Houston, TX.

Leo Millstein BSAAE'70 is Senior Vice President, General Counsel and Secretary for Orbital Sciences Corp. Dulles, VA.

John Gilligan BSAAE'71 is vice chancellor for research and graduate studies at North Carolina State University, Raleigh, NC.

Doug Bowers BSAAE'72 is associate director of the Air Force Research Laboratory's Air Vehicles Directorate in Wright Patterson Air Force Base, OH.

Jack C. Cox BSAAE'73, MS'73 is director of ports, harbors and waterways for Tetra Tech FW in Morris Plains, NJ.

Mike Johanns BSAAE'77 is director of new product operations for Dell Computers in Austin, TX.

Mark S. Geyer BSAAE '82 and MS '84 is mission operations integration manager for the International Space Station Program.

Lance J. Lindsley BSAAE'82 assumed command of the 65th Airlift Squadron at Hickam Air Force Base, HI.

Kurt R. Sadorf BSAAE'82 is a commander for the Naval Special Warfare Command in San Diego, CA.

Jane M. Barnes Quirk BSAAE'84 is a systems engineer for the Missile Defense Agency in Arlington, VA.

Jim R. Miller BSAAE'86 is Vice President Manufacturing Operations for the Router Technology Group for Cisco Systems in San Jose, CA.

Rhonda D. Thornton Walthall BSAAE'86 is a senior systems engineer for Hamilton-Sundstrand in San Diego, CA.

Federiko L. Yap BSAAE'89, MS'90 is strategic marketing manager at Honeywell, Tempe, AZ.

Anthony J. Gingiss BSAE'90 is a director of product development for Media.net Communications in Manhattan Beach

Shariff R. D'Souza BSAAE'94, MS'96 is market segment manager for Indigo Systems Corp. in Goleta, CA.

Charity W. Lawson BSAAE'96 is with Aerojet in Redmond, WA.

Darin S. Viehe BSAAE'96 is a senior project engineer for Combustion Science and Engineering in Columbia, MD.

Michael R. Miller BSAAE'02 is an aerospace engineer for NAVAIR in Patuxent River, MD.

Robin Pinson BSAAE'03 is an aerospace engineer for NASA Marshall Spaceflight Center, Huntsville, AZ.

Tied the Knot

Augustus D. Cook BSAAE'56 and Carole Metz January 17, 2003

Jonas Q. Burgett BSAAE'90 and Brooke E. Minert May 17, 2003

Michael J. Mattox BSAAE'90 and Cynthia Lau, Jan. 5, 2002

Kristopher K. Kegerreis BSAAE'92 and Sharon Martin, Aug 31 2003

Andrew J. Shurtleff BSAAE'99 and Julie Strang Dec 29 2001

Kacie B. Burton BSAAE'01 and Alex A. Fleck BSAAE'01 June 14 2003

Allison Lambeth BSAAE' 02 and Matthew Parlee May 22, 2004

Matthew A. Wysel and Joanne Moore May 15, 2004 in Sydney, Australia

Allison T. Bahnsen BSAAE'04 and Jeremy Bolinger June 26, 2004 in Lancaster, OH.

Dale Alspaugh, former Purdue professor in the School of Aeronautics and Astronautics and former Purdue-North Central chancellor, died July 1, 2004 at 72. Alspaugh was born May 25, 1932, in Dayton, Ohio, and married his wife, Marlowe Beckley, in 1955. She, along with their four children and eight grandchildren, survives Alspaugh. Alspaugh received his master's of education degree from the University of Cincinnati and his master's and doctoral degrees from Purdue. He served as a faculty member in the School of Aeronautics while authoring works on flight and orbit mechanics until 1981, when he joined Purdue-North Central as vice chancellor for academic services. Alspaugh was named acting chancellor in 1982 and chancellor two years later in 1984. He served in that capacity until 2000. Alspaugh oversaw unprecedented growth in the regional campus both in terms of people and physical facilities. During his tenure, enrollment increased by 50 percent as the number of full-time students doubled. Four new bachelor's degrees along with four new associate degrees were added to the curriculum. On the recommendation of former Purdue president Steven C. Beering, Alspaugh continued to guide Purdue-North Central after the age of normal retirement age of 65.

Family Additions

Timothy M. Ortman BSAAE'83, MS'92 and Nancy J. McCormick a daughter July 17, 2003

Brian A. Robinson BSAAE'87, MS'89 and Danielle F. Rihn a daughter June 12, 2003

Kevin F. Walker BSAAE'87 and Marg Sutherland, twin son and daughter, March 28, 2002

Dennis M. Leete BSAAE'88 and Juli Brooks a son June 23, 2003

Michael A. Mesarch BSAAE'89, MS'91 and Rebecca, a daughter September 17, 2003

Anne Gick BSAAE' 91; MS'94 and Jon Gick a son October 13, 2003

Scott E. Mayer BSAAE'90, MS'92 and Barbara Souligne a son July 30, 2003

Jonathan W. Katz BSAAE'91, MS'93 and Michelle Lorenzi a daughter, September 19, 2003

Glenn C. Rose BSAAE'91 and Joy a son September 12, 2002

Elizabeth E. Sack BSAAE'91, MS'94 and Stephen Blok a daughter July 26, 2003

David Springer AAE'91, MS' 99 Angela W. Wilson M'90 and a daughter March 12, 2003

William C. Boley BSAAE'92 and Melissa N. Gilbert a son June 13, 2003

Heather Greenwald BSAAE'92, MS'94 and Michael Planey BSAAE'96 a son August 31, 2003

Christine E. Haven BSAAE'92, MS'95 and Robert A. Scott EET'83, EET'86 a son, November 7, 2003

Elizabeth A. Payne BSAAE'94 and Jay Becker a daughter January 5, 2003

Amy L. Lucas BSAAE'95 and Darnell Salley a son May 23, 2003

Matthew P. Basiletti BSAAE'00 and Karen Rolund a son January 27, 2003

In Memoriam

It is with great sadness that we report the death of the following alumni:

Russell M. Lipes BSAAE'44 Wethersfield, CT. March 23, 2003

Robert J. Gatineau BSAAE'46 Northridge, CA. December 4, 2003

Norman A. Vaa BSAAE'46 Olympia, WA. May 15 2003

Merwin G. Wade BSAAE'47, MS'48 Tacoma, WA. May 7, 2003

Addison G. Dunn Jr. BSAAE'49 Indianapolis, IN. Jan. 29 2002

Keith C. Kinsey BSAAE'49 Kirtland, WA. August 7, 2003

Donald H. Strodel Sr. BSAAE'49 Issaquah, WA. January 21, 2003

Donald M. Waltz BSAAE'49 Laguna Hills, Ca. May 13, 2003

Fred R. Glidden BSAAE'50 Blissfield, MI. April 26, 2003

Anthony J. Klimczak BSAAE'50 Parma OH July 12, 2003

Garner W. Miller BSAAE'50 Naples, FL. August 8, 2003

Frank J. Cafarella BSAAE'51 Columbus, OH. August 14, 2003

Thomas B. Downs BSAAE'51 Middletown, MA, October, 17, 2002

Robert B. Scott BSAAE'54 San Jose, CA. May 21, 2003

William W. Brant BSAAE'55 Brigham City, UT. September 25, 2003

Jacob Miller BSAAE'56 Aransas Pass, TX. June 12, 2003

Dr. Severino L. "Bino" Koh Ph.D.'62 Washington, DC. April 8, 2004

Lee A. Bertram BSAAE'63, MS'64 Dublin, CA. June 21, 2002

Donald S. Campbell BSAAE'66 Bellevue, WA. November 21, 2002

David A. Nagey BSAAE'69 Sherwood Forest MD. April 23, 2003

Richard E. Armstrong BSAAE'70 Fort Worth, TX. August 4, 2003

Thomas A. McDonald BSAAE'71 Carson City, NV. June 4, 2002

Mark A. Riley BSAAE'80 San Diego, CA. July 21, 2003

@alumni

PURDUE LIFETIME E-MAIL ADDRESS NOW AVAILABLE

The Purdue Alumni Association is making it easier for alumni to stay in touch with each other through e-mail. In October 2003, students who graduated in May or August began registering for lifetime email forwarding at: **http://www.purdue.edu/alumnimail**. The service is being expanded during 2004.

Recent graduates can access the career accounts they had as students and sign up for an alumnus address ending with "**@alumni.purdue.edu**" A permanent lifetime e-mail address is the first of a series of electronic services PAA will be offering to alumni. More information can be found at **http://www.purdue.edu/**

An online alumni directory is available from August 2004. Go to **www.purdue.edu/alumni** and look under "My Profile" to see what information Purdue currently has in its database. See "My Options" to control what information will appear in the alumni directory or you can choose to opt out of the directory entirely.

More information can be found at: **http://www.purdue.edu/paa**

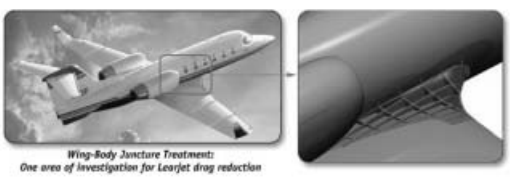
Raisbeck Engineering's Purdue Alumni

Visit Campus Complete with New Airplane Technology

James Raisbeck talks to students.

