

August 2008

Department of Homeland Security Secretary visits Ames

BY MICHAEL MEWHINNEY

Department of Homeland Security Secretary Michael Chertoff recently

disasters such as earthquakes, floods and fires.

Chertoff also learned how nano-technology is being used in a variety of new technologies, such as a revolutionary biosensor that can detect trace amounts of specific bacteria, viruses and parasites and help prevent the spread of potentially deadly biohazards in water, food and other contaminated sources.

"NASA is proud of this new exciting technology that is helping our country deal with disasters ranging from the raging wildfires that have consumed

thousands of acres here in California, to the horrific hurricanes that have

devastated so many other states," said Ames Center Director S. Pete Worden.

Earlier this summer, a remotely piloted aircraft carrying a NASA sensor flew over much of California, gathering information to help fire-fighters battle more than 300 wildfires burning throughout the state. The flights by NASA's unmanned Ikhana aircraft used a sophisticated Autonomous Modular Scanner (AMS) developed at Ames.

The flights originated from NASA's Dryden Flight Research Center at Edwards Air Force Base, Calif. Ikhana's onboard sensor can detect temperature differences from less than one-half degree to approximately 1,000 degrees Fahrenheit. The scanner operates like a digital camera with specialized filters to detect light energy at visible, infrared and thermal wavelengths.

The real-time, high-resolution Ikhana / AMS-acquired fire data were merged with fire detection data generated by NASA's Goddard Space

continued on page 5



NASA photo by Eric James

Department of Homeland Security Secretary Michael Chertoff (right) visited the center in August to learn how NASA technology helps the nation respond to natural disasters, such as widespread wildfires and destructive hurricanes. Here he is seen with Ames Center Director S. Pete Worden while seeing a demonstration of the hyperwall-2, high-resolution visualization system.

visited Ames to see first-hand how NASA technology helps the nation deal with disasters ranging from the widespread wildfires raging throughout California, to the horrific hurricanes throughout the country that each year wreak havoc and leave thousands of people homeless in their wake.

During the visit, Chertoff saw a demonstration of the hyperwall-2, a high-resolution visualization system displaying images from the wildfires, and learned about the key role that Ames' Disaster Assistance and Rescue Team (DART) plays in preparing for

On the Inside . . .

- Page 2 - NASA Lunar Science Institute names first international partner
- Page 3 - Lewis S. G. Braxton, III, named Ames' new deputy center director
- Page 5 - Worden forecasts fascinating future for near Earth objects
- Page 14 - Ames ongoing monthly events calendar
- Page 15 - Classifieds

Ames celebrates NASA's 50th Anniversary



Ames employees were invited to bring their family members to help celebrate NASA's 50th anniversary at the Ames Family Day Picnic on Aug. 14, 2008, with a delicious hot dog (or veggie dog) lunch hosted by the Ames Exchange. Family friendly activities included face painting and jumpee houses for kids. Astronaut Yvonne Cagle also attended the celebration. In addition, the film, "When we left Earth" was shown in the Exploration Center and open houses were held at the Vertical Motion Simulator, Future Flight Central and the Ames 20G centrifuge. Ames Center Director S. Pete Worden, (right), along with other Ames management, staff employees and Ames Exchange members, assisted in serving hot dogs and snacks to the many who attended.



NASA photos by Dominic Hart

see additional photos on page 9

Ames Project EXcellence Development program launches

BY CLAIRE SMITH

Ames Center Director S. Pete Worden recently announced the launch of the Ames Project EXcellence (APEX) System Engineering Development Program (SEDP), calling it "a critical contribution to our efforts to enhance Ames' in-house, end-to-end system engineering capabilities."

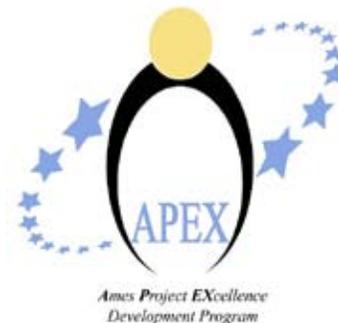
A core component of the APEX SEDP will be a Graduate Certificate Program in Space System Engineering provided onsite at Ames by the Stevens Institute of Technology, one of the few programs of its kind currently being offered by a technological university in the U.S.

APEX SEDP participants will be actively engaged in sharing their knowledge, insights, challenges and applying their lessons-being-learned to the real world problems of their respective projects. Each APEX SEDP

participant will receive a budget of expert mentoring hours to spend according to each participant's individual development priorities and critical project activities.

The APEX System Engineering Development Program is designed for program/project system engineers, subsystem leads and high-potential discipline engineers. Resident contractors, performing system engineering tasks on Ames programs and projects, will be considered on a space available basis provided the employer is willing to pay tuition costs.

Ames employees can download an APEX SEDP Overview and SEDP Application Form at <http://ameshr.arc.nasa.gov/training/APEX/sedp.html>. Interested staff must send a hard copy of a completed and signed APEX SEDP application form, along with a current resume, to the APEX program



manager Claire Smith at MailStop 241-3. Applications must be received no later than Wednesday, Sept. 3, 2008.

To learn more about APEX, go to <http://ameshr.arc.nasa.gov/training/APEX/APEX.html> or contact Claire Smith at Claire.Smith-1@NASA.gov

NASA Lunar Science Institute names first international partner

BY MICHAEL MEWHINNEY

NASA's Lunar Science Institute located at Ames, announced its first international affiliate partner for conducting lunar science activities.

Canada's University of Western Ontario, London, Ontario, will represent the Canadian lunar science community as part of the newly established Canadian Network for Lunar Science and Exploration.

"We are tremendously excited about this partnership," said Ames Center Director S. Pete Worden. "With the large number of U.S. and international missions focused on the moon, this is absolutely the right step forward."

The institute, dedicated in April 2008 at Ames, will promote a new generation of research on and about the moon. It will support collaborative science, providing technical perspectives to NASA's lunar missions and developing future scientific investigations.

"We are extremely proud of our status as the first NASA Lunar Science Institute affiliate outside of the United States," said Ted Hewitt, vice president of research and international relations for the University of Western Ontario. "We look forward to working with our

colleagues throughout the institute's organization and at the Canadian Space Agency conducting this world-class research."

The institute has a major focus on developing the next generation of lunar science researchers and supporting a vigorous education and public outreach program focused on the moon.

"The moon has been Earth's cosmic partner for the last four billion years," said Gregory Schmidt, director of

international partnerships and deputy director of the institute. "It is an honor to move forward in partnership with the Canadian science community in this next phase of scientific exploration of the moon."

For information about the NASA Lunar Science Institute, visit: <http://lunarscience.arc.nasa.gov/>

For information about the University of Western Ontario, visit: <http://www.uwo.ca>

Saudi Arabian royalty visits Ames



NASA photo by Dominic Hart

Dr. Turki bin Saud bin Mohammed Al-Saud, vice president for the Research Institutes of the King Abdulaziz City for Science and Technology (KACST) in Riyadh, Saudi Arabia, recently visited the center to meet with Ames Director S. Pete Worden. The two scientists discussed potential areas of collaboration in civil space exploration and space science. Al-Saud is a prince of the Royal Saudi Family and earned a Ph.D from Stanford University in aeronautics and astronautics.

