

The NRP POST

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Winter 2011



Virginia Inouye, USAF, with Peter Wasowski, developer of the Vasper System, using the Vasper System integrated with the NuStep T5XR. With Vasper, a 2.5 hour workout is compressed into 20 minutes -- plus a 20 minute recovery phase -- for a total of 40 minutes, with minimal sweating produced during the exercise phase.

James Lerager

Revolutionary Vasper Technology for Fitness and Recovery at NRP

by Peter Z. Wasowski

Vasper Technology stimulates production of endogenous human growth hormone ('HGH') by using a patent pending device with traditional exercise equipment. The Vasper device uses liquid-cooled vascular compression, core cooling technology and active electrical grounding technology.

I began developing Vasper Technology in 2002, while living in Kamuela, Hawaii. In May 2009, the Vasper prototype was tested by more than 220 people in Honolulu, with very positive results. A fully operational Vasper System is currently in service at the Queens Medical Center POB1 in Honolulu. Vasper

conducted a second successful trial in July-August, 2009, with the San Jose Sharks National Hockey League team.

Since January 2010 Vasper has been working with the 131st Rescue Squadron of the California Air National Guard, on the east side of Moffett Federal Airfield. Vasper's merits were proven again through pre and post trial hormonal and physical performance testing. According to David Zava PhD, who analyzed the

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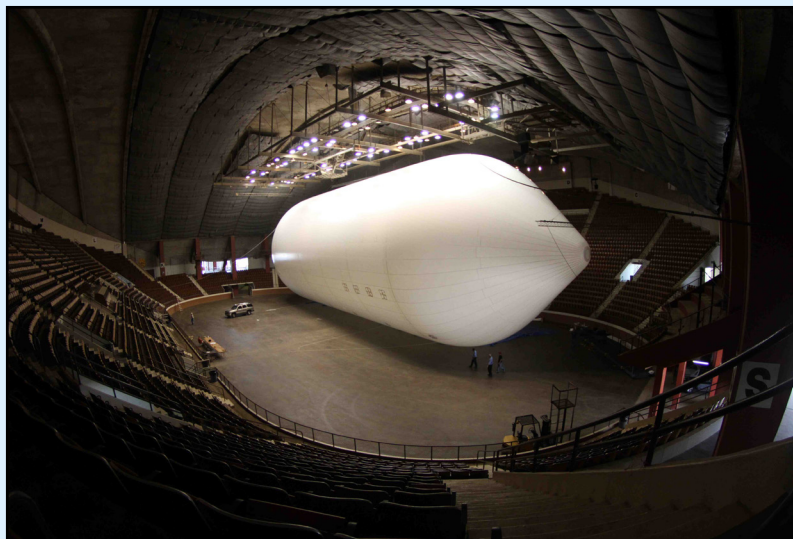
World's Largest, Greenest Airship Coming to NASA Research Park

by Diane Murphy, E Green Technologies, Inc

NASA Research Park at NASA Ames Research Center is poised once again to make "lighter than air" history as the world's largest and greenest operating airship, the Bullet™ Class 580, comes to Moffett Field to base its west coast operations and prepare for its maiden flight.

The massive 235-foot long, 65-foot diameter lighter-than-air vehicle, which can fly at speeds up to 74 mph, is newly designed and manufactured by E Green Technologies, Inc. (EGT)/21st Century Airships, Inc. (21st Century), is a leading airship manufacturer

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EGT Airship Bullet™ Class 580 after inflation in Garrett Coliseum, Montgomery, Ala (2010)

George Schellenger

NRP Welcomes

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Auris Surgical Robotics

Bldg. 19, Suite 1067, Rms. 1064, 1066
Commencement: October 1, 2010

Auris Surgical Robotics is engaged in the development of robotics technology for medical applications.

ELORET Corporation

Bldg. 19, Rm. 1070K
Commencement: January 16, 2011

ELORET is currently supporting the development of the Chemical Sensor Project initially invented by NASA Ames. This project involves developing a sensitive chemical vapor sensor that attaches to a cell phone and can be used to accurately sense low levels of various different gasses including CO and Ammonia. This sensor has attracted the interests of Department of Homeland Security, numerous public service organizations for security, safety, and medical applications respectively.