L-R Aeronautics & Astronautics Professor John Sullivan; Raisbeck Marketing and Sales Director Randall Deal (AT '00) Raisbeck Chief Aerodynamicist Nate Lachendro (MSAA '00) Raisbeck Chief Test Pilot Pete Reynolds (AES '66) Purdue President Martin C. Jischke; Raisbeck CEO James Raisbeck (AES '61) Tom Farris, Professor and Head of the School of Aeronautics & Astronautics; and Thomas Carney, Professor and Head of the Department of Aviation Technology.

Raisbeck Engineering Purdue alumni flew into Purdue University on October 10, 2003 in their latest offering; the Learjet 35 complete with new Raisbeck ZR Technology ™. The Raisbeck Engineering Team held a seminar for under-graduate and graduate students of both schools of Aviation Technology and the School of Aeronautics & Astronautics. Entitled "Raisbeck Learjet Drag Reduction Program" "How Things are really done in the outside World," Raisbeck explained that the goal of the Raisbeck Learjet Drag reduction program is to reduce the cruise drag of the Learjet 30-series aircraft by a minimum of 10% at typical cruise mach numbers. One area being investigated heavily is the wing-body juncture shown below.



Wing-Body Juncture Treatment: One area of investigation for Learjet drag reduction

The new Raisbeck 35 ZR™ was on display at Purdue Airport where a "show and tell" session was conducted for faculty and students of both schools. The group was joined by Purdue President Martin C. Jischke who said "Purdue is deeply proud of its tradition in aviation, aeronautics & astronautics, and the success of our alumni. Raisbeck Engineering is a great example for our current students. James Raisbeck and his firm have been strong corporate partners with the university, and we look forward to building on this positive relationship."

CEO and Board Chairman James Raisbeck added "We were thrilled to be invited to share our real-world technology and experiences in the design, engineering, flight tests, and certification or our work. We owe a great deal to the technical foundation given to those of us at Raisbeck Engineering by the higher education of Purdue University. Our success has, in large part, come about by the fundamentals in both theoretical and practical engineering applications taught us while at Purdue."

Raisbeck continues to be heavily involved with Purdue; Professor Alten F. "Skip" Grandt was named in 2000 as the inaugural recipient of The Raisbeck Engineering Distinguished Professorship for Engineering and Technology Integration in the School of Aeronautics & Astronautics. The goal of this Distinguished Professorship is to bridge the School of Aeronautics & 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.

35 ZR™

NASA Dedicates Martian Landmarks to Apollo 1 Crew

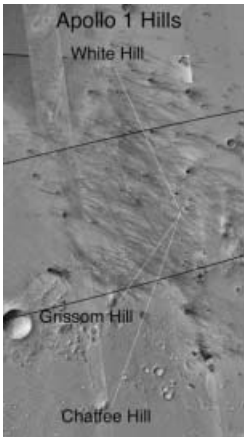
January 27, 2004 - NASA memorialized the Apollo 1 crew, Gus Grissom, Roger Chaffee and Ed White, by dedicating the hills surrounding the Spirit Mars Exploration Rover landing site to the astronauts. The crew of Apollo 1 perished in a flash fire during a launch pad test of their spacecraft 37 years to the day of this dedication.

Gus Grissom

Roger Chaffee

Both Gus Grissom and Roger Chaffee are Purdue graduates, Chaffee from the School of Aeronautics & Astronautics and Grissom from the School of Mechanical Engineering. Newly christened Grissom Hill is located 7.5 kilometers (4.7 miles) southwest of Spirit's position; White Hill is 11.2 kilometers (7 miles) northwest and Chaffee Hill is 14.3 kilometers (8.9 miles) south-southwest of the robot explorer's location.

Images of the Apollo 1 Hills can be found at: http://www.jpl.nasa.gov.mer2004/rover-images.jan-27-2004/captions/images-1.html



Apollo 1 landmarks

Andrew Feustel and Doug Adams

Dr. Douglas S. Adams

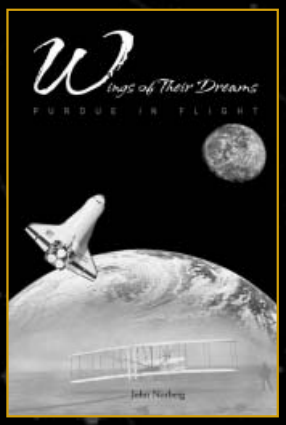
BSAAE' 94; MS '96; Ph.D.'01

As part of the 2004 Colloquium Series, Dr. Douglas S. Adams presented "Mars Exploration Rover Entry and Landing Loads Analysis" This presentation discussed some of the technical challenges involved in the Entry, Decent and Landing (EDL) analysis and loads development for the Mars Exploration Rovers (MER). Some of the topics covered included the airbag drop testing and load analysis. Rocket Assisted Deceleration (RAD) motor structural interaction and Backshell spin-up testing, lander separation and snatch loads, lander rollover analysis, and a host of other components that helped make up the successful landing of the Spirit rover on Mars on January 3, 2004.

Dr. Adams is a member of the engineering staff in the Spacecraft Structures and Dynamics Group at NASA's Jet Propulsion Laboratory in Pasadena, CA. He joined JPL in June 2001 after receiving his Ph.D. in aeronautics and astronautics from Purdue University. His B.S. in 1994 and M.S. in 1996 are also from AAE at Purdue. His background includes work in structural dynamics, mechanics of materials, fracture mechanics, and composite materials. For the past two years he has worked on the Mars Exploration Rover project and is presently working in the Terrestrial Finder program.

to the moon or mars

Doug Adams was back on campus on April 15, 2004 as a guest speaker at the Spring Space Forum hosted by the Purdue Chapter of the Students for the Exploration and Development of Space (Purdue SEDS) with fellow Purdue Alumnus Dr. Andrew J. Feustel. They presented "To the Moon or Mars"



Book chronicles wings of Purdue's Flight dreams

In his new book, "Wings of Their Dreams: Purdue in Flight" author John Norberg tells the stories of aviation pioneers who finally "broke the bonds of earth" and a university that flew with them -traveling a course from a Dayton, Ohio, workshop, to the moon or Mars and beyond.

Purdue's first connection with aviation was with a young graduate, J. Clifford Turpin, who went to work in 1909 with Orville and Wilbur Wright. Turpin helped the Wright brothers improve their flying machine and design new controls and became part of an exhibition team that introduced flight to the world. The Turpin – Wright connection launched Purdue on a path in aeronautics and astronautics that paralleled the incredible progress of flight in the 20th century – from Kitty Hawk to the moon in less than 66 years. "Wings of their Dreams" is a history of flight and a history of Purdue University, all told through the stories and adventures of people who flew where no one had been before. The university plays a unique role in the history of flight with Purdue establishing the first university airport and one of the first academic programs in aeronautics and astronautics. Purdue helped finance the final flight by Amelia Earhart. Purdue created the first bachelor's degree for airline pilots and has graduated 22 people selected for space travel – including the first and last people to walk on the moon.

The book is available from the Purdue Press at $29.95. To order, or from more information contact the Purdue Press at (800) 247-6553.

X-43A - Brad Neil – Lead Engineer

On March 27, 2004, the X-43A rode on the first stage of an Orbital Sciences Corp. booster rocket and became the fastest air-breathing vehicle. It was launched by NASA Dryden's B-52 at about 40,000 feet. The booster accelerated the Hyper-X research vehicle to the test conditions (Mach 7 or 10) at approximately 100,000 feet, where it separated from the booster and flew under its own power. Orbital Science's Launch Vehicles Division in Chandler, Arizona builds the Hyper-X launch vehicles.

Purdue Alumnus **Brad Neil**, MSIDE 2000 was the operations lead engineer who gave the go to launch the X-43 for the B-52. NASA began a multi-year hypersonic flight-test program in 1996 by contracting for the fabrication of four Hypersonic Flight Experimental Vehicles that will fly up to ten times the speed of sound. The five-year Hyper-X program will demonstrate hypersonic propulsion technologies. Hypersonic speed is defined as above Mach 5, which is equivalent to about one mile-per-second, or approximately 3,600 miles per hour at sea level. Hyper-X opens up the frontier for airbreathing aircraft with speeds measured in miles-per-second.

The goal of the Hyper-X program is to flight validate key propulsion and related technologies for air-breathing hypersonic aircraft. The world's fastest air-breathing aircraft, the SR-71, cruises slightly above Mach 3. The highest speed attained by NASA's rocket-powered X-15 was Mach 6.7, back in 1967. Heading the technology wish-list for the Hyper-X program is demonstration of a ramjet/scramjet engine, followed by demonstration of design tools and methods for air-breathing hypersonic vehicles. The scramjet engine is the key enabling technology for this program. Without it, sustained hypersonic flight could prove impossible. Hyper-X will build knowledge, confidence and a technology bridge to very high Mach number flight.

NASA's B-52B launch aircraft cruises to a test range over the Pacific Ocean carrying the second X-43A vehicle attached to a Pegasus rocket on March 27, 2004.

Photo courtesy of NASA Dryden

A modified Pegasus rocket ignites moments after release from the B-52B beginning the acceleration of the X-43A over the Pacific Ocean on March 27, 2004.