Lewis S. G. Braxton, III, named Ames' new deputy center director

BY GLENN BUGOS

Why did Lew Braxton join NASA back in June of 1975? "I wanted to get married, so I needed a job, and I wanted to be around aircraft," Braxton explained.

His father was a radar navigator with the Air Force, and Lew grew up in aerospace-enthralled communities around America. After two years at Merced Junior College he took a job, as a co-op student through Fresno State



Lewis S. G. Braxton, III, (second from left) with his 1975 class of co-op students on the tarmac at NASA Dryden Flight Research Center.

University, in the travel, payroll and budget group at NASA Dryden Flight Research Center.

The people at Dryden were very supportive of NASA's efforts towards minority expansion. Braxton often took his lunch breaks in the Dryden boneyard, where he could climb into old lifting bodies, the Lunar Landing Research Vehicle, or a stripped down X-15. "My friends knew I had spent my lunch in the boneyard because I'd have a stripe of dust all the way down my back from sitting in the cockpits."

Braxton completed his bachelor's degree in accounting from California State University, Fresno. Unfortunately, Dryden couldn't employ him at the time, but they did put in a good word for him with Ames Research Center.

He reported to work at Ames on June 19, 1978 as an accountant in the Financial Management Division.

It was a bit of a culture shock when he first arrived at Ames. "At Dryden,

they lived like there will be no tomorrow. At Ames they lived like tomorrow should be well understood." At Dryden every facet of his job revolved around aircraft. NASA Ames was different in that they were always thinking five to 20 years out, and that there were different silos for each mission area. "It was like there were five Drydens rolled into one Center."

Still, at Ames, there was plenty of tangible technology for him to get excited about. On the tarmac was the QSRA (the Quiet Short-Haul Research Aircraft), tiltrotors, X wings, the DC-8 and the Kuiper airborne science aircraft. "Now, during my lunch breaks, I would walk into the test bays and see the extreme heats or wind-flows, or see pilots flying the flight simulators like the

Flight Simulator for Advanced Aircraft and the Vertical Motion Simulator. The supercomputers looked like something out of Frankenstein's lab, with cryogenic blood flowing through their veins. Everyone was proud that the Pioneer spacecraft had originated there."

The only job he ever applied for in NASA was his first co-op job. For the rest of his career, he never asked for a job, they always came to him. "The agency made it easy for me to stay. I've been blessed with 33 years of appreciation and respect." They helped him get his MBA from Golden Gate University, in 1982, and in 1993 sent him through the Program for Management Development at the Harvard Graduate School of Business.

When he arrived, he quickly earned a reputation as a fix-it guy. At age 28, he was a branch chief, one of the youngest ever, then served as chief in several resources and finance



NASA photo by Tom Trower

Lewis S. G. Braxton, III, recently appointed deputy center director at Ames Research Center.

branches. In 1993, he significantly contributed to a major re-organization of the center, the first in 20 years. In 1994, he was asked to become chief of the Ames Financial Management Division. That same year he won the NASA CFO Award for developing the Agency's Financial Management Crosscutting Report. In July 1998, he was selected into the Senior Executive Service as Ames Chief Financial Officer.

One of his biggest challenges was helping with the consolidation of Dryden into Ames in 1981, then finishing the separation in 1996. Another such challenge came recently in developing a plan to align all of the agency's financial management operational activities to be transferred to the NASA Shared Services Center.

One of his proudest moments was seeing the Columbia supercomputer go operational, less than three months after it was conceived. Walt Brooks managed the technology, and Braxton handled all administrative tasks which, given the timeline, required extraordinary leadership and insight. SGI Inc. wanted to demonstrate that they could quickly develop a supercomputer, NASA wanted a high-end computer for thermal protection modeling for Return-To-Flight efforts, Ames wanted to demonstrate its skills

continued on page 12

Open forum held to share ideas with Ames leadership team



In August, an Open Ames, Open Forum was held to build on the creative ideas mentioned by Ames employees at the recent happy hour held at the center. Employees came together at this forum to help turn their ideas into action plans, sharing them with the Ames leadership team. Some of the major topics areas scheduled for discussion included: workforce integration (contractor and civil servant); improving communication tools; public relations and morale welfare; and other topics attendees wanted to discuss. To join the OpenAmes mailing list, send an email to arc-openames@lists.nasa.gov

NASA photos by Dominic Hart



Kemp unveils the new Code I, promises a “Cohesive one-stop-shop”

BY RACHEL PRUCEY

Ames employees received welcome news in August, when Chris

Kemp introduced the newly established Information Technology Directorate, Code I, during a center-wide presentation and promised to make their work more efficient and enjoyable.

“We are here to maximize your productivity, make you more productive, make you more collaborative, make the things you do more accessible to your peers,” said Kemp, the newly named director of Code I.

The mission of Code I is to maximize the

productivity of all employees by providing innovative, reliable and secure Information Technology (IT) services, according to Kemp. As a part of an NASA-wide initiative, all of the Ames’ IT support functions are being consolidated under this new directorate.

Kemp outlined the “2008 Initiatives” the Code I team will complete before the end of the year, including:

- Ensure that all new employees get computers, a nasa.gov email account, and a computer account on their first day of work;
- Streamline the software and hardware procurement process;
- Provide Ames employees with new collaboration and communication tools.

“We share everything. There is nothing that goes on in my organi-

continued on page 6



NASA photo by Eric James

Chris Kemp, director of the newly established Information Technology Directorate, Code I, recently spoke to Ames employees to introduce them to the mission of the directorate and its goals.

Worden forecasts fascinating future for Near Earth Objects

BY RUTH DASSO MARLAIRE

Near Earth Objects, or NEOs, will play an increasingly important role as humanity expands into the solar system, according to Ames Center Director S. Pete Worden.



NASA photo by Eric James

NASA Ames Center Director S. Pete Worden, dressed as a wizard during the recent colloquium at which he spoke about Congress' directive to NASA to detect, track and characterize Near Earth Objects by 2020.

"Only a small fraction that come near the Earth are hazardous," Worden told a capacity crowd recently gathered in the main auditorium for a director's colloquium. "But like any threat, it's also a huge opportunity. The key is to characterize the object by its orbit, and then determine its size, shape and rotation," he added.

"NASA comes into the picture when questions get asked. We're in the business of answering questions," he continued. According to Worden, questions to be asked are: Where are the potential hazardous objects? Which ones are threats? What are the characteristics of a potential threat?

"This is where NASA has been assigned new responsibility," Worden said. "Surveying what is out there and determining any potential threats. Of the 100,000 NEOs to be discovered, 20,000 may be hazardous."

The United States is joined by many other countries in its interest in this effort. Worden said the U.S. Congress has enacted a directive that NASA should detect, track and characterize the NEOs by 2020. But, according to Worden, the directive lacks funding.