MSGI Security Solutions, Inc

Bldg. 19, Rm. 1077
Commencement: July 16, 2010

MSGI is working to advance solar cell technology and develop Nano-chemical sensors. The potential space and terrestrial applications include cabin air monitoring onboard the space Shuttle, surveillance of global weather, forest fire monitoring, radiation detection, and various other mission critical capabilities.



Russo Industries USA, LLC

Hangar 2
Commencement: February 2011
Russo Industries is a wind energy technology company that has developed an environmentally wind turbine to produce energy and a slow-speed generator called the Windcrank.

Science and Technology Corp. (STC)

Bldg. 19, Rm. 1007
Commencement: February 1, 2011

STC provides advanced technology support services to NASA Ames, other centers, and other federal agencies.



TakshaShila University (TU)

Bldg. 19, Rm. 1008
Commencement: February 1, 2011

TakshaShila University (TU), with a legacy going back to 1976, is a dynamic, not-for-profit, independent, minority institution of higher learning, engaged in advanced research and development projects, and specializing in accelerated-learning, short-courses for STEM and professional education on topics of current interest.



Vasper Systems California, LLC

Bldg. 566, Rm. 111
Commencement: December 1, 2010

Vasper Technology, a revolutionary approach to fitness and recovery, is designed to stimulate production of endogenous human growth hormone ('HGH') by using a patent pending device in conjunction with traditional exercise equipment. The Vasper device is based on liquid-cooled vascular compression, core cooling technology and active electrical grounding technology.



Dr. KR Sridhar Delivers NRP Lecture: BloomBox: Bringing NASA Technology Down to Earth

By K. Burton



Dr. KR Sridhar spoke to a full house at the NRP Exploration Lecture in Bldg. 3 on January 18, discussing Bloom Energy's NASA roots.

Bloom Energy CEO Dr. KR Sridhar delivered an outstanding lecture to a crowd of 200 at the Bldg. 3 Ballroom, NASA Ames Conference Center on January 18th. This was the 13th talk in NRP's Exploration Lecture Series, which focuses on the exploration of space, the Earth, and technology.

Jack Boyd, Senior Advisor to the Ames Center Director, introduced Sridhar, and Steve Zornetzer, Ames Associate Director, served as MC.

Bloom Energy's mission is to make distributed "clean, affordable, reliable energy.... for everyone," Sridhar said to the crowd. A core belief driving his vision is "the planet was not handed to you by your parents; it was lent to you by your children." In other words, he said, "let's take care of the planet."

Sridhar discussed his early roots at NASA leading a team developing technologies to sustain life on Mars, and how this led to his idea for innovative new fuel cell technology. The seed that became Bloom Energy germinated in the late 1990s when Sridhar, then an academic at the University of Arizona, led a team of engineers to solve the problem of using Mars' extant resources such as CO₂ (more than 96% of Mars atmosphere) and water to provide resources for astronauts on a Mars mission.

His team devised a payload for the 2001 Mars lander that would make oxygen to breathe and methane for rocket fuel for the return-to-Earth journey.

Refining this device for a later 2003 Mars lander mission, he realized the system could operate "in the other direction," using

O₂ and inexpensive methane to produce water and CO₂, ending up with electricity. Both Mars lander missions were subsequently cancelled, and "I realized at that point that the UPS truck was not going to show up at my doorstep," he said.

Sridhar moved on to start Ion America in 2001 in NRP's Bldg. 543, then a "humble ex-Navy hobby shop, a stand-alone building with a lock, which was all we needed back then. It all started here."

In 'stealth mode' for years, the company used their Mars lander and proprietary technology to invent a revolutionary regenerative fuel cell to produce heat and electricity. In 2006, the company name changed to Bloom Energy. Derived from a common sand-like powder and leveraging advances in materials science, Bloom's technology produces power practically anywhere from a wide range of renewable or traditional fuels, with significantly reduced electricity costs and dramatically lower greenhouse gas emissions. Inputs can range from fossil and renewable fuels to hydrogen; while output can be AC or DC power, electricity, or hydrogen.

The BloomBox model is scalable. A fuel cell Bloom stack is bread-loaf sized. A Bloom module, the size of a large refrigerator, can power a Starbucks. A BloomBox, made up of four systems, can light up an entire neighborhood of 100 homes.