Photo courtesy of NASA Dryden

NASA Engineer Promotes the Future of Flight

Anna Maria Rivas McGowan, BSAAE '92, served as national spokesperson for Space Day 2003 - "Celebrating the Future of Flight." As head of NASA's Morphing Project, McGowan directs more than 65 researchers, working on next-generation aircraft materials to create planes of tomorrow: safer, faster machines that will fly at the speed of sound on wings that heal themselves and "morph" or change from one shape to another.

McGowan says her role in Space Day has been to "help children and adults appreciate the benefits and future of space and air travel, for children to understand what is possible in education and careers, and to learn something fun about space travel and air travel."

Supported by 75 corporate, government, academic and non profit partners, Space Day was a year long national educational initiative focusing on math and science with the culminating events and activities held in Washington D.C. on Thursday, May 6th 2004. Space day events were held across the country. In addition teachers, students, and space enthusiasts around the world took part in Cyber Space Day, a lively interactive Web cast devoted to science, space and math.

2004 DISTINGUISHED ENGINEERING ALUMNI

A total of eleven graduates from the Purdue University College of Engineering were honored on April 16, 2004 during the 2004 Distinguished Engineering Alumni convocation. The awards are given each year to Purdue engineering graduates for their professional achievements and related accomplishments. The School of Aeronautics & Astronautics was proud to honor two individuals as Distinguished Engineering Alumni.

Hank Queen BSAE '74
Hank Queen, who received his bachelor's degree from the School of Aeronautics & Astronautics in 1974, currently serves as vice president of engineering and manufacturing at Boeing's Commercial Airplane Group. He began at Boeing as an engineer after graduation and has worked in management and leadership roles in several of the company's divisions. In 2001, Queen was honored with an Outstanding Aerospace Engineering Award from Purdue University. For his outstanding engineering leadership within the world's largest commercial airplane manufacturer, and for his service to Purdue University, the College of Engineering is proud to present the Distinguished Alumnus Award to Hank Queen BSAE'74. Due to ill health Hank was not able to attend the celebrations and his presence was missed.

Dr. Christopher G. Whipple BSES '70
Chris Whipple received a bachelor's degree in engineering science in 1970. In the more than 30 years since, he has performed risk assessments and environment analyses, gauging the risks associated with energy production, fuel emissions and radioactive waste. He has chaired the International Atomic Energy Agency and the National Academy of Sciences Board on Radioactive Waste Management. Since 2000 Whipple has worked as a principal with Environ International and was elected to the National Academy of Engineering in 2001. For his outstanding accomplishment in radioactive waste management, environmental risk management, risk communication, and nuclear safety, the College of Engineering is proud to present the DEA to Christopher Whipple BSES '70.

National Engineers Week LECTURE SERIES

The Mars Exploration Program

Purdue University's Inaugural Engineer's Week Lecture on Tuesday February 24, 2004 featured alumnus David Spencer BSAAE '89, MSAAE '91, deputy manager of flight systems at NASA's Jet Propulsion Laboratory. From 1997 through 2002, Spencer was the Mission Manager for the Mars Odyssey project which has been orbiting Mars since 2001, mapping the mineral and chemical composition of the planet. Spencer chronicled the history and the future of Mars explorations. Out of 52 worldwide launches, only 17 have been successful, with the Spirit and Opportunity rovers landing in January 2004.

Spencer said that he would hope that humans would get to Mars within 20-30 years and NASA has a timetable with the Reconnaissance Orbiter in 2005, the Phoenix Lander in 2007 and the Mars Telesat Orbiter in 2009. NASA has recently added $1 billion to its budget and re-directed $11 billion for crew exploration.

David Spencer with Prof. Kathleen Howell

The William E. Boeing DISTINGUISHED LECTURE

Dr. Michael Howse, Director of Engineering & Technology for Rolls-Royce PLC in Great Britain, delivered the fifth William E. Boeing Distinguished Lecture on "Gas Turbine Engines – Past Present and Future."

The lecture, sponsored by the School of Aeronautics & Astronautics was held in Stewart Center's Fowler Hall on September 4, 2003 where Howse discussed the history and future of jet engines and reviewed current Rolls-Royce civil and military engine programs. He also presented some future Rolls-Royce projects.

Howse joined Rolls-Royce in 1968 and was appointed to the company's Board of Directors in 2001 on taking up his current appointment. He began working in the research and development laboratories, conducting research in areas including materials, aero-elasticity and the effects of high-speed air on aircraft engines before joining the RB211 team in 1981. He became Chief Engineer for this project in 1984, when he was responsible for the introduction of the RB211-524G into service on the Boeing 747-400 and the RB211-524H for the Boeing 767 and also led the concept design work for the "Trent" engine.

L-R Purdue President Martin C. Jischke; Dean Linda Katehi, Dr. Michael Howse and Head of School Tom Farris.

Howse was appointed head of advanced engineering in 1989 responsible for the research and demonstrator programs for both civil and military engines becoming Director of Engineering for the Military Engine Group in 1991. In 1995 Howse became Director of Engineering - Civil Aerospace, overseeing work related to a wide range of in-engines and the introduction of the new Trent and other variants. Howse is a Chartered Engineer, a Visiting Professor at Cranfield University and a Fellow of The Royal Aeronautical Society, The Royal Academy of Engineering and the Institution of Mechanical Engineers. He was awarded the Order of the British Empire (OBE) in 2000 for services to aerospace. He earned a doctoral degree in engineering science in 1968 from Reading University.

Prior to delivering the William E. Boeing Distinguished Lecture, Howse toured the High Pressure lab and other facilities with other Rolls-Royce executives at the official opening of the Purdue University and Rolls-Royce joint University Technology Center (see page 3).

We always like to hear what happens to our alumni after they leave these hallowed halls, and we were delighted to hear from Howard Sutherland, who has shared his story with us.

Howard Sutherland enlisted during WWII and was sent to Rosecrans Field in MO where aircraft were sent for maintenance. During this time, he got an understanding of many aircraft including the B17, DC3, and B25.

At the end of the war, Sutherland started his studies at Purdue. In addition to a very rigorous engineering course, there were also flight training facilities which enabled him to be able to fly. He graduated from Purdue in the spring of 1949 and started work with the Honeywell Corporation where he oversaw their interests at Boeing-Seattle. During this period he oversaw the installation of the bombing and flight control systems on the B50 aircraft, he also flew with each installation. A period in Los Angeles as marketing manger then followed.

Sutherland transferred to the Northrop Corporation in the mid-sixties and soon became responsible for all of California and the west coast. Moving to Atlanta in the early seventies, he successfully oversaw the installation of Northrop equipment on the C5 aircraft. He had two more moves with Northrop in the mid-west before setting up his own company "Sutherland Diversified Services Corporation" where he worked with clients overseeing their interests at the Army Helicopter base in St. Louis, MO.

Now retired, both he and his wife Mary, have been involved professionally with classical music for many years. They both continue voice and piano recitals throughout the region and in St. Louis in 2002, for the gala opening of the Lindbergh Exhibition at the Missouri History Museum, Sutherland sang the role of Charles Lindbergh in three performances of Kurt Weill's "The Lindbergh Flight" with The Midwest Chorale and an orchestra conducted by his wife Mary.

alumni profile

Roberta A. Gleiter visits class

March 24, 2004, CEO Global Institute for Technology and Engineering Roberta A. Gleiter visited campus as part of the Women in Engineering program. During her visit to campus she joined Prof. Tasos Lyrintzis for part of his AAE 514 class.

Roberta A. Gleiter with Prof. Tasos Lyrintzis

Honorary Degree Doctor of Engineering William J. O'Neil BSAE'67; DEA'97

The School of Aeronautics & Astronautics is proud to announce William J. O'Neil as the recipient of the Honorary Doctor of Engineering. O'Neil earned his bachelors degree from Purdue in 1961 and his master's in aeronautical and astronautical engineering from the University of Southern California in 1967. He began his career at Boeing Airplane Company and moved to Lockheed Missiles and Space Company prior to joining the Jet Propulsion Laboratory in 1963.

O'Neil's assignments at JPL have included trajectory design and navigation for Surveyor, the first soft-landing lunar spacecraft. He was the navigation chief for Mariner Mars, the first United States spacecraft to orbit another planet, and for Viking, the first soft-landing craft on Mars. In addition, he was the science and mission design manager for Project Galileo during its development phase throughout the 1980's, and then became Galileo project manager shortly after its launch in 1989. That spacecraft, an orbiter and an entry probe, arrived at Jupiter in December 1995, becoming the first to penetrate an outer planet atmosphere and the first to orbit an outer planet in December 1997. It went on to perform nearly six additional years of extended Jupiter orbital science gathering before being intentionally crashed into the planet in September of 2003 to prevent any chance of Earth spores reaching Jupiter's moon Europa, which may itself harbor microbial life.

Following Galileo's two-year primary mission, O'Neil was appointed chief technologist and then project manager for the Mars Exploration Program at JPL. However the project was postponed and O'Neil became manager of JPL's Systems Management Office until his retirement in 2001. He continues as chairman of the Space Exploration Committee of the International Astronautical Federation and is member of the International Academy of Astronautics.

O'Neil has been honored with NASA's highest award, the Distinguished Service Medal, for his management of Project Galileo. In 1997, he received the DEA and an honorary doctorate from the University of Padova in Italy, Galileo Galilei's university.