"We would like to do really small missions for reconnaissance. Nano-satellites are an area where Ames is really specialized, and they can be launched into flyby efforts," Worden explained.

"Nano-satellites are NASA's next new and exciting development and are low cost. Some nano-sats cost only a few \$100,000 and NASA can launch 5 to 10 of them a year," he added. In addition, he said that this is where the synergy begins with our human exploration mission. "We think the hardware we are building to go to the moon is ideal for flybys and rendezvous," said Worden. "And we can start to do human missions to asteroids."

The new missions would be similar to the Apollo 8 mission flyby or rendezvous, he said. "Although, you don't really land on an asteroid, you dock with it," explained Worden.

"In 2020, we hope to land on the moon with the hardware that is being built," Worden said, which includes the Ares rocket, the Orion exploration vehicle and the lunar lander module.

In the meantime, Worden said there are a lot of precursor missions. "Ames is building the Lunar Atmospheric and Dust Environment Explorer (LADEE), which will orbit the moon and characterize the atmosphere and lunar dust environment. The mission is capped at \$80 million and will launch in 2011," he noted.

"It is a low-cost mission that will revolutionize what we do in space," said Worden. "Designed to be a lunar skimmer, it will fly near the surface so we can study the dust and the atmosphere."

Worden said the concept that is important to understand is the geometry of the Earth, moon and sun system. In order to navigate our way around the inner solar system, we will need to consider our energy require-

ments, according to Worden. "There are gravitational equilibrium points, or Lagrange points, that can send you anywhere in the gravitational system with minimal energy," Worden said. "We'll swing by these points and gain enough energy to give us access to the entire inner solar system." A concept similar to the acceleration gained by "gravity assists."

According to Worden, there are objects that look like they might hit the Earth and miss, but only to be captured by an orbit that will swing the object around towards Earth. These are called keyhole objects. There may be times when these keyhole asteroids need to be moved, Worden asserted.

But how do you get to an asteroid? NASA is building a robotic spacecraft, called Measurement and Analysis of Apophysis Trajectory, or MAAT, named after the goddess of order. Apophysis is a possible keyhole asteroid, and named after an ancient Egyptian god of evil. MAAT's mission goals are to track and categorize Apophysis. Ideally, it would match the orbit of Apophysis and tell us if we need to move it, according to Worden. MAAT is scheduled to launch in 2013.

DOHS visit to Ames

continued from front page

Flight Center, Greenbelt, Md., from the Moderate Resolution Imaging Spectroradiometer (MODIS) satellite system. These collaborative efforts vastly improved the utility of the disaster data used by the fire management community.

NASA and the U.S. Department of Agriculture's Forest Service have partnered to obtain imagery of the wildfires in response to requests from the California Department of Forestry and Fire Protection, the California Governor's Office of Emergency Services and the National Interagency Fire Center.

The Department of Homeland Security has oversight for the Transportation Security Administration, U.S. Customs and Border Protection, U.S. Secret Service, and the Federal Emergency Management Agency (FEMA) whose missions benefit from technologies and capabilities being developed at Ames and within NASA.

Ames' digital learning network goes the distance, wins award

BY RACHEL PRUCEY

NASA Ames has received the Center for Interactive Learning and Collaboration's initial Pinnacle Award for helping students of all ages learn more about Earth, our solar system, space exploration and connect with NASA scientists, engineers and astronauts using online programs.

The NASA Ames Digital Learning Network (DLN) uses emerging instructional technologies to deliver interactive face-to-face and distance learning activities to contribute to the educational development of students and teachers.

Featuring demonstrations and real-time interactions with NASA experts, the DLN offers a wide variety of online video-conferencing programs and webcasts. The programs and activities emphasize Science, Technology, Engineering and Mathematics (STEM) and are aligned with national educational standards.

"It is a honor to be selected as a Pinnacle Award winner, particularly because the selection criteria is based on evaluations from the school participants," said Greg Pitzer, Ames' Digital Learning Network coordinator. "A quality audience evaluation is evidence that our customized interactive video programs are relevant to the needs of today's classrooms."

Ames-developed programs like "Can A Shoebox Fly" and "Introduction to Robotics," explore educational



NASA photo

NASA Ames has received the Center for Interactive Learning and Collaboration's initial Pinnacle Award for helping students of all ages learn more about Earth, our solar system, space exploration and how to connect with NASA scientists, engineers and astronauts using online programs.

concepts, dynamics and technical components to teach students how and why they relate to NASA's mission to explore and understand space. Students can also see live tests, participate in demonstrations and team planning needed to carry a design concept through to successful construction and implementation. The "Introduction to Robotics" program is recommended by 100 percent of educators who evaluated it on the Center for Interactive Learning and Collaboration's Web site.

NASA's Digital Learning Network (DLN) began in 2004. NASA's Langley Research Center, Hampton,

Va., manages and funds NASA's DLN and along with the two other "hub sites," NASA's Glenn Research Center, Cleveland, and NASA's Johnson Space Flight Center, Houston, to provide leadership and guidance for the education offices at all other NASA centers that support the DLN.

NASA's Digital Learning Network (DLN) broadcasts remote instruction and interaction from NASA experts on an Integrated Services Digital Network at 128Kbps to 2Mbps or over Internet Protocol. All DLN programs are available free and on request.

Kemp unveils the new Code I, promises a "Cohesive one-stop-shop"

continued from page 4

zation that you can't see...my staff meeting, all the division meetings, all the discussions we have about everything we're doing," Kemp explained while demonstrating Microsoft's web-based collaboration tool, SharePoint, that Code I uses to post information, documents and video. "By putting out there what we're doing, we're able to generate better ideas. We're able to

get people thinking and get people contributing," he added.

Kemp invited all Ames employees to collaborate with the Code I team by sharing their ideas via the open online forum. "By opening this up to the [Ames] community, we're going to do a better job of shaping NASA [IT] policy," he explained.

Kemp is also Ames' Chief Information Officer (CIO), chairman of the

NASA Web Council and served as the director of Business Development at Ames Research Center prior to his position as CIO.

For more information about the new Code I Organization, visit <https://arc.nasa.gov/i> and log in using your NOMAD username and password.

How my internship at Ames opened doors to my future

BY ALYSA NGUYEN

Summer is meant to be fun, so how would a 16-year-old usually spend the summer? For most teenagers, summer means hanging out with friends, relaxing at home, or going to the beach. But for some, summer means finding a job. Right before my senior year of high school, I experienced a once in a lifetime opportunity.

My most memorable summer yet began right here, at NASA Ames. Through my school, Archbishop Mitty High, I was given an unforgettable experience that I will always cherish. From my first supervisors at Ames, I was offered an extraordinary summer internship here. At just 16 years old, I would have never imagined myself working at Ames, especially during the summer before my senior year.

I started my internship here at Ames Code V Resources. From the two amazing women in that department, I was able to learn many valuable life lessons that I will carry with me for the rest of my life. Much time and dedication is required before working at any job, but for a 16-year-old new to the business, this was not something I knew.