Sridhar unveiled his product in an interview with CBS "60 Minutes" in 2010, eight years after founding the company. In Feb. 2010, Bloom held its first press conference, to much buzz. Bloom Boxes are now in front of the online giant eBay, making electricity from inexpensive methane. They also power industry heavyweights Google, WalMart and FedEx.

Sridhar serves as a strategic limited partner at Kleiner Perkins Caufield & Byers and as a special advisor to New Enterprise Associates. Sridhar received his BS in Mechanical Engineering with Honors from the University of Madras (now called NIT, Trichy), India, as well as his master's degree in Nuclear Engineering and Ph.D. in Mechanical Engineering from the University of Illinois, Urbana-Champaign.

A videotape of the KR Sridhar lecture will be available on the NRP website at researchpark.arc.nasa.gov

Airship cont'd from page 1

with 18 patents issued and pending for advanced design and performance. The Bullet™ Class 580 is scheduled to arrive at NASA Research Park's Hangar 2 in early 2011, after successfully completing its third and final inflation, and other engineering tests.

John Youngbeck, EGT's VP of Manufacturing, explained "although traditional blimps have been around for centuries, they have undergone surprisingly little evolution throughout their more than 150 year history. This, we believe, is what makes our EGT proprietary designs so desirable to government and commercial customers. Our airships, including the Bullet™ Class 580, are radically different in design, moving

beyond the performance limitations of traditional blimps by combining advanced technology with simple construction – and the ability to fuel with algae-based bio-fuel, protecting our environment. We have a great team and really look forward to creating more jobs in Silicon Valley as we help to expand and grow this emerging airship market."

With the Bullet™ Class 580, EGT's CEO, Mike Lawson, says, "EGT is primed to usher in a new age of lighter-than-air flight and we intend to break records and perceptions in the process. EGT airships offer a unique multi-sac reverse ballonnet helium design, vertical takeoff and landing, high-speed maneuverability and forward thrust in air

Airship cont'd on page 5

New NRP Partner LatIPnet, with NASA's Dr. Meyya Meyyappan, Inspires Students and Promotes Nanotechnology Partnerships in Mexico

by Emilio Martinez de Velasco Aguirre

LatIPnet is a non-profit organization that promotes global synergies to turn knowledge and scientific and technological resources into economic development opportunities for Latin countries. Based at NASA Research Park since July 2010, LatIPnet fosters collaborative partnerships between research institutions, companies and government agencies in Silicon Valley and their counterparts in Latin America and southern Europe, to promote innovation-based economic activities.

LatIPnet has actively leveraged the resources available at NASA Research Park, even before becoming a NASA Partner. In February 2010 it organized a series of videoconferences in the State of Guanajuato, Mexico, where an audience of more than 300 students, entrepreneurs and academics interacted in real time with Dr. Meyya Meyyappan, Director of the Center for Nanotechnology at NASA Ames Research Center. These virtual encounters achieved two important goals aligned with NRP's mission of stimulating innovation and education in science and research disciplines critical to space exploration.

First, Dr. Meyya Meyyappan inspired hundreds of Mexican students to continue an education in any science, technology, engineering and mathematics (STEM) discipline. Students flocked from all around the State of Guanajuato to hear Dr. Meyyappan talk about his work and experience in nanotechnology, many traveling from remote towns. Dr. Meyyappan remarked, "nanotechnology will be the technology of the 21st Century. This revolution is going on pretty much across the world. One of our obligations is to take it seriously and



An audience of more than 300 students, academics and entrepreneurs from all corners of the the state of Guanajuato, Mexico, interacted with NASA Ames' Dr. Meyya Meyyappan in a series of videoconferences on nanotechnology organized by LatIPnet.

put effort into educating our younger generation of scientists and engineers for the future."

These videoconferences with Dr. Meyyappan also promoted collaborations between NASA and several research centers in the State of Guanajuato. Dr. Meyyappan talked about the multiple potential applications of his work with carbon nanotubes and how nanotechnology is opening new opportunities for innovation in various fields and industries. "Nanotechnology is not a single technology," Dr. Meyyappan remarked, "you have to think of it as a broad, enabling technology that will impact the entire economic spectrum." His presentation showed current applications and future prospects for nanotechnology, such as its role in the development of ubiquitous computing, personalized medicine,

new advanced materials, intelligent appliances and solid state lighting which benefits the health, energy, environment, transportation, manufacturing and national security sectors.