Professor Emeriti Larry Cargnino and George Palmer with Bill O'Neil

Educational Outreach

Whitney Jackson, senior in the School of Aeronautics & Astronautics, stopped by the Village Nursery School in West Lafayette, In. to share the excitement and wonder of space with 17 pre-schoolers.

Senior Brian Ventre shows a group of students from Crawfordsville High school around the ASL labs.

Astronaut Alumnus to Lead Discovery Park "Super Projects"

Guy S. Gardner MSAAE '70 was named Director of Super Projects in Purdue's Discovery Park's e-Enterprise Center. For the first time in its history, Purdue University has hired one of its twenty two astronaut alumni. Gardner will oversee research projects with at least $1 million in funding, deemed "super project's." Gardner will primarily work on a number of complex projects with implications for homeland security and manned trips to Mars. He will also work to generate more super-projects for e-Enterprise Center researchers and will seek additional funding sources.

Gardner received a bachelors' degree from the Air Force Academy in 1969 and a master's in aeronautics and astronautics from Purdue in 1970. Selected by NASA in May 1980, Gardner is a veteran of two space missions and has worked in many areas of Space Shuttle and Space Station Development and support. During his eleven years as a NASA astronaut, he was pilot of STS-27, Atlantis, (December 1988) which carried a Department of Defense payload and had fellow Purdue alumni Jerry Ross BSME '70; MSME '72, as mission specialist. As pilot of STS-35, Columbia, (December 1990) his mission carried the ASTRO-1 astronomy laboratory consisting of three ultraviolet telescopes and one X-ray telescope. Gardner left NASA in June 1991 to command the USAF Test Pilot School at Edwards Air Force base, California. Gardner returned to NASA in 1992 as the initial program director of the joint American and Russian Shuttle – MIR program. He also served as mission director and director of quality assurance.

In 1995, Gardner joined the Federal Aviation Administration, where he worked with research and development and was responsible for oversight and regulation of civil aviation. In 2000, Gardner completed a second master's degree in math and physics education at Virginia Tech. Gardner has also worked as a high school math and physics teacher and is an inspirational speaker.

science bound

Guy S. Gardner was also on hand to talk to approx. 30 parents of Indianapolis Public Schools students who participate in Purdue University's Science Bound program. Initiated in 2001 by Purdue President Martin C. Jischke, Science Bound is a program that helps underrepresented students in grades 8-12, to earn full scholarships to Purdue to study for a career in engineering, science, math, and technology and math/science education.

The Science Bound parents attended a presentation by astronaut Guy Gardner on May 23, 2004. The parents have an opportunity to interact with other parents who are committed to advancing their children's education, and will gain valuable insight on what their children will need to succeed at Purdue.

Survey ranks Purdue engineering among nation's best

Purdue University's School of Engineering graduate program is ranked eighth overall and several of its specialized programs are among the top ten in a U.S. News & World Report survey released April 2, 2004. Purdue is tied with the University of Michigan and moved up in the overall rankings from last year's No. 9 position. Two years ago, Purdue ranked No. 12. In a separate survey, employers also ranked the Schools of Engineering 10th nationally.

"I am very pleased to see the rankings of Purdue's engineering programs continue to rise," said Linda P.B. Katehi, John A. Edwardson Dean of Engineering. To be so well thought of by both our peers and industry leaders is a testament to our students and faculty at Purdue." The School of Aeronautics & Astronautics was ranked sixth overall. Purdue's engineering program is among the largest in the United States and includes 13 schools, departments and divisions. This year, the schools enrolled almost 6,500 undergraduate students and more than 2,500 graduate students. U.S News has published graduate school rankings annually since 1987.

Continuing Engineering Education

Continuing Engineering Education at Purdue University offers graduate and professional development courses delivered by satellite, video, streaming videotape, Internet, CD-Rom, teleconferences and face-to-face presentations. Students do not have to be admitted to a degree program to take graduate courses, and may register on a credit or audit basis. Graduate courses taken for credit may be used to satisfy the requirements for Purdue Master's Degree.

The School of Aeronautics & Astronautics (AAE) through Purdue University's Continuing Engineering Education (CEE) program, offers graduate level courses in aerospace engineering. It is possible to earn a non-thesis interdisciplinary Master's Degree in Engineering from Purdue University entirely via remote learning courses. Within the current CEE framework, it is possible to pursue advanced studies relevant to aerospace engineering and earn an Interdisciplinary Master of Science in Engineering or a Master of Science degree from Purdue. You can also take graduate classes with a non-degree status to improve your knowledge in an area of interest; courses taken under non-degree status can be transferred to your degree if the grades are B or higher.

With our history of quality education, we are confident that the School of Aeronautics & Astronautics participation with Continuing Engineering Education will benefit all participants.

How to Register or Apply for Admission

Students may enroll in non-degree status to receive credit for a course while completing the full application for a degree–seeking admission. Non-degree enrollment does not guarantee admission as a degree-seeking student at a later time. Former Purdue University graduate students who have not registered with Purdue within the last calendar year or more, must submit a re-entry Graduate School Application. To apply for degree-seeking status for CEE's interdisciplinary MS or MSE degree, students should submit application materials to Continuing Engineering Education. To apply for degree-seeking status with the School of Aeronautics & Astronautics to pursue an MS, students should submit application materials to the School of Aeronautics & Astronautics. If admitted to a master's degree program, students will establish a faculty advisor committee to assist in developing a plan of study.

Recently Offered Courses & Instructor

A&AE 550 Multidisciplinary Design Optimization
William Crossley

A&AE 615 Aeroacoustics
Anastasios Lyrintzis & Luc Mongeau

A&AE 514 Intermediate Aerodynamics
Anastasios Lyrintzis

A&AE 554 Fatigue of Structures and Materials
Alten F. Grandt Jr.

A&AE 539 Advanced Rocket Propulsion
Stephen D. Heister

A&AE 552 Nondestructive Evaluation of Structures and Materials
Alten F. Grandt Jr.

Additional AAE courses are planned for CEE in the near future. For a current schedule of AAE courses available through CEE, visit our web page at: https://engineering.purdue.edu/aae/cee/

Contact Information

Purdue University
Continuing Engineering Education
Potter Engineering Center
Room 364
500 Central Drive
West Lafayette, IN. 47907-2022
Toll-free U.S. only: 877-598-4CEE
https://engineering.Purdue.edu/CEE/

Purdue University
School of Aeronautics & Astronautics
315 N. Grant St.
West Lafayette, IN. 47907-2023
Telephone: (765) 494-5152
http://aae.www.ecn.purdue.edu

PURDUE UNIVERSITY

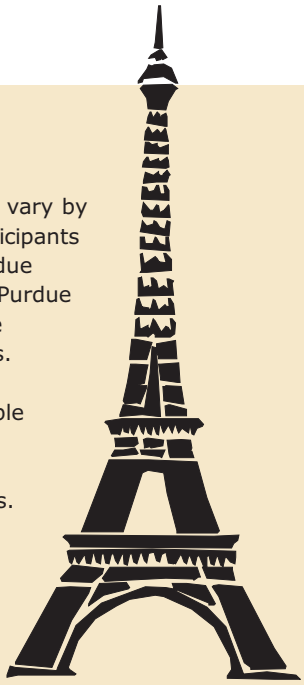
Study Abroad Opportunities

Purdue students can choose from over 200 study abroad opportunities in more than 45 countries. Programs vary by discipline and length, from one week to one year, making study abroad accessible for all students. Program participants can take courses in their major, minor or earn general education credits. Most programs are open to all Purdue students while others are designed for specific majors or minors. Academic credit transfers back directly to Purdue allowing students to fit study abroad easily into their four-year plan. Students remain enrolled students while participating in Purdue programs and therefore are eligible for financial aid and Purdue University scholarships. The Study Abroad Office awards a limited number of scholarships to students who have been approved for study abroad. Other scholarships specifically for students studying outside the United States are also available

The School of Aeronautics & Astronautics currently has agreements with England, France and Australia and has students from Purdue in these three countries and we are also acting as hosts for our overseas students. Purdue Study Abroad will also start to offer short-term, multiple destination programs during the summer.

The faculty advisor for the School of Aeronautics & Astronautics is Prof. Marc Williams who can be reached at wiliams@purdue.edu. For more information please visit the Study Abroad web page at:

http://www.studyabroad.purdue.edu



Head of School Prof. Tom Farris greets astronaut alumni Janice Voss

Caroline and Ronnie Miller and Prof. C.T. Sun

Elsie and Art Portinga

Outstanding Aerospace Engineers Award 2003

Six Purdue University graduates received the Outstanding Aerospace Engineer Award during the School of Aeronautics & Astronautics fifth annual awards ceremony on Thursday October 25, 2003 at the Holiday Inn Select, Lafayette, IN.

"We are delighted to introduce the 2003 class of Outstanding Aerospace Engineers" said Linda P.B. Katehi, the John A. Edwardson Dean of Engineering. "From a shared beginning at Purdue, these inductees join an elite group of exemplary graduates who have taken their Purdue education and reached great heights in their fields. We are proud to consider them ambassadors of the great tradition of Purdue Engineering."