Patience was the best skill acquired from these two gifted women. Sitting behind a computer in a small cubicle all day can get a little boring, but they made sure I still enjoyed my summer while still being able to experience all I could here at Ames. It was truly a pleasure working for them. To everyone in that department, I would like to offer my appreciation and gratitude for welcoming me with open arms, and making my summer much more enjoyable.

About halfway through my internship, it was decided that I should broaden my horizons a bit in order to experience everything NASA has to offer. They wanted to make sure I made the best out of my internship here at Ames. For the remainder of my internship I was assigned to work in Government Affairs with the exceptionally talented staff. With them, I had a blast planning future

events, meeting with people to talk about programs and giving VIP tours. Within the few weeks I was able to work with them, I was given much-needed advice and life lessons. They taught me that confidence is key in everything and anything that I do. I am grateful I had this astonishing opportunity to work in Government Affairs.

This internship genuinely had a profound impact on my life. It was definitely a life-changing experience that I will always remember. But this experience wouldn't have been the same without all the wonderful people I met. Many people here at Ames have honestly touched my life. Overall, my summer spent here at Ames was truly the best learning experience

I have ever had. Ames has helped me enormously in my preparation for the future. NASA has opened many doors



photo by Steilita Johnson

Alysa Nguyen, left, summer student intern who worked in the Ames Government Affairs Office the past couple of months, is seen here assisting with young students during the iD Tech Summer Camp at Stanford University, camps that provide technology instruction to meet the need for technology education, delivered in a camp like setting and held at universities.

for me, and has challenged me to learn and try new things. Thank you, NASA, for the best summer thus far.

Managing air traffic flows explained

In early August, Dr. Michael O. Ball presented an overview of his research in "Dynamic, Stochastic Models for Managing Air Traffic Flows." Ball is the Orkand Corporation Professor of Management Science in the Robert H. Smith School of Business at the University of Maryland. He also holds a joint appointment within the Institute for Systems Research in the Clark School of Engineering. He is co-director of the National Center of Excellence for Aviation Operations and is currently president of the Institute for Operations Research and the Management Sciences (INFORMS) Transportation Science and Logistics Society. In 2004, he was named a Fellow of INFORMS. Ball received his Ph.D. in operations research in 1977 from Cornell University. He is currently a visiting professor in the Institute of Transportation Studies at the University of California Berkeley.



NASA photo by Nick Tran

Mars scientist discusses evidence of early life on Earth, Mars



NASA photo by Eric James

David Des Marais recently presented a director's colloquium at the center entitled, "Exploring for Evidence of Habitable Environments and Life on Early Earth and on Mars." Attendees learned about what evidence we have for life on early Earth and the Red Planet. Des Marais has investigated the biogeochemistry of microbial ecosystems and Earth's early biosphere, has participated in Mars exploration and is a member of the science teams of NASA's 2003 Mars Exploration Rover mission, the CRISM instrument of the 2005 Mars Reconnaissance Orbiter mission and the CHEMIN instrument of 2009 Mars Science Laboratory mission. He is the principal investigator of the Ames team of the NASA Astrobiology Institute.

University professor explains effective management of innovation

Professor Andrew Hargadon recently presented a colloquium about

his book entitled, "How Breakthroughs Happen: The Surprising Truth about How Companies Innovate."



NASA photo by Eric James

Andrew Hargadon, associate professor of Technology Management at the Graduate School of Management at University of California, Davis, recently visited Ames to give a presentation about the effective management of innovation and the strategic role of design in managing technology transitions and development and commercialization of sustainable technologies.

Hargadon is an associate professor of Technology Management at the Graduate School of Management at University of California, Davis. He is the founding director of the Center for Entrepreneurship and the Energy Efficiency Center at UC Davis. Prior to his academic appointment he worked as a product designer at Apple Computer and taught in the Product Design

program at Stanford University.

Hargadon gave his perspective on the effective management of innovation and the strategic role of design in managing technology transitions, and the development and commercialization of sustainable technologies.

His research has been used to develop or guide new innovation programs in organizations as diverse as the Canadian Health Services, Silicon Valley start-ups, Hewlett-Packard and the US Navy.

He has authored materials--many stemming from the theme of innovation including: clean energy fuel cells, business development and leadership. A list of his writings is found at <http://www.andrewhargadon.com/writing.html>. He teaches corporate executive programs and serves on the advisory boards of several start-up companies.

Ames hosts festive NASA 50th Anniversary celebration

continued from front page

NASA photo by Nick Tran

NASA photo by Dominic Hart

NASA photo by Dominic Hart



NASA photo by Jon Pierre Wiens



NASA photo by Dominic Hart



NASA photo by Jon Pierre Wiens



NASA photo by Jon Pierre Wiens



NASA photo by Dominic Hart

Ames' Jing Li named Nano 50 Award winner

Jing Li of the Nanotechnology Branch at Ames, was recently named a winner in the fourth annual Nanotech Briefs Nano 50 Awards, in the Innovator category.

Li is principal investigator on a project to develop nanotechnology-based chemical sensors for trace-amount chemical detection in space and planetary applications. The sensor, the first nanotechnology-based electronic device on a Navy satellite, has been flying and operating in space since March 2007. This nanosensor technology has terrestrial applications

as well, such as environmental monitoring, industrial processing control, homeland security inspection and medical diagnosis and care.

Presented by Nanotech Briefs—the monthly digital newsletter from Tech Briefs Media Group (publishers of NASA Tech Briefs), the Nano 50 recognizes the top 50 technologies, products and innovators that have significantly impacted, or are expected to impact, the state of the art in nanotechnology. The winners of the Nano 50 awards are the “best of the best”—the innovative people and designs that will move

nanotechnology to key mainstream markets. Nano 50 nominations were entered via an online submission form and were judged by a panel of nanotechnology and MEMS experts. The technologies, products and innovators receiving the 50 highest scores were named Nano 50 award winners.

The Nano 50 will be presented at a special awards dinner to be held during the NASA Tech Briefs National Nano Engineering Conference in Boston, Nov. 12–13, 2008.

NASA Ames featured at Smithsonian Folklife Festival

BY LIU YANG

Three Ames employees recently staffed the Orion booth in the Future Mission tent and represented the Space Technology Division of NASA Ames at the Smithsonian Institution's 42nd annual Folklife Festival held on the National Mall in Washington, D.C.

James Reuther of the Reacting Flow Environments Branch, Ernie Fretter from the Thermo-Physics Facilities Branch and Liu Yang of the Thermal Protection Materials and Systems Branch, presented posters explaining the critical development parts of the Orion Thermal Protection System Advanced Development Project. In addition, they also showed test hardware on display and talked to enthusiastic visitors from all over the country and the world.

Reuther also represented NASA in the future missions panel discussions. An estimated 10,000 people (of the one million people attending the festival) visited the Orion booth during the event.