These presentations were crucial in helping researchers in the State of Guanajuato identify areas of potential collaboration with NASA in the field of nanotechnology. Currently, LatIPnet is working with Guanajuato's Research Center in Optics (CIO) and Research Center in Mathematics (CIMAT) to manifest collaborative projects in nanomaterials with applications to lithium batteries, solar energy and other clean tech industries.

To learn more about Dr. Meyya Meyyappan's videoconferences in Guanajuato and about the work of LatIPnet, visit www.latipnet.org.

NRP Partner TakshaShila University Offers Technical Short Courses

TakshaShila University offers technical short-courses (12 or 18 hours) that can aid workforce development and capacity building. Courses are taught by renowned discipline experts and will be held at or near NASA Research Park.

March 16-18, 2011 -- Dr. Don Edberg -- TRS122: Introduction to Spacecraft Design and System Engineering (www.taksha.org/course/TRS122)

This 3-day course is an overview of all factors that affect design and operation of satellites and spacecraft – ideal to obtain a solid background in the “big picture” of spacecraft design and how the puzzle pieces fit together. Engineers, scientists and managers who want to understand the many aspects of spacecraft design should benefit from this course. Course Fee: \$720.00. Early Registration Fee: \$648.00.

April - May, 2011 -- Dr. Jack Margolis and Dr. Vijay Natraj -- TRS105: Remote Sensing Instrument Design - Basics and Trade-Offs (www.taksha.org/course/TRS105)

A primer on remote sensing instrument design, this 2-day course provides a broad grasp of how trade-offs in instrument design affect information content of observations and how changes in one aspect of instrument technology affect other aspects of design. Useful to managers, engineers, and scientists required to be familiar with all aspects of the field, and for beginners by pointing out what areas of physics and chemistry are important in instrument design. Course Fee: \$599.00. Early Registration Fee: \$540.00.

March – April, 2011 – Dr. Ben Herman – TRS101: Fundamentals of Atmospheric Radiation (www.taksha.org/course/TRS101)

This 2-day course provides an introduction to the basic definitions, laws, and concepts of atmospheric radiation. This course will prepare students for further coursework, research, or applications in which the basic principles are required to develop more advanced principles of radiation and radiative transfer. Course Fee: \$599. Early Registration Fee: \$540.00.

Late Spring, 2011 (Exact Date TBA) -- Dr. Roger Pielke -- TRS107: Global, Regional, and Mesoscale Weather Models: Basic Science and Engineering Components (www.taksha.org/course/TRS107)

Mesoscale meteorological models are used in many studies and disciplines, such as weather prediction, hydrologic modeling, air chemistry, atmospheric dispersion, regional and climate assessments, and planetary atmospheres. This 2-day course is a unique opportunity to learn theoretical and practical aspects of mesoscale modeling from a world authority on the subject. Course Fee: \$599.00. Early Registration: \$540.00.

TU provides services on a worldwide basis, with a wide degree of integrated talent and resources to meet client needs in government, industry, international organizations, and education and training. A research and education institution, TU is comprised of full and part-time scientists, engineers, humanities scholars, and educators who maintain a close working relationship with a diverse group of scientists, engineers, agricultural and medical researchers, health experts, and educators from universities, industry, research organizations, government laboratories. TU is an independent, tax-exempt organization headquartered in Hampton, VA.

To register or for further info contact:

**Ms. Catherine Houlahan, TU Course Administrator (757-766-5832, houlahan@taksha.org),
Dr. Paul Try, Executive Director, IFAORS (contact@taksha.org) or
Adarsh Deepak, Ph. D., President, TakshaShila University (a.deepak@taksha.org, 757-272-3066).**

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design, which is particularly of interest to the military. The outer shell of the Bullet™ Class 580 is made from a new generation of Kevlar, a registered trademark of DuPont, currently used in the production of bullet proof vests. The Bullet™ Class 580s ability to run on algae fuel also makes it the “greenest” platform in the sky.

Because the Bullet™ Class 580 can do what satellites, helicopters and fixed-wing aircraft can do – fly on station at medium and high altitude, and stay aloft for long duration – EGT /21st Century airships are often referred to as multifunctional “inflatable satellites.” Missions for Bullet™ Class 580 include communications relay, broadcast communications, missile defense, airspace/maritime surveillance, weather and environmental monitoring, electronic countermeasures and weapons platforms, as well as providing long endurance platforms for geophysi-

cal surveys, and monitoring of oil spills and forest fires, among other civilian and military uses. EGT airships will operate with a manned crew, and an unmanned version is being developed.