Milton Davis recipient of the Russell Cedars Memorial Scholarship and Miss Mary Cedars

AAE students Allison Bahnsen and Melanie Silosky

Prof. Terrance Weisshaar with students L-R Stephanie Van Y; David Loffing and Shin Matsumara

(L- R) Josh Frommer, Michael Hrach and Stephanie Van Y

Chris Patterson is awarded with the 2003 Outstanding Graduate Teaching Assistant Award

(L- R) Tony Dunlap, Sally Gustafson and Leon Walters

Gus Gustafson and Ronnie Miller

Outstanding Aerospace Engineers

L-R Thomas N. Farris; David A. Wagie; Raymond R. Cosner; Ronnie K. Miller; Richard L. Fahrner; Peggy P. Dedo & William H. Gerstenmaier

The recipients for 2003 are:

Raymond R. Cosner BSAAE '72, MSAAE '72
Senior Technical Fellow, Senior Technical Fellow
The Boeing Corporation

Peggy P. Dedo BSAAE '67
Vice President of Engineering and Technical Support
United Airlines

Richard L. Fahrner MSAE '61
Senior Vice President
Orbital Sciences Corporation

William H. Gerstenmaier BSAAE '77
Manager, International Space Station Program
NASA

Ronnie K. Miller BSAAE '73, MSAAE '75, Ph.D '79
Group Technical Director
MISTRAS Holdings Corporation

David A. Wagie Ph.D. '84
Brigadier General, Dean of the Faculty
United States Air Force Academy

John Rich and David Wagie

(L- R) Meredith Weisshaar, Prof. Steve Collicot and Prof. Terrence Weisshaar

Prof. Dominick Andrisani and Mrs. Sue Wagie

Janice Voss and John Sullivan

PURDUE
UNIVERSITY

College of Engineering

NEW ENGINEERING IDENTITY SHIFTS FOCUS TO COLLABORATION

The Purdue University Board of Trustees voted to rename the Schools of Engineering the College of Engineering. Purdue Provost Sally Mason said, "The name change reflects a shift in the engineering discipline toward more multidisciplinary work, where boundaries between specific fields have become less distinct. Each of the College of Engineering's eight-signature areas requires collaboration and cooperation among researchers in the different disciplines that make up the college." In 1950, Purdue consolidated its engineering disciplines under the name Schools of Engineering to emphasize each school's autonomy and unique characteristics that made it a leader in their fields.

Linda Katehi, Purdue's John A. Edwardson Dean of Engineering, believes that this is very timely and a very important action which can also symbolize Purdue Engineering's commitment to multidiscipline collaborations and integrative efforts in discovery, learning, and engagement.

New Department of Engineering Education

Purdue University is taking steps to stem the decline in high school students' interest in careers in engineering. The university's Board of Trustees voted to create a new Department of Engineering Education to increase younger students' interest in engineering while researching ways students learn engineering concepts. The department is the first of its kind in the nation, but other universities across the nation are also studying the problem.

The initiative is aimed at not only increasing student interest, but also at responding to the projected demand for more engineering professionals. One recent study showed that the number of high school seniors planning on careers in engineering has dropped more than 35 percent in the past 10 years. At the same time, the U.S Bureau of Labor estimates that the number of jobs to be filled in engineering and science will grow at more than three times the rate of other professions.

The new department will combine Purdue's existing freshman engineering and interdisciplinary engineering programs. In the future, it plans to offer graduate degrees for students studying the science of learning and other topics in engineering education. There are also plans to add an engineering teaching certification program for high school teachers by 2006 and to pursue accredited undergraduate degrees in engineering education and interdisciplinary engineering.

Kamyar Haghighi, head of the new department and a professor of agriculture and biological engineering, said he hopes the department can play a role in better preparing students entering college for the rigors of an engineering curriculum and in attracting a more diverse group of students into the field. "If we are going to continue to produce the world's best engineers, it is imperative to strengthen the pipeline to K-12 education."

Professor Emeritus receives 60-year Membership to AIAA

April 16, 2004 – George M. Palmer Jr. Professor Emeritus of the School of Aeronautics & Astronautics was presented with a Certificate and Pin for completing a 60-year membership of AIAA. Prof. Tom Farris, head of school, presented the pin and certificate at the Distinguished Engineering Alumni reception.

George Palmer receives the pin and certificate from Tom Farris with Larry Cargnino, C.T. Sun and "Gus" Gustafson looking on.

Industrial Advisory Council

2003-2004

The Industrial Advisory Council serves an important role in the School of Aeronautics & Astronautics. The success of our programs depends on strong support from Industry and the Industrial Advisory Council serves as a link between industry and the university. The IAC meet twice a year in the fall and spring and review a large variety of topics related to our current operations and future goals. The fall meeting was held November 7, 2003 and the spring one on April 2, 2004.

The current members of the IAC are listed below. We sincerely appreciate the efforts of the members of the IAC to take time from their busy schedules to assist us in our programs, and look forward to working with them in the future.

Fall 2003 - IAC members lunch with AAE students and faculty

Dr. William H. Ailor III (PhD 1974)
Principal Director
Space Hazards and Operations Support Directorate
The Aerospace Corporation
Ctr. Orbital & Reentry Debris Studies

Mr. Frank H. Bauer (BS 1979, MS 1980)
Chief Engineer, MESA
NASA
NASA Goddard Space Flight Center

Mr. Bradley Duane Belcher (BS 1982)
(IAP Member)
Lead Experimental Engineer
Joint Strike Fighter F136 Engine
Rolls-Royce Corporation

Dr. Paul M. Bevilaqua (MS 1968; PhD 1973)
Chief Scientist
Lockheed Corporation
Lockheed Martin Skunk Works

Ms. Nancy Carpenter
(IAP Member)
Program Manager
Technology Programs, Science & Engineering
ATK Thiokol Propulsion
P.O. Box 707 M/S 230

Ms. Andrea M. Chavez (BS 1988)
Engineering Manager
System Integration & Text
Engineering/Technology Products
Ball Aerospace & Technologies Corp.

Mr. Daniel F. Devitt (BS 1975)
Director – Engineering
Vought Aircraft Industries, Inc.

Mr. Joseph J. Gernand (BS 1980)
(IAP Member)
Boeing – NASA Systems
Space Shuttle Program

Dr. William C. Kessler (BS 1964, MS 1965)
Vice President Enterprise Productivity
Lockheed Martin Aeronautics Company

Dr. Andrew M. King (MSME 1984, PHD 1988)
Engineering Director
Boeing Satellite Systems

Mrs. Mary Kriebel (BS 1985)
Propulsion System Manager
Northrop Grumman

Dr. Donald L. Lamberson (BS CHE 1953)
Major General, USAF (Ret.)
Technical Advisor and Consultant

Mr. David K. McGrath (BS 1983, MS 1984)
Chief Technical Advisor
ATK Tactical Systems

Mr. G. Thomas McKane Jr. (BS 1966)
President/CEO
A.M. Castle & Co.

Mr. Hank Queen (BS 1974)
(IAP Member)
Vice-President of Engineering-Product Integrity
Boeing Commercial Airplane Group

Mr. Charles Robert Saff (BS 1971)
Boeing Technical Fellow
Boeing Company

Mr. Randal E. Secor (BS 1976)
Naval UCAV Program Manager
Northrop Grumman Corp.

Dr. Robert L. Strickler
(BS 1960, MS 1962, PHD ME 1968)
(IAP Member)
President
Sangamon LLC

AAE Faculty Roster

Aerodynamics

A. Blaisdell, Associate Professor, Ph.D., Stanford, 1991, Computational Fluid Mechanics, Transition and Turbulence.

S. H. Collicott, Associate Professor, Ph.D., Stanford, 1991, Experimental and Low-Gravity Fluid Dynamics, Optical Diagnostics, Applied Optics.

M. C. Jischke, University President; Ph.D., Massachusetts Institute of Technology, 1968.

A. S. Lyrintzis, Professor, Ph.D., Cornell, 1988, Computational Aeroacoustics, Aerodynamics with Applications to Rotorcraft and Jet Flows.

S. P. Schneider, Professor, Ph.D., Caltech, 1989, Experimental Fluid Mechanics, High-Speed Laminar-Turbulent Transition.

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.

Dynamics and Control

D. Andrisani II, Associate Professor, Ph.D., SUNY at Buffalo, 1979, Estimation, Control, Dynamics.

M. J. Corless, Professor, Ph.D., Berkeley, 1984, Dynamics, Systems, Control.

A. E. Frazho, Professor, Ph.D., Michigan, 1977, Control Systems.

J. L. Garrison, Assistant Professor, Ph.D., The University of Colorado at Bolder, 1997, Satellite Navigation, GPS, Remote Sensing.

K. C. Howell, The Hsu Lo Professorship 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.

M. A. Rotea, Professor, Ph.D., Minnesota, 1990, Robust and Nonlinear Multivariable Control, Modeling and Identification.

Propulsion

W. E. Anderson, Assistant Professor, Ph.D., Pennsylvania State Univ., 1996, Combustor Design, Combustion Stability, Atomization, and Combined Cycle Propulsion.

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

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

J. J. Rusek, Visiting Professor; Ph.D., Case Western Reserve, 1983, Propulsion, Energy Conversion, Power Generation.

Structures & Materials

W. A. Crossley, Associate Professor, Ph.D., Arizona State, 1995, Optimization, Rotorcraft and Aircraft Design, 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, Jr., Raisbeck Engineering Distinguished Professor for Engineering and Technology Integration, Ph.D., Illinois, 1971, Damage-Tolerant Structures and Materials, Fatigue and Fracture, Aging Aircraft.