NASA, celebrating its 50th Anniversary, is only the second government agency the Folklife Festival has featured in its 42-year history. Edward Goldstein, a NASA speechwriter who helped organize the event, said the Folklife Festival presented the agency with a rare opportunity to engage members of the general public who might not otherwise seek the agency out. Yang agreed with Jeffrey Jones of

Langley Research Center, who said “People left in awe of the challenge we embrace and the way we address it,

not just the technical aspects but also as a dedicated team of people.”



photo by Liu Yang

Seated left to right during the future mission panel discussions at the Folklife Festival are: Diana N'Diaye, Center for Folklife and Cultural Heritage curator; Ames' James Reuther, project manager, CEV Thermal Protection System for Orion; Steve Cook, manager, ARES Project, Marshall Space Flight Center (MSFC), Huntsville, Ala.; and Rajiv Doeswamy, deputy program planning and control manager, ARES, MSFC.



photo by Liu Yang

Ernie Fretter (right) speaks to a visitor at the Smithsonian Institution's 42nd annual Folklife Festival held recently on the National Mall in Washington, D.C.



photo by Ernie Fretter

Liu Yang of Ames (left) talks with a visitor at the Folklife Festival.



photo by Liu Yang

James Reuther (center) speaks to a visitor at the recent Smithsonian Institution's 42nd annual Folklife Festival held on the National Mall in Washington, D.C.

Phoenix Lander examines polar soil and ice on Mars

BY RUTH DASSO MARLAIRE

"As we speak, the Phoenix Lander is digging into the surface of Mars," announced NASA Ames' Chris McKay to a crowd gathered in the



NASA photo by Eric James

Chris McKay, planetary scientist with Ames' Space Science Division, recently discussed at a director's colloquium at the center the latest findings from the spacecraft Phoenix on the planet Mars.

main auditorium in August for the director's colloquium.

The mood was upbeat as McKay told his audience that the Phoenix lander is right where we wanted it to land. "It landed in the martian arctic where there is ice-rich soil," McKay said.

"Phoenix is a mythological bird that dies in a fire and is re-born from the ashes," explained McKay. "The 1998 Mars Polar Lander was NASA's first attempt to land in the polar regions. When it crashed on Mars, NASA canceled its twin 2001 Mars mission. The Phoenix Mars Lander mission is really the rebirth of these polar missions," he said.

Why are we going to the northern polar regions on Mars? "We wanted to find an environment that may have had water in the past," explained McKay.

According to McKay, to find liquid water on Mars, three conditions must be met. There must be ice, temperatures must be above freezing, and the atmospheric pressure must be high enough to stabilize the liquid. He said, "Without the correct pressure, ice will vaporize."

"Liquids change on Mars. Five million years ago, the Phoenix land-

ing site was warmer than it is today, because the planet was tilted more toward the sun. During that time, in the summer the northern regions on Mars would have been about the same

temperature as Earth's north pole now, which has areas of liquid water," said McKay.

"Similarly, Mars may have had liquid water back then," he added.

"It was amazing that the Mars Reconnaissance Orbiter was able to photograph Phoenix landing, and later photograph it on the surface. There is no privacy on Mars anymore," said McKay lightheartedly.

He said that one of the first results was looking at the soil with a microscope. "We saw black and brown bits of dirt. We think the brown particles are

clay, aggregates of water and clay. The darker particles may be fragments of rock," said McKay.

"One of the more puzzling findings was that the dirt seemed to be sticky. Soil samples were put on oven trays. When the trays were shaken, the soil was supposed to fall through. But nothing happened for days," continued McKay. "When it finally fell through, we thought the soil had dried

out. After it was heated in the oven and analyzed, no water was detected."

McKay suggested two hypotheses for what was happening. "The pieces of dirt may have been sticking together by electrostatic forces. Or, the other alternative is that the soil was wet and then dried out," he said.

Other findings were surprising as well, according to McKay. "The surface was essentially neutral; its pH was 8. In contrast, the Viking and Pathfinder sites were acidic and dominated by sulfates. The Phoenix Lander found no sulfates. Although, we did find sodium, magnesium and chloride as expected," he noted.

"We think we're seeing perchlorates, which are seen also in the Atacama Desert. This is of great interest to us because some microorganisms will substitute perchlorates for oxygen. But findings are still preliminary," he said.

"We've known there was water on Mars back during the Mariner 9 days, but liquid water is a different find," explained McKay. "We think there may be saltwater present, which could explain the stickiness of the soil. Mud, ice and salt would not go through the filter. Maybe some organisms can live with that as their sustenance," he suggested.

The Antarctic Dry Valleys are the most analogous to Mars. "It's the only place on Earth where it doesn't rain. Its only precipitation comes as snow. It's my job to relate the polar regions of Mars to what we know about the polar regions on Earth," said McKay.

Gerontologist discusses aging process



NASA photo by Dominick Hart

Dr. Aubrey de Grey presented a director's colloquium in August entitled, "Prospects for defeating aging altogether." In his presentation, he explained why therapies that can add 30 healthy years to the remaining lifespan of healthy 60-year-olds may well arrive within the next few decades, and why those who benefit from those therapies will very probably continue to benefit from progressively improved therapies indefinitely and thus avoid debilitation or death from age-related causes at any age. De Grey is a British biomedical gerontologist educated at Cambridge University in the UK. He is the author of the "Mitochondrial Free Radical Theory of Aging." He works on the development of engineered negligible senescence - a tissue-repair strategy that would rejuvenate the human body and thereby allow an indefinite lifespan.

Summer interns present poster session at Ames

BY JEAN WESOLOWSKI

The Ames Office of Education recently hosted its 2008 Summer Internship Programs Poster Symposium.

With an attendance of approximately 300, this year's program consisted of over 50 Ames mentors and 120 students from the following programs: Exploration Systems Mission Directorate (ESMD), Achieving Competence in Computing, Engineering, and Space Science (ACCESS), Motivating Undergraduates in Science and Technology (MUST), NASA Science and Technology Institute (NSTI), Undergraduate Student Research Program (USRP), DEVELOP, a NASA Mission Directorate Applied Sciences Program, University Affiliated Research Center (UARC) and various space grant consortiums.

In addition, there were also students from two new pilot internship programs, the Science Teacher and Researcher Program (STAR) – a unique Ames-Cal Poly partnership program, and the Interdisciplinary National Science Program Incorporating Research and Science Education Experience (INSPIRE) – a national



Student interns, mentors and attendees at the recent 2008 Summer Internship Programs Poster Symposium recently held in Building 3 at Ames.

NASA photo by Nick Tran

headquarter high school student internship program.

The Ames internship programs help implement NASA's education goals, one of which is to attract and retain students in STEM (science, technology, engineering and math) disciplines through a progression of educational opportunities for students, teachers and faculty.

The internships provide opportunities for diverse groups of students

from many academic levels to gain hands-on experience with space-related work in collaboration with experienced scientists, engineers and technologists.

Also incorporated into this year's symposium was a "mini" job fair. NASA's Human Resources and many of the Ames contractors met with the students to see and hear about their work and the contributions that they have made to Ames over the summer.