In addition to the Bullet™ Class 580, EGT/21st Century manufacturers a family of airships, developed over a period 16 years, utilizing the company's proprietary technology. The company has successfully flown 14 prototypes, consistently exhibiting performance enhancing advantages over existing airships. EGT's two current product lines include the Spherical Class Airship and the Bullet™ Class Airship. For the Bullet™ Class, in addition to current vertical market applications, future designs will address both the Heavy Lift Market and High Altitude Market above 65,000 feet. The Spherical Class airship's shape offers unique attributes for the corporate sponsorship market, such as the EGT/21st Century “Soccer

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Vasper Systems cont'd from page 1



James Lerager

Bill Collins, psychologist, and former Air Force officer

test results, "The results appear very promising in that regular Vasper use appears to boost the levels of anabolic hormones such as testosterone, DHEAS, and IGF1. It may also help normalize the level of the stress hormone cortisol. This occurs normally with better sleep patterns, which Vasper appears to improve. The anabolic hormones such as GH (IGF1) are also known to improve with better sleep patterns."

Vasper Technology, based on the principles of liquid cooled vascular compression, core cooling and active electrical grounding, is designed to stimulate production of the endogenous human growth hormone and other endogenous anabolic hormones by using a revolutionary patent-pending device, functionally integrated into traditional exercise equipment.

Human Growth Hormone is naturally produced by the pituitary gland when we either perform intense physical exercise or get a sufficient amount of deep sleep. Most adults do not generate sufficiently high levels of HGH to optimally replenish and rejuvenate their bodies. HGH levels decline, on average, by 14%

every 10 years after puberty. As our bodies produce less and less HGH it becomes increasingly difficult to maintain the optimal state of health, both mental and physical, and to recover from injuries. Vasper's ability to increase and maintain high levels of endogenous HGH provides real and sustainable benefits, including elevated energy levels and metabolic rate, accelerated post injury recovery, increased focus and clarity of mind, more restful sleep and many other desirable effects on the body.

On December 1, 2010, Vasper Systems California, LLC signed an enhanced use lease agreement with Ames Center Director, S. Pete Worden. Vasper Systems California, LLC has now begun operations in Bldg. 566 near NASA Research Park's Shenandoah Plaza Historic District. This NRP location is our new Vasper Center, and we will begin operations during the first two months of 2011.



James Lerager

Peter Z. Wasowski

To contact the Vasper team, go to <http://vasper.com> and complete the contact form.



James Lerager

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Vasper Systems LLC in Honolulu Hawaii
can be reached at 831 454-6299

Views on the Vasper System



"The science and technology of the Vasper System is light years ahead of its time. It has tremendous potential to revolutionize how we address strength training and rehabilitation".

Darryl Kan MD, orthopedic surgeon and the senior partner, Orthopedic Associates-Hawaii



"Vasper allows me to achieve the performance results of a 2-hour workout in 20 minutes. It's amazing to experience a lactic acid burn within a few minutes of use.

Over the past year I have seen significant improvement in my health, productivity and cognitive ability. As a leader, I couldn't imagine tackling the day without it.

Vasper is ideally suited for our military mission as it relieves stress, improves the quality of sleep and can be performed anywhere at anytime."

Lt. Col. Steve Butow, Vice Commander,
129th Rescue Wing

"Imagine your toughest workout leaving you feeling like you've finished little more than a warm-up, and hungry to then power through your usual maximum exercise routine?

Imagine your workout serving as the architect for musculoskeletal plasticity and bone restoration coupled to enhance cardiac fitness and exercise tolerance?

Imagine sustained low-level load exercise serving as the gateway to accelerated healing instead of the speed bump on the road to recovery. In addition, the Vasper system is activating, harnessing and exploiting the body's own natural fat buster. As a result of natural HGH's lipolytic activity, it burns energy preferentially from fat cells, instead of sugars confined to bloodstream uptake or muscle.

Instead of imagining, qualify on the prescreen and, after just a 20-minute ride, begin to experience the Vasper difference.