H. Kim, Assistant Professor, Ph.D., Univ. of California Santa Barbara, 1998, Composites, Applied Mechanics, Structural Dynamics.

C. T. Sun, Neil A. Armstrong Distinguished Professor of Aeronautical & Astronautical Engineering, Ph.D., Northwestern, 1967, Composites, Fracture and Fatigue, Structural Dynamics, Smart Materials and Structures.

T. A. Weisshaar, Professor, Ph.D., Stanford, 1971, Aircraft Structural Mechanics, Aeroelasticity, Integrated Design.

Freshman Engineering

P. K. Imbrie, Assistant Professor, Freshman Engineering, Ph.D., Texas A & M, 2000, Educational Research, Solid Mechanics, Experimental Mechanics, Nonlinear Materials Characterization.

Faculty Update

Prof. Mario A. Rotea

received the best poster interactive paper award for paper ThMPI 6: Robust Estimation Algorithm for Spectral Neubauer Models by M. Rotea, C. Lana and D. Viassolo at the 42nd IEEE conference on Decision and Control from December 9-12, 2003 Maui

Prof. Mario A. Rotea

Appointment of new faculty member for 2003 -2004

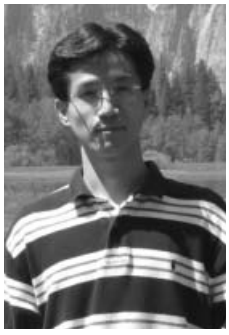
The School of Aeronautics & Astronautics welcomed two new faculty members in fall 2003. Dr. Charles L. Merkle joined the School of Mechanical Engineering as well as the School of Aeronautics and Astronautics as the Reilly Professor of Engineering. He joined Purdue from the University of Tennessee as part of the Renewal Energy and Power Systems Signature Area. Chuck is one of the world's leading figures in modeling and computational analysis of fluid flows related to propulsion.

L- R Head of Aeronautics & Astornautics Tom Farris, Chuck Merkle, Dean Linda Katehi and Head of Mechanical Engineering, E. Dan Hirleman

Dr. Ivana Hrbud joined our school as an Assistant Professor of Aeronautics & Astronautics in the fall of 2003 from NASA Marshall Space Flight Center and brings with her expertise in electric propulsion.

Dr. Ivana Hrbud

2004-2005 Academic Year



Dr. Inseok Hwang

The School of Aeronautics & Astronautics will welcome three new members of faculty in fall 2004. Dr. Inseok Hwang will join our school as Assistant Professor from Stanford University.

Dr. Dan DeLaurentis will join our school as Assistant Professor from Georgia Institute of Technology.

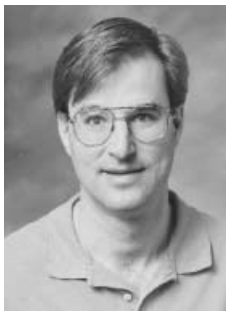
We would also like to welcome Dr. R. Byron Pipes who joins the School of Materials Engineering, the School of Aeronautics & Astronautics, and the School of Chemical Engineering as the John L. Bray Distinguished Professor of Engineering.

W.A. Gustafson Undergraduate Teaching Award

Prof. Martin J. Corless

The winner of this year's award is Prof. Martin Corless, who is also the School's nominee for the Murphy Outstanding Undergraduate Teaching Award.

The School is delighted to announce that Dr. Steven P. Schneider has been promoted to the rank of Professor of Aeronautical and Astronautical Engineering, effective August 16, 2004.



Prof. Steven P. Schneider

Elmer F. Bruhn Teaching Award

Professor James M. Longuski has been selected by the Teaching and Student Awards Committee to receive the Elmer F. Bruhn Teaching Award for 2003 and is the School's nomination for the engineering wide A.A. Potter Best Teacher Award.

Prof. James M. Longuski

Purdue names director of Center for Advanced Manufacturing

John P. Sullivan, professor of aeronautical engineering, has been named director of Purdue University's new Center for Advanced Manufacturing, effective July 1, 2004. During an advanced manufacturing summit at Purdue on May 18, university President Martin C. Jischke announced the center's creation. The new center will be the sixth component in Purdue's Discovery Park, the university's central hub for strategic, interdisciplinary research. "John brings academic stature and respect in the university community together with administrative skills and industry experience to put this center to work immediately for Indiana manufacturers." Jischke said. Sullivan, who has been at Purdue since 1975, received his master's degree and doctorate in aeronautical engineering from the Massachusetts Institute of Technology. He received his bachelor's degree in mechanical and aerospace sciences from University of Rochester in New York. Sullivan served as head of Purdue's School of Aeronautics & Astronautics from 1993-98 and was director of the Aerospace Sciences Laboratory from 1983-95. He has an extensive record of academic publications and possesses industrial and consulting experience with NASA, Boeing Commercial Aircraft Co., the Office of Naval Research and General Electric Co. The Center for Advanced Manufacturing will be located in the $10 million e-Enterprise Center, which is designed to house large-scale interdisciplinary projects and programs.

Prof. Steven Collicott Flies in Vomit Comet

Since the autumn of 1996, Purdue's School of Aeronautics & Astronautics has been involved in the NASA Reduced Gravity Student Flight Opportunity program. Teams of undergraduate students from all over the country send in proposals for experiments to be performed in a reduced-gravity environment, and the best are chosen to be carried out by the student teams during a flight on NASA's KC-135 (a.k.a. "Vomit Comet") aircraft. Steve Collicott, professor of Aeronautics & Astronautics, has been advisor for the Purdue teams since 1997 and spent a week in Houston with Purdue's five participating groups this spring. This year was different for Collicott as this year; he had a chance to fly with one of the teams.

The plane that hosts the Reduced Gravity Student Flight Opportunities program has several nicknames: the "weightless wonder," the "K-Bird," and the infamous "Vomit Comet." This aircraft has been modified from its standard use as a military refueling plane, completely padded on the inside, and fitted with loops to attach experimental equipment. The KC-135 was also used several years ago to film zero-gravity scenes in the movie Apollo 13 starring Tom Hanks.

(L-R) Prof. Steven Collicott, Astronaut David Wolf, AAE Students Jonathan Braun & Brad Hurwitz

The KC-135 Student Flight Opportunities program provides a unique academic experience for undergraduate students to successfully propose, design, fabricate, fly, assess and disseminate information from a reduced-gravity experiment of their choice. That experience should include scientific scholarship, hands-on test operations and education and public outreach activities.

Faculty Publications

During the last year, four books written by faculty of the School of Aeronautics & Astronautics were published

James M. Longuski published ***"Advice to Rocket Scientists"*** or ***How to be successful and happy in a career where science and politics often clash***. Published by the American Institute of Aeronautics & Astronautics ISBN: 1-56347-655X

Alten F. (Skip) Grandt Jr. published ***"Fundamentals of Structural Integrity"*** Damage tolerant design and nondestructive evaluation. Published by John Wiley & Sons, Inc. ISBN: 0471-21459-0

James F. Doyle published ***"Modern Experimental Stress Analysis"*** Completing the solution of partially specified problems published by John Wiley & Sons, Inc. ISBN: 0-470-86156-8

Martin J. Corless & **Arthur E. Frazho** published ***"Linear Systems and Control"*** An Operator Perspective. Published by Marcel Dekker, Inc. ISBN: 0-8247-0729-X

Fueling for the Future

A new fuel cell that is environmental friendly; runs on aluminum and renewable resources while also having the ability to generate 20 times more electricity per pound than car batteries. Sounds too good to be true, but John Rusek, an adjunct professor in the School of Aeronautics & Astronautics and co-founder of Swift Enterprises Ltd. has been developing just that.

Swift Enterprises Ltd., research park startup venture, has been developing these new batteries – called fuel cells – using hydrogen peroxide since before President George W. Bush's 2003 State of the Union address, which pledged $1.2 billion in federal money for national fuel cell research.

John Rusek holds an older fuel cell model in his West Lafayette lab while demonstrating the newer version the newer version.

(Photo Dave Umberger Purdue News Service)

Electricity is produced from the cell by chemical reaction occurring between aluminum and hydrogen peroxide. Hydrogen peroxide also offers the availability of developing non-toxic, low cost rocket fuels. If the fuel cell is perfected, the electricity source could possibly replace conventional batteries in many applications and may someday power entire households and propel automobiles.

Fuel cells have many advantages over traditional batteries which have a closed system. This means that once the chemical reaction is finished, the user either has to recharge or replace it. Fuel cells operate on as an open system. Fuel or gas flows through the cell on demand, once all of the fuel is consumed, more can be added to make the cell produce more energy.

Unlike batteries, the experimental cells do not provide a steady supply of electricity. It takes about two hours for the cells to reach their peak electrical output enabling them to produce a steady current flow of power.

The company's research team is using hydrogen peroxide to create hypergolic (fuels that burn on contact with an oxidizer) propellants that are non-toxic. Peroxide is a better power source because it is less poisonous to humans and the environment. The chemical propellants Swift Enterprises Ltd. has developed with funding from the Department of Defense for satellites, space shuttles and missiles have other applications including automotive uses.

The next step is the development of several prototypes which is planned to partner with Indian-based manufacturers. A rural electric company has discussed working with Swift to develop a propane based fuel cell for agricultural operations. Silent and with no long-distance wiring, this fuel cell would provide power to an entire farm without noise.