Lewis S. G. Braxton, III, named Ames' new deputy center director

continued from page 3

in project management, and Congress approved it contingent upon quick development and a fixed budget. When Columbia debuted in 2005 it was the world's fastest supercomputer.

He has moved the center through several re-alignments to match changes in the federal government's budgeting and accounting processes. But his career hasn't focused on the big upheavals in financial systems, but tending to daily operations. "Accounting really is management. It's dealing with control, power, accountability and self-esteem. It's my job to help nurture people through the process of accounting as management."

In March 2004, Braxton became Director of Center Operations. With the center's budget in decline, some-

one with a broad view and a long memory helped make tough decisions, and did so with sensitivity to the people involved. "Since I've been on the Executive Staff, I really feel like someone who is a member of NASA family tree, and who is on the forefront of where history is being made." In August 2008, NASA Ames Center Director S. Pete Worden named Braxton as his acting deputy director.

"One thing I've learned throughout my career is the time and effort it takes to get to the cutting edge of science and technology. And that's a fundamental issue in reaching younger people today. We compress a mission's story into a five-minute clip for television, and people think things really happen that fast. What they do not comprehend is the years of effort that goes into creating a historically

significant space project, which seems a lot less glamorous and stimulating to today's youth." Braxton is widely appreciated for his skills in identifying bright young people and mentoring NASA's next generations of leadership—especially from among under-represented groups.

"The people who work at NASA still think it's cool; that NASA wants to improve our lives. There are at least three generations of Ames employees who have brought us to the point we are today. And everyone here respects the effort that it took, and it is that human element that makes the agency so great. Human presence makes the difference, whether it is in exploration or on the ground here at Ames," Braxton concluded.

In memory of...

John Bull - naval aviator, astronaut and researcher

John Bull, a naval aviator, astronaut and researcher, passed away on Aug. 11, 2008, at the age of 73. Born in Memphis, Tenn. on Sept. 25, 1934, Bull attended primary and secondary schools in Memphis, and then went on to earn a bachelor of science degree in mechanical engineering from Rice University in 1957.

Bull entered active duty with the Navy in June 1957, and following flight training he was assigned to the Naval Air Station in Miramar, Calif., flying the F-3 Demon and F-4 Phantom II. He served three tours aboard the carriers USS Ranger, USS Hancock and USS Kitty Hawk and then went on to graduate from the U.S. Naval Test Pilot School in February 1964, being named "outstanding student" of his class.

In 1966, Bull was selected as a member of the "Original 19" astronaut candidate group where he served as a member of the Apollo 8 support crew, as well as a crew leader during vacuum-chamber Lunar Module testing.

In 1968, after being diagnosed with a rare pulmonary disease, Bull

resigned from the astronaut corps and went on to attend Stanford University where he earned his Ph.D. in aeronautical engineering. In 1973, he returned to NASA at Ames.

From 1973-1985, Bull conducted simulation and flight test research at Ames in advanced flight systems for both helicopters and fixed-wing aircraft. From 1986 until his retirement in 1989, he managed NASA wide research programs in autonomous systems technology for aeronautics and space applications.

Following his retirement in 1989, Bull stayed very close to the Ames family, providing technical support and consulting services for aerospace research and technology programs. He made several important contributions in advanced flight control law design for the Propulsion Controlled Aircraft Program, and often commented that this was one of the most rewarding projects in which he had been involved.

Bull's contributions extended to a number of other projects and studies, including advanced flight control for



John Bull

lunar-lander and autonomous docking applications. He was always thrilled to share his insights, and we all shared in the excitement of his amazing contributions.

Bull was a mentor, a role model and an inspiration to all who had the privilege of working with him. He is survived by his wife, Nancy, and their two grown children, Scott and Whitney.

Evolution of Space Interferometry Mission explained



In August, the Ames Center for Exoplanet Studies (ACES) hosted a colloquium at Ames by James Marr of the Jet Propulsion Laboratory's, entitled, "The SIM-Lite Mission Concept: Detecting Earth-like Planets around Nearby Stars." Marr is the project manager of the NASA/JPL SIM-Lite (Space Interferometry Mission) and the manager for the NASA Planet Hunter concept study. He has been with the SIM project team for over 12 years, serving in various capacities (project manager, deputy project manager, flight system manager and instrument manager). The talk discussed the evolution of SIM over the past 30 years, its variants (SIM-Lite and Planet Hunter), mission scientific capability (including SIM-Lite's broad astrophysics program recommended by two prior Astrophysics Decadal surveys), the completed technology program accomplishments, continued engineering risk reduction accomplishments and future mission prognosis.

NASA photo by Dominic Hart

Ames Ongoing Monthly Events Calendar

Ames Amateur Radio Club, third Thurs., of ea. month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BFK, at ext. 4-6262.

Ames Ballroom Dance Club, Classes on Tuesdays. Beginning classes meet at 5:15 p.m. Higher-level class meets at 5:50 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang at helen.hwang@nasa.gov, ext. 4-1368.

Ames Bicycling Club, every third Wednesday of each month, 12 noon - 1 p.m., Bldg. N-245 Auditorium. POC: Julie Nottage at jnottage@mail.arc.nasa.gov, ext. 4-3711.

Ames Bowling League, Homestead Lanes on Thursday nights at 6:20 p.m. Seeking substitute bowlers. Questions to sign up: Mike Liu at ext. 4-1132.

Ames Child Care Center Board of Directors Mtg., every other Monday, 1 - 2:30 p.m., Bldg. N-262/Rm 180. POC: Sally Miller, ext. 4-5411.

Ames Contractor Council Mtg., first Wednesday of ea. month, 11 a.m., Bldg. N-200, Committee Room. POC: Kathleen Starmer, ext. 4-6959

Environmental Forum, first Thursday every other month, 9 a.m. - 10 a.m., T20-G conference Rm. 129. URL: <http://q/qe/events/EHS-series/> POC: Stacy St. Louis, ext. 4-6810.

Ames Federal Employees Union (AFEU) Mtg., First Wednesday of November (7th), noon. First Wednesday of December (5th), noon. Bldg. N-247, Rm. 109. Beginning 2008, third Wednesday each month, same location. Guests welcome. Info at: <http://www.afeu.org>. POC: Paul K. Davis, ext. 4-5916.

The Hispanic Advisory Committee for Excellence (HACE) Mtg., first Thursday of each month, 11:45 a.m. - 12:45 p.m., Bldg. N-255, Rm. 101C. POC: Eric Kristich, ext. 4-5137 and Mark Leon, ext. 4-6498.

Jetstream Toastmasters, Mondays, 12 p.m. - 1 p.m., Bldg. N-269/Rm.179. POC: Miwa Hayashi, ext. 4-1397, mhayashi@mail.arc.nasa.gov. Web: <http://jetstream.freesthost.com>

Ames Mac Support Group Mtg., third Tuesday of each month, 11:30 a.m. to 1 p.m., Bldg. N-262, Rm 180. POC: Tony ext. 4-0340.