Due to Vasper's apparent restorative influence on multiple organ system fronts, there is potential that such a biomimicry-based endogenous growth hormone approach may be of value as an integrated low-profile countermeasure for maintaining bone, muscle, and cardiac fitness during long duration space adaptation and performance in microgravity, as well as functional tolerances upon return to a gravity vector."

Yvonne Cagle, M.D., Flight Surgeon; NASA Ames Advisor for Strategic Partnerships;
Col, USAF, Ret.



"Recovering and regenerating from the demands of a professional competition schedule and an in-season training program is critical for the athlete's health and performance. "Under Recovery" decreases performance and increases injury potential. With the Vasper compression technology we have been able to receive a metabolic training effect, AND utilize the body's naturally occurring hormones to help rejuvenate muscle tissue, connective tissue and nerve cells. The effects on both off-ice San Jose Sharks training and recovery for our hockey team have been astounding. Our players have been able to achieve more restful sleeping patterns at night which we believe helps to facilitate the healing process.

We are in a day and age where supplements are a billion dollar industry. In that industry there is a high level of risk of the supplements being tainted with banned substances. Vasper's technology is a tool shown to manipulate existing HGH levels within the body to elicit a regenerative effect and improve strength gains.

I would recommend implementing the Vasper compression protocol not only for improvements in metabolic training but as a recovery tool both during and out of season."

Mike Potenza M.Ed, CSCS
Strength and Conditioning Coach
for the San Jose Sharks

Silicon Valley Space Business Roundtable Features Dr. Peter Diamandis

On October 20, 2010, the Silicon Valley Space Business Roundtable hosted an evening reception and networking event with a keynote by Dr. Peter Diamandis, Chairman and CEO of the X-Prize Foundation. More than 75 guests from the aerospace industry, Silicon Valley's entrepreneurial and investment community, students of local universities and government representatives attended the event at the NASA Ames Conference Center at NASA Research Park.



Dr. Diamandis' captivating presentation, "The Best Way to Predict the Future is to Create it Yourself," mesmerized the audience with his recap of the \$10 million Ansari X PRIZE for private spaceflight, his status overview of the Google Lunar X PRIZE, and his discussion of the potential for asteroid mining to drive the future expansion of private space exploration.



involved providing Professor Stephen Hawking, the world renowned theoretical physicist suffering from neuro-muscular dystrophy, with the opportunity to experience the freedom of weightlessness.

Concluding with his most recent endeavor, Singularity University, Dr. Diamandis described this latest innovation as a NASA Ames based institution aimed at nurturing and counseling the world's top enterprises how to utilize exponential technologies and incentivized innovation to dramatically accelerate their business objectives.

The evening concluded with co-mingling and networking, encouraging idea exchange and cross fertilization of aerospace and Silicon Valley cultures. Over snacks and drinks the guests enjoyed interaction with Dr. Diamandis, government, non-profit and industry representatives, and students.

The Silicon Valley Space Business Roundtable (SVSBR) was founded to encourage the growth and development of aerospace-related businesses in California's Silicon Valley. SVSBR collaborates with for-profits, universities, other non-profit organizations, and government agencies including NASA Ames Research Center. As the west coast's only organization of its kind, SVSBR provides input to leadership groups to expand the area's business base by providing specific recommendations to improve the space business climate. SVSBR has its sights on the future of high technology and provides forums by aerospace leaders to educate the growing industry on initiatives and goals.

For future SVSBR events and membership information, please visit: www.svsbr.org



Artist Rendering of EGT Airship Bullet™ Class 580 in flight: Sightseeing/Rear left view (2010)

E-Green Technologies/21st Century Airships

Airship cont'd from page 5

Ball," the largest lighter-than-air Soccer Ball airship in the world, as well as other low-altitude capabilities for security and communications at sporting and other events. First flight of the Bullet™ Class 580 is planned for early 2011 from Moffett Field. It will carry a joint NASA LARC and Old Dominion University (ODU) payload, the Radar Oxygen Barometric Sensor RAOBS) Project, a remote sensing instrument for measuring barometric pressure at sea level. This is an important meteorological measurement in the prediction and forecasting of tropical storms and hurricanes. To learn more about E-Green Technologies, Inc. and the new Bullet™ Class 580, visit the company website at www.e-greentechnologies.com.

interACT Presidential Summit on the Globalized University Held Nov. 8-9 at CMU Silicon Valley

by Richard Power, CyLab Distinguished Fellow and
Nichole Dwyer, Manager of Web Communications, CyLab

How do you prepare students for this 21st Century world, so different from everything that came before it? How do you give them the edge? How do you prepare them to work together? What kind of an education will ensure that globalization works for the next generation? Hopefully, in the years to come, the International Center for Advanced Communications Technology (interACT) will provide some powerful answers to these profound questions.