Missions to the Moon and Beyond

In his January 15, 2004 speech at NASA headquarters in Washington, President Bush announced renewed efforts for human space exploration. Mr. Bush said the space program would shift its focus from near-Earth orbit. The new program will divert $11 billion out of $86 billion in NASA budgets over the next five years. NASA announced that it was creating an office to develop technologies for missions to the Moon and beyond.

The agency will also retire the three remaining space shuttles after the International Space Station is completed, in 2010. After the shuttles are grounded in 2010, NASA will not have any ability to send astronauts to space until a new spacecraft, the crew exploration vehicle starts operation in 2014. That will leave NASA and the other nations participating in the International Space Station reliant on Russian rockets for transportation. The crew exploration vehicle is the craft that will carry astronauts back to the moon by 2020.

A team of about 30 Purdue University students from diverse technical and engineering disciplines participated in the U.S. Department of Energy sponsored The American Solar Challenge which was a 2,300-mile, eleven day race from Chicago to Los Angeles following mostly along the historical Route 66.

Purdue Solar Team

Competes in Cross-Country Race

The vehicle had the capability to average about 35 mph. It uses 650 photovoltaic cells which turn sunlight into electricity that generates about 900 watts of power. This charges a battery the size of four car batteries which ran the electric motor, which is attached to one of the rear wheels of the vehicle. "The motor has a peak output of 10 horsepower, but normally during the race we are averaging less than one horsepower," said Kevin Darkes, a senior in the School of Aeronautics & Astronautics and vice president of Purdue Solar Racing, a student organization founded to build and race solar cars and to promote environmentally friendly technologies.

"Unlike some of the other teams, we designed and built almost every component of the car. The American Solar Challenge is arguably the most difficult solar car race in the world," he said. "I think it's a wonderful experience. It's quite competitive. Many teams put a lot of time, money and energy into the race. It's really an advanced engineering project."

Overcoming several early difficulties and making continued improvements during the race helped the team earn the 0-66 Award.

Purdue's final placement was 13th out of 20 cars, completing 1954 miles in just less than 97 hours. More information about team members, sponsors, and the Purdue solar car is available at http://www.ecn.purdue.edu/solarcar.

AAE students in Air Force Reserve Officer Training Corps.

Four Purdue University undergraduates in the School of Aeronautics & Astronautics have been chosen to participate in the Air Force Reserve Officer Training Corps' Summer 2004 Technical Recruiting Internship Program. **Nick Chachor**, Des Plaines, Ill., **Megan Darraugh**, Lake Bluff, Ill., **Adam Naramore**, Valparaiso, Ind., and **Matthew Smith**, *Birmingham, Ala.*, were among the 36 candidates selected from 143 Air Force ROTC detachments nationwide to participate in the paid internship program. The program, which is now in its second year, offers more than $5,000 in cash and benefits and the opportunity for a full ROTC scholarship. The interns will work on some of the latest military technology, including the airborne laser program, aircraft munitions and guided missiles, aircraft systems and structures, and stealth technology.

Purdue Scholars Day

A & AE students display their rocket.

The Schools of Engineering hosted Purdue Scholars Day in Stewart Center on Saturday December 6, 2003. High school students and their parents spent the day on campus where they had the opportunity to talk to faculty and current students from the Schools of Engineering.

Professor Marc Williams talks to prospective students and families.

Purdue Proud students L-R Dorrie Byford AAE; Greg Mates ME; Lindsay Gossom ME; Jayleen Guttromson AAE; Jason Helms AAE; Curt Peternell AAE

Third Annual Engineering Career Expo April 15, 2004

Engineering experts gave advice on how to become a future engineer to 1,100 students, parents and educators at the third annual Engineering Career Expo at Space Center Houston. Students on Co-Op from Purdue University were on hand to help ignite and brighten the flame of curiosity about engineering for high-school and community–college students.

The co-op students acted as unofficial guidance counselors to the high school students and they advised aspiring engineers which classes to take, skills to develop and qualifications employers look for after graduation.

Commencement

Congratulations to the graduates
from the School of Aeronautics and Astronautics:

winter 2003

Purdue University's 191st commencement took place on Sunday December 21, 2003 with approximately 2,920 graduates of whom 2,229 were undergraduates. Purdue President Martin C. Jischke told new graduates to "go forth" to their future with the goal of emphasizing the journey, not the destination. Following the commencement ceremony in the Elliott Hall of Music, the Schools of Engineering hosted an "Engineering Send-Off" in the North ballroom and the East and West Main lounges of the Purdue Memorial Union. The School of Aeronautics & Astronautics honored their students with a brightly lit snowman themed display.

BSAAE
Jung Hyun Ahn
Ali Akhter
Sandeep Allakki
Matthew Bagg
Justin Bailey
Daniel Bender
Christopher Bies
Scott Bird
Jennifer Brzesinski (Drake)
Jennifer Byron
Brian Chesko
Daniel Chakraborty Navindran Davendralingam
Michael Downes
Joel Falardeau
Geoffrey Granum
Kirby Haase
Grant Hile
Brian Hronchek
Jared Hutter
Cyril Jos
Joshua Jung
Melanie Jura
John Ko
Jeffrey Komives
Kai-Hui Leong
Theodore Light
Darwin Lisan
Gerald Lo
Patrick McCormick
Douglas Mousseau
Arun Padmanabhan
James Palmer
Mir Rashiduzzaman
Anthony Ricca
Amber Rist
Brent Robbins
Kelvin Seah
Cyrus Sigari
Michael Sufana
Andrea Sydnor
Alethea Tan
Emil Tchilian
Albert Uhle
Susan Umberger
Jennifer Watson

MSC
Syed Ali
Yu Matsutomi

MSAA
Vikram Ananthula
David Child
Nicholas Czapla
Loren Garrison
Ebenezer Gnanamanickam
Yoske Hasebe
Alexandru Herescu
Shin Matsumara
Munir Merchant
Jong Soo Mok
William (Ben) Stein

MSE
Kimberly Armstrong
Carlos Lana
Renith Richardson
Kshitij Shroti
Atef Thabet
Nattaporn Sangngampal

Ph. D.
Brijesh Eshpuniyani
John Funk
Takayuki Hoshiza
Chul-Young Park
Hirotaka Sakaue
Ali Uzun

may 2004

An estimated 5,835 degrees were presented in during the 192nd Commencement Ceremonies on May 15-16. The College of Engineering ceremonies took place on Saturday May 15, where Purdue President Martin C. Jischke encouraged new graduates to follow their dreams and follow through with hard work to make those dreams come true. The School of Aeronautics & Astronautics honored their students with a colorful display on the theme of "Bon Voyage."

BSAAE

Maizakiah Abdullah
Allison Bahnsen
Debanik Barua
David Berger
Steven Blaske
Eric Blattner
Anthony Bradford
Matthew Branson
Lucia Capdevila
Stephen Clark
Kevin Daly
Heather Dunn
Andrew Faust
Christopher Fisher
Devin Fitting
David Goedtel
Daniel Grebow
William Grosse
Franklin Hankins
Gregory Heckler
Douglas Holden
Kelli Hsieh
Louis Huebsch
Alessandro Ianniello
Leigh Janes
Glenn Jocher
Andrew Kacmar
Brady Kalb
Rebecca Karnes
Teng Khoo
Noah Kobin
Christopher Krukowski
Nikolaus Ladisch
Steven Lambert
John Maier
Rachel Malashock
Robert Manning
Marina Mazur
Wade McMillan
Miller Miller
George Mseis
Andrew Myer
Daniel Nakaima
Patrick Nelson
William Pahn
Joseph Paunicka
Adam Pender
Benjamin Phillips
Brian Pramann
Mara Prentkowski
Bryan Redman
Mihailo Rutovic
Brian Schoening
John Shew
Melanie Silosky
Ryan Spalding
Michael Spuzzillo
Eng Kee Ian Tan
Kapila Thaivasigamony
Benjamin Toleman
Christopher Ulrich
Brian Ventre
Ryan Whitley

GRADUATE STUDENT CANDIDATES

Master of Science

Daisuke Hiraoka
Chad Vetter

MSAA

Ermira Abdullah
Eduardo Aguayo
Robert Benner
Jeffrey Bult
David Child
Jeremy Corpening
Jonathan Edwards
Matthew Gean
John Keune
Celine Kluzek
Phoi-Tack Lew
Jatin Mehta
Christophe Moraines
Jaroslaw Niemczura
Brett Northcutt
Paul Precoda
James Tullos
Charles Wright

MSE

EErik Langenbacher
Juan Portillo
Chit Hong Yam

Ph.D.

Sung-Man Cho
Rania Hassan
Baris Yagci
Haitao Zhang

august 2004

Congratulations to the graduates of the 193rd graduation ceremonies.

GRADUATE STUDENT CANDIDATES

BSAAE

Robert Browning
Jacob Mitchell
Bradley Thompson
Justin Tucker

MSAAE

Lee Chiew (MSAA)
Luis D'Alto (MSAA)
Kristen Gates (MSAA)
Shyama Kumari (MSE)
David Loffing (MSAA)
Thomas Martin (MSAA)
Michael Melchior (MSAA)
Kamlesh Nankani (MSAA)
Nicholas Nugent (MSAA)
Nicholas Pearson (MS)
Haiyang Qian (MS)
Justin Smith (MS)
Arun Subramaniyan (MSAA)
Stephanie VanY (MSAA)

Ph. D.