Ames Model Aircraft Club, flying radio-controlled aircraft at the north end of Parsons Ave. on weekend mornings. POC: Mark Sumich, ext. 4-6193.

Native American Advisory Committee Mtg., fourth Tuesday each month, 12 noon - 1 p.m., Bldg. 19, Rm 1096. POC: Mike Liu, ext. 4-1132.

Ames Nimble Knitters Club, every Tuesday at 11:30 a.m., Bldg. N-241/Rm 237. POC: Rosalyn Jung, knifan2@yahoo.com or Diane Alexander at ext. 4-3140. URL: <http://knit.arc.nasa.gov>

Ames Safety Committee, third Thursday of each month, 10 a.m. - 11 a.m., Bldg. N-237, Rm. 201. POC: John Livacich, jlivacich@mail.arc.nasa.gov, ext. 4-3243 or Terry Reichert, treichert@mail.arc.nasa.gov, ext.-4-0375.

Ames Sailing Club Mtg., second Thursday of each month (March through November), from 12 p.m. - 1 p.m., Bldg. N-260, Rm. 113. URL: <http://sail.arc.nasa.gov/>. POC: Clif Horne, ext. 4-4571.

Ames emergency announcements

To hear the centerwide status recording, call (650) 604-9999 for information announcements and emergency instructions for Ames employees. You can also listen to 1700 KHz AM radio for the same information.

Safety Data

NASA-Ames Occupational Illness-Injury Data for Calendar Year-to-Date 2008 Jan. 1, 2008 - July 31, 2008

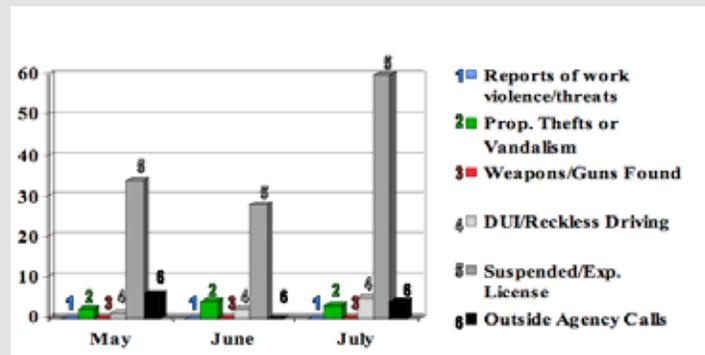
	Civil Servants	Contractors
First aid cases	15	12
Lost Workday cases	1	2
Recordable cases	2	4
Restricted duty days	0	2

Above data are as of July 31, 2008. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

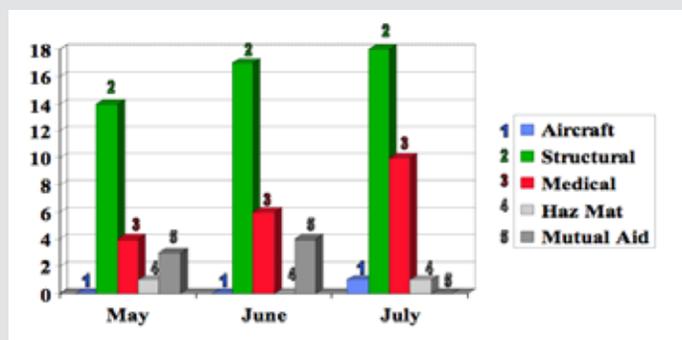
Protective Services monthly activity

A statistical summary of activities of the Protective Services Division's Security/Law Enforcement and Fire Protection Services units for the month of July 2008 is shown below.

Security/Law Enforcement Activity



Fire Protection Activity



Ames Classifieds

Ads for the next issue should be sent to astrogram@mail.arc.nasa.gov and must be resubmitted for each issue. Ads must involve personal needs or items; (no commercial/third-party ads) and will run on a space-available basis only. First-time ads are given priority. Ads must include home phone numbers; Ames extensions and email addresses will be accepted for carpool and lost and found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads. Caveat emptor!

(None this issue)

Environmental/Energy Conference set, Sept 22-26

NASA's Environmental Management Division is holding the biennial NASA Environmental and Energy Conference at NASA Langley Research Center in Hampton, Va., Sept. 22-26, 2008.

This conference will help strengthen communication and promote synergy across the agency's environmental management community, provide opportunities to share innovative risk mitigation measures and best management practices and increase awareness of across the NASA workforce of the agency's successes and ongoing challenges in environmental stewardship.

The conference is open to all NASA, other federal agencies and contractor personnel. For additional information and conference registration visit http://www.term.nasa.gov/Environmental_Energy-Conference2008.html or contact Cassandra Carroll, at cassandra.l.carroll@nasa.gov

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Astrogram deadlines

Please submit articles, calendar and classified advertisements to astrogram@mail.arc.nasa.gov no later than the 10th of each month. If this falls on a weekend or holiday, then the following business day becomes the deadline. For Astrogram questions, contact Astrid Olson at the aforementioned e-mail address or ext. 4-3347.

Exchange Information

Information about products, services and opportunities provided to the employee and contractor community by the Ames Exchange Council. Visit the web site at: <http://exchange.arc.nasa.gov>

Beyond Galileo Gift Shop N-235 in the cafeteria, 8 a.m. to 2 p.m., ext. 4-6873

Don't forget to purchase your baby shower, birthday, holiday gifts at Ames' two gift shops!

Visitor Center Gift Shop N-943 M-F, 10 a.m. to 4 p.m., ext. 4-5412

NASA logo merchandise, souvenirs, toys, gifts and educational items.

Tickets, etc... N-943 outside the main gate, 10 a.m. to 3:30 p.m., ext. 4-5412 and Beyond Galileo, 8 a.m. to 1:30 p.m. ext. 4-6873

Mega Bites Cafeteria N-235, 6 a.m. to 2 p.m., ext. 4-5969/Catering ext. 4-2161

See daily menu at: <http://exchange.arc.nasa.gov>

Moffett Field Golf Club with 'Tee minus 1' Grill and Sports Bar. Call (650) 603-8026.

RV Lots Available Call to reserve a space at (650) 603-7100/01.

Civilian/Contractors, \$50/mo; military \$25/mo

NASA Lodge (N-19) 603-7100

Where to stay when you're too tired to drive home? What about the lodge?! Two types of rooms: Bldg. 19 (43 rooms), rate: \$55/night (\$5 ea add'l adult); Bldg. 583 (150 rooms), rate: \$45/night (\$5 ea. add'l adult)

Ames Swim Center (N-109) 603-8025

The pool is heated year round! The pool is currently available for lap swim, pool parties and special events. POC -Chana Langley, Pool Manager (650) 603-8025. Memberships: single memberships: \$40/yr. Family memberships: \$60/yr. After purchasing a membership, there is an entrance fee: daily entrance fee - \$3/day or lap pass fee - \$40 for 20 uses. Platinum membership - \$360/yr. (no daily fee). Special events: include military training, swim team events, kayak role practice, etc. The cost for special events is \$50/hr.