Attendees at a two-day interACT Presidential Summit, held at NASA Research Park in Mountain View, CA, home of the Carnegie Mellon University Silicon Valley Campus (CMUSV) tackled these and other compelling questions.

InterACT is a joint center between seven of the leading institutions in the US, Europe and Asia: Carnegie Mellon University, Pittsburgh, PA and Silicon Valley, CA, USA ; Hong Kong University of Science and Technology; Italian Institute of Technology , Genova, Italy; Karlsruhe Institute of Technology , Karlsruhe, Germany; National Institute of Information and Communications Technology, Tokyo, Japan; University of Southern California , Los Angeles, USA; Waseda University, Tokyo, Japan.



interACT Presidential Summit on the Globalized University at NASA Ames Conference Center, NASA Research Park.

Founded in 2004, the center is affiliated with the School of Computer Science at each institution.

interACT's mission is to train students, staff and faculty to operate in international research teams across multinational and multicultural boundaries. The center offers international exchange programs, seminars and academies, and facilitates cross-national research projects. The center conducts research on technologies, processes and policies that facilitate and improve cross-cultural understanding, cross-lingual communication, transnational cooperation and collaboration.

The President's Panel, a far-ranging, hour-long discussion on the first evening of the Summit, was composed of representatives from all the participating institutions, including several university presidents, as well as researchers from critical fields in science and engineering.

At the beginning of the event, Prof. Dr. Alex Waibel and Karlsruhe Institute of Technology, the Director of interACT, spoke on what interACT is and what it is dedicated to accomplish:

"It is a somewhat unusual organization, or consortium. It's a network of universities that want to collaborate in preparing for a globalized future. Universities are by their definition very nature typically local, and regional ... but the world is changing."

In his welcoming remarks, the engaging Dr. Pete Worden, Director of NASA Ames, outlined the human space flight aspect of NASA's mission and other vital, less widely understood aspects: "NASA spends about a quarter of what it does to help people here on Earth ... we are trying to develop environmentally responsible aviation, lowering noise, lowering pollution, but most importantly steering away from carbon-based fuels. At Ames we are also helping develop the next generation air traffic control system... It is also largely a NASA mission initiative that has characterized global warming and climate change, an area that is extremely important... and in the next decade or so, we are going to be able to get site-specific climate prediction..."

At the conclusion of the President's Panel, Dr. Jared Cohon, President of CMU, summarized on behalf of interACT: "We brought together the seven member institutions to consider how interACT is doing, the benefits to our institutions and what we might do moving forward. The seven institutions strongly endorse InterACT, believing it successful, that all our institutions benefited, and that it has produced real results in research and education. interACT represents a global collaboration of a dimension rarely seen, is growing rapidly, and will provide a lot of leavening for others."

NRP Post

Carnegie Mellon Silicon Valley Ribbon Cutting for New Wing in Bldg. 19



On Jan. 12, 2011, Carnegie Mellon Silicon Valley celebrated opening a new campus wing in Bldg. 19 at NASA Research Park. The wing, Rms. 1050-60, has 11 rooms renovated to accommodate two conference rooms, one office space, three work areas for 30 graduate students, two work areas for 16 researchers, two offices for Institute Telecom, a partner of Carnegie Mellon Silicon Valley, and one student/faculty lounge.

This was the final of a three-phase renovation plan that began in 2008 with the transformation of Carnegie Mellon Silicon Valley's main campus Bldg. 23. "We've seen tremendous growth in our academic and research areas. I'm pleased we can provide new accommodations for our graduate students and researchers. It feels like every time we finish construction on a new phase, we immediately outgrow it! This is an exciting time to be at the Silicon Valley campus," said Dr. Martin Griss, director of the Silicon Valley campus and associate dean at the College of Engineering.

NRP Holiday Party

NRP's Holiday Party with Space Portal group held Dec. 16, 2010 in Bldg. 555. Great food, great music, and a surprise visit by Elvis!