Ajit Achuthan
I-Ling Chang
Guofeng Gao
Murthy Haradanahalli
Sureshkumar Kalyanam
Matthew Long
Belinda Marchand

STUDENT *awards*

NASA JSC Co-op Special Achievement Awards and Co-op Flag Awards
Out of more than 90 students who worked at JSC during summer 2003, 39 were nominated for an award. Of those nominated, 17 received Special Achievement Awards and 19 received Flag Awards.

Ryan Whitley and Melanie Silosky received a Co-op Special Achievement Award, which included a check for $500.

Jayleen Guttromson received a Flag Award, which includes a certificate with a mounted flag that has flown on board an Orbiter.

2004 Herbert F Rogers Scholarship
Whitney Jackson; Brian Schoening
Brian Ventre

2004 Koerner Scholarships
Philipp Boettcher, Sophomore
Dheer Lashkari, Sophomore
Laura Brower, Junior
Joshi Manasi, Junior
Debanik Barua, Senior
Michael Spuzzillo, Senior

2004 Magoon Graduate Teaching Award
Lee Kuan Chiew; Masaki Kakoi;
Fong Loon Pan; William B. Stein;
Stephanie Van Y

2003-2004 Astronaut Scholarship Foundation Mercury 7 Award
Jayleen Guttromson

2004 Elmer F. Bruhn Undergraduate Research Assistantship
Manasi Shikrant Joshi; Tyler Wilhelm
Rebecca Dale

2004 John and Patricia Rich Scholarship
David Berger; John Collins;
Gregory Heckler; John Horst;
Ryan Irwin; Jesse Jones; Ryan Whitley;
James Swedler; Garret Willis

2004 Outstanding Graduate Teaching Assistant
William B. Stein

2004 Hsu Lo Fellowship
Hai-Yang Qian

Gary and Sue Payton Scholarship

Arthur Remson Memorial Scholarship

Russell Cedars Memorial Scholarship
Colleen Rainbolt

Purdue Forever Fellowship 2003
Belinda Marchand
John F. Matlik

Marc Weaver Memorial Scholarship
(See story on page 33)
Patrick Nelson

Space Coast Chapter - Federally Employed Women, INC.
Caley Burke

Dow Chemical – Scholastic Achievement Award
Christina Figueroa

HERTZ Fellowship 2003
Tyler Robarge

DoD Fellowship 2003
Damon Landau

ASTM Student Paper Competition Award 2003
Bence Bartha

Best Poster Interactive Paper Award 2003
Carlos Lana

1st Place National Student Paper Competition 2004
James Gregory

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

Spring 2003 First Place Team

L-R Nancy Carpenter; Nick Baker; Tim Allenworth; Chris Duda; Joshua Mook; Todd Mostrog

Fall 2003 First Place Team

L-R Dave McGrath; Greg Wilson; Jimmy Chiu; Garrett Willis; David Stinson

The Society of Women Engineers

The Society of Women Engineers held its 30th annual job fair and awards program on March 24 2004. More than 100-merit based scholarships and awards totaling approximately $52,000 were given to women currently studying engineering at Purdue. More than 45 corporations, organizations, and alumnae sponsored these awards. Purdue currently has 1,580 women enrolled in engineering, which represents 18 percent of all engineering students. Purdue's College of Engineering has granted more undergraduate degrees to women than any other engineering school in the nation.

Congratulations to the following students from the School of Aeronautics & Astronautics who received awards during the 2003-2004 academic year:

Allison Bahnsen – Ball Aerospace & Technologies Corp.
Jasmine Cashbaugh – Lockheed Martin
Jayleen Guttromson - Alumnae
Whitney Jackson – Donald C. Cook America Electric Power
Jackie Jaron - The Boeing Company
Angela Long – Alumnae
Jeri Metzger – Alumnae
Niccole Pattee – Lockheed Martin
Elizabeth Wolf – Vought Aircraft Industries Inc.
Leah Wyman - Miller-Bush

Congratulations to our Outstanding Students

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.

The Outstanding Senior Award

December 2003 - Jennifer Watson
May 2004 – Wade McMillan

December Graduation Dean Linda Katehi, Jennifer Watson; Ben Stein and Prof. Tom Farris

Dean Linda Katehi with Wade Macmillan and Tom Farris

Outstanding Graduate Student

December 2003 – William (Ben) Stein
May 2004 – Jeremy Corpening

May Graduation Dean Linda Katehi with Jeremy Corpening and Head of School Tom Farris

Grand Prix Winner from School of Aeronautics & Astronautics

April 24, 2004 – Despite a flat front tire and a damp track, Clayton Smith finished the 47th Grand Prix at Purdue University in his starting spot of first place, maintaining a family traditions set by two older brothers, an uncle and a cousin. Smith, a sophomore majoring in Aeronautics & Astronautics from Mulberry, In. battled during the race to reclaim the lead he lost in the 55th lap. Smith maintained his lead even after his left front tire blew five laps before the finish.

"This is a big tradition in our family," Smith said in the winner's circle flanked by his brothers, Ian and Dustin, his uncle Tom, and his cousin Kyle, who were all previous Grand Prix winners.

L-R Uncle Tom, brother Dustin, Clayton Smith holding the trophy, cousin Kyle, brother Ian and mother Cindy

The Marc Christopher Weaver Memorial Scholarship

A scholarship has been created in honor of a 1994 graduate who was killed in a motorcycle-car accident in October 1998. The Marc Christopher Weaver Memorial Scholarship was established in July 2003 in memory of Marc BSAAE '94; MS '95 by his parents Rick and Rita. The scholarship is for an undergraduate aeronautical and astronautical engineering student based on academic merit with a preference on financial need and for students who participate in the cooperative educational program, of which Marc was a part whilst at Purdue. The first award was made in the fall of 2003 to Patrick Nelson.

The Weavers hope to raise the value of the endowment this year to the level required for graduate students in AAE. Contributions can be made to the Marc C. Weaver Memorial Fund. For more information, visit http://www.purdue.edu/udo/

awards of Excellence

ENGINEERING FACULTY & STAFF RECOGNITION

The Schools of Engineering Awards of Excellence were initiated in 2002 to honor outstanding faculty and administrative, professional, clerical and service staff. Now in its second year, the School of Aeronautics & Astronautics is proud to have a representative for both the staff and faculty categories.

At the banquet held on October 17, 2003 in the North Ballroom at the Purdue Memorial union, the School of Aeronautics & Astronautics was proud to honor **Linda Flack** who was presented with the Customer Service Award. As administrative assistant, Linda is the key member who makes the school's programs function smoothly. She handles all details of both undergraduate and graduate applications, enrollment, registration, co-op programs, and more, and she is also the primary contact with current students, prospective students and alumni. Linda's creativity, dedication, and performance have made her an invaluable resource for all of her 38 years at Purdue. Linda was cited as being "A Credit to the University" and "Has been at the next level for many years"

Linda Flack with Professor Emeriti Gus Gustafson and Larry Cargnino

Linda with her family

The Engineering Faculty Awards banquet was held on February 28, 2004. The banquet marked the conclusion of Purdue's second annual Engineer's Week, a celebration of accomplishments of the schools' students, faculty staff and alumni. The recipient for the 2004 award for Research was **Professor C.T. Sun**, Neil A. Armstrong Distinguished Professor of Aeronautical and Astronautical Engineering. During his career, Sun has extensively studied fracture mechanics, impact and plasticity and composite materials. He has written a book, published more than 240 journal articles, presented more than 250 papers at conferences and lectured at more than 90 universities worldwide. He has earned the designation of fellow from the American Institute of Aeronautics & Astronautics, the American Society for Composites and the American Society of Mechanical Engineers.

C.T. and Iris Sun

Prof and Mrs. Sun talk to Dean Linda P.B. Katehi and Spyros Teseregounis

AAE Picnic August 2003

Faculty, staff and graduate students came together at Columbia Park, Lafayette for the annual School of Aeronautics & Astronautics picnic.

Professor Emeritus George Palmer celebrates his birthday with a cake at the AAE picnic held at Columbia Park, Lafayette, IN.

Faculty and students enjoy the warm weather

Aero Social Night 2003

David Reagan

Celebrates 30 Years at Purdue University

David Reagan Mechanical Technician with the School of Aeronautics & Astronautics was recognized at a luncheon on January 21, 2004 for 30 years service at Purdue University. He was presented with a carriage clock for his dedication.

The Alley Kats Hit the Lanes

L-R Terri Moore; Linda Flack; Lisa Crain; Donna Moore and Judy Haan

For the 2003-2004 bowling season, staff members of the School of Aeronautics & Astronautics (AKA the Alley Kats) came in 10th place out of 13 teams that took part.

PURDUE UNIVERSITY

The need for financial support or our school is great. Your contributions do make a difference to us and help us in achieving our mission in teaching, research and service. Our annual Donor Honor Roll lists our alumni and friends who have given generously of their financial resources to support the School of Aeronautics and Astronautics.

Many thanks for your investment in us. Listed on the following pages are those alumni and friends who have generously donated to the school during the period July 1, 2003 to June 30, 2004. Many thanks.

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