Ongoing Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, View of slopes, close to lifts. Per night: \$250, plus \$145 cleaning fee. Two night minimum. Includes linens, propane fireplace, fully equipped. Call (650) 968-4155, DBMcKellar@aol.com.

Bass Lake vacation rental, 4 mls south of Yosemite. 3bd/1.5 ba, TV, VCR, MW, frplc, BBQ, priv. boat dock. Sleeps 8. \$1,050/wk. Call (559) 642-3600 or (650) 390-9668.

Big Sur vacation rental, secluded 4bd/2ba house in canyon setting. Fully eqpd kitchen. Access to priv. beach. Tub in patio gdn. Halfway between Carmel and Big Sur. \$175/night for 2; \$225 for 4 and \$250 for more, plus \$150 cleaning dep. Call (650) 328-4427.

Pine Mountain Lake vacation home. Access to golf, tennis, lake, swimming, horseback riding, walk to beach. Three bedrooms/sleeps 10. \$100/night. Call (408) 799-4052 or (831) 623-4054.

Incline Village, Forest Pines, Lake Tahoe condo, 3 bdms/2 ba, sleeps 8, fireplace, TVs/VCR/DVD, stereo w/CD player, microwv, W/D, jacuzzi, sauna, outdoor pool. Walk to lake. Close to ski areas. Visit web site for pictures: <http://www.ACruiseStore.com> \$135/night spring and fall, \$173/night summer and winter (holidays higher) plus \$125 cleaning fee and 12 percent Nevada room tax. Charlie (650) 743-8990.

New York, 5th Ave., one fully furnished bedroom apt. in 24 hour security bldg. overlooking Washington Square Park, \$1,000/week or 3,000/month, negotiable. Call (650) 430-6977.

Paris/France: Fully furnished studio. 5th arr, Latin Quarter, Notre Dame and Lie-St. Louis, \$1,400/week, negotiable. Call (650) 430-6977.

Santa Cruz townhouse, 2 bedrooms plus study, 2 baths, decks, totally furnished, 3 blocks from beach, available July, August, September; \$1,600 per month. Call (831) 423-5777 (H) or (831) 277-8476 (C).

Lake Tahoe cabin rental in Agate Bay, North Shore. 4bd/3ba tri-level, AEK, cable TVs, fireplace, BBQ, deck, sleeps 10. Closest skiing is Northstar, Alpine and Squaw. Rates are \$375 a weekend, \$1,000 a week. Call (408) 867-4656.

Florida west coast vacation in St. Petersburg, beautiful 2bd/2ba condo, fully equipped kitchen and furnished, sunset views, 1/4 mile from St. Pete Beach, monthly or 2 week minimum rentals only. Call (703) 299-8889 or e-mail: jdgoehler@aol.com

Monterey Bay vacation rental at Pajaro Dunes, 20 miles south of Santa Cruz, 3bd/2ba beach house with distinctive architecture. Beautiful ocean and valley views, only 150 ft from the beach, first-class tennis courts. \$700/wkend, \$2,100/wk including cleaning by the maid service when you depart. Call (408) 252-7260.

South Lake Tahoe large cabin surrounded by protected forest, 8 miles from Stateline Sleeps 12 comfortably, 4 bd/3ba. Hot tub/pool table/65" TV Matt (408) 482-5286

South Lake Tahoe cozy home backs up to large open meadow, 1 mile from Heavenly Valley. Sleeps 11, 3 bd/2.5 ba. Large deck with hot tub. Matt (408) 482-5286.

Ames Cat Network

The Ames Cat Network needs help finding homes for cats trapped at Moffett. They range from feral to abandoned/lost pets. Tested, altered and inoculated. Call Iris at ext. 4-5824 if you or someone you know are interested in fostering or adopting a cat.



Rooms starting at \$45 a night.

Having a B-I-G family reunion and just run out of bedrooms and inflatable beds? Reserve rooms at the NASA Lodge

Ames employees and contractors can "host" their friends or relatives at the Lodge, and it doesn't have to be government or NASA related.

Let Us Welcome You!

Call (650) 603-7101



<http://naccenter.arc.nasa.gov/ldging.html>

'Dark side of universe' discussed at colloquium



NASA photo by Eric James

Professor Patricia Burchat recently spoke at the center about the topic of, "The Dark Side of the Universe." Burchat is the chair of the Physics Department at Stanford University and studies differences in the time evolution of matter and antimatter created at the Stanford Linear Accelerator and the gravitational bending of light by massive clusters of galaxies in the universe. Attendees learned about the scientific revolution in our understanding of cosmology from one of the leading experts in the field.

PM Challenge 2009 set for Feb. 24-25



Do you have a topic of interest to NASA program and project management stakeholders? Then submit your speaker abstracts for 'Project Management (PM) Challenge 2009,' the sixth annual NASA PM conference, to be held at Daytona Beach, FL, Feb. 24-25, 2009.

PM Challenge 2008 was a great success and provided a forum to reach higher, challenging attendees, the NASA program and the project management community to better help execute the agency's strategic goals.

Abstract submissions for PM Challenge 2009 Call for Speakers are due Sept. 12, 2008. All presentations will be included on the conference CD to be distributed to all attendees and will be posted on the conference Web site after the conference. All speakers are required to submit their final power point presentations by Dec. 19, 2008.

For more information, visit <http://pmchallenge.gsfc.nasa.gov/speaker2009.htm> or contact Joann Carter at Joann.M.Carter@nasa.gov

What's on InsideNASA . . .

NASA Deputy Administrator Shana Dale's corner on Inside-NASA this month features an article entitled, "Clean Energy, Cleaner Environment." Following is an excerpt from the article.

NASA has used and improved fuel cells since the 1960s to provide power aboard spacecraft. Because of what we've learned, fuel cells now are powering cars, trucks, laptops and cell phones. NASA continues to simplify the design of fuel cells to make them lighter, more reliable and less costly to manufacture. Ultimately, fuel cells will be used to store energy at future lunar outposts to enable six-month stays on the Moon.

NASA also is developing advanced lithium batteries with higher energy density to power lunar rovers and spacesuits. These advanced batteries will have terrestrial applications for improving the range of electric vehicles.

Solar energy is a big part of NASA's power management for almost any space-bound mission. It is the leading source of power for the International Space Station, with over 250,000 solar cells generating over 100 kilowatts of average power.

Solar power also keeps the rovers moving on Mars and allows the Hubble Space Telescope to keep sending back revolutionary images of space.

To better develop these solar capabilities, NASA has worked with companies such as PowerFilm of Iowa. Since its partnership with NASA in 1989, this company has shared what they have learned by manufacturing solar tents and foldable solar chargers for the Army and solar powered radio headsets for the general public.

To provide abundant power for the lunar outpost and future human exploration missions to Mars, NASA is working with the Department of Energy to develop concepts for small, affordable nuclear fission surface power systems. This technology could help reduce greenhouse gas emissions on Earth by making nuclear power more affordable.

To learn more about these advanced technologies, visit http://insidenasa.nasa.gov/nasa_stories/Clean_Energy_Cleaner_Environment.html



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