Elvis Tribute Artist
Robert Elvis Wilkinson
just arrived from England.

Astrid Olson

Success is Intrinsyx

by Mike Schulz

Intrinsyx is a small business that works with Lockheed Martin at both NASA Ames and NASA Dryden to support the ODIN program teams.

Intrinsyx was ranked #15 out of the top 100 Emerging Small Businesses in America by Business Diversity.com in 2010.

Intrinsyx won a Lockheed Martin RFP competition for the Advanced Technology Center in Palo Alto, working on the NASA Solar Dynamics Observatory (SDO) mission.

Intrinsyx was the winner of the RFP to re-compete for the ODIN contract. Intrinsyx is providing IT Support at Dryden Flight Research Center and at Ames Research Center on the ODIN teams.

Intrinsyx is delivering Phase 2 of the NASA Security Operations Center (SOC). This role is a continuation for Intrinsyx to help develop the NASA SOC.

Intrinsyx continues to support the small businesses of the NASA Research Park. Intrinsyx currently provides IT support to Magenn, Pragati, ESDRMV, and LatIPnet. We are looking to help other small businesses with inexpensive, fast, and reliable IT Services.

Intrinsyx is on teams for two of the NASA I3P contracts. These multi-billion dollar contracts are for the development and integration of enterprise-wide systems to manage the agency.

Intrinsyx is helping the NASA Ames Supercomputing Facility with the customization and integration of the BMC Remedy package.

Intrinsyx has teamed with EADS Astrium to provide scientific hardware to the International Space Station.

Intrinsyx has teamed with IPVS to provide high resolution IP video systems for training, simulation, video conferencing, and other applications.

Gary Air



GaryAir's New Cessna 182 on display at the Lake Tahoe Lake in the Sky Airshow. The aircraft and its Garmin G1000 Glass Cockpit will assist NASA's Flight Deck Display Research.

Trish and Dave Guerrieri of GaryAir, a long time NASA Research Park supporter and tenant, are flying passengers in their brand new Cessna 182 to communities throughout the Western United States with their recently awarded FAA Air Carrier Certificate. The Sunnyvale couple received clearance in September 2010 from the FAA for their charter service after an extensive safety review. GaryAir was previously featured in an NRP Post article describing their collaboration with NASA's Flight Deck Display Research Laboratory. Now, during aircraft repositioning legs when passengers are not aboard, they can offer NASA the available flight time to provide feedback on the latest aircraft instrumentation advancements that will improve safety and efficiency in the National Airspace System.

The Cessna carries two to three passengers, depending on passenger and baggage weight and the distance travelled. Recently GaryAir flew a stranded airline passenger from San Francisco International Airport to Las Vegas for a trade show. The passenger would have otherwise had to wait for a standby flight the next morning, making him unable to set up his trade show display in time. Instead he called GaryAir at 6:10 pm, who dispatched the Cessna 182 by 8 pm, and arrived in Las Vegas shortly after 11 pm. The return trip was available for NASA flight deck display research and evaluation.

For more than five years, the South Bay couple has acted as an air taxi broker, and has collaborated on NASA's Cockpit Display of Traffic Information projects. They have booked flights to Lake Tahoe and hundreds of other West Coast destinations for other air taxi operators, finding the best match of services for its clients. They will continue to provide this service. "If our plane is not the right plane for the mission, we will act as a broker to find people another operator who suits them best," Guerrieri said. Trish is an FAA Certificated Dispatcher, and Dave -- who once flew F-14 fighters for the Navy and has taught many new pilots to fly -- has been a pilot since 1981, when he learned to fly at the Moffett

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Navy Flying Club while a Fremont High School student.

The couple has a special place in their heart for South Lake Tahoe where they own a second home, but they can fly to any public-use airport in the Western United States. In the Tahoe region this could be Truckee, Minden or Reno, so their passengers have alternatives if the weather in South Lake is not cooperating. "There are thousands of underutilized airports that many people don't realize are available and very close to them, that can keep you out of traffic and have you on your way in no time", says Trish. For example, the Las Vegas passenger took a 10-minute cab ride from SFO to San Carlos Airport, where he could meet GaryAir and be in the plane and flying in minutes. Parking is convenient and there are no crowds. The same situation exists at Palo Alto Airport, Reid-Hillview Airport in San Jose, and also Hayward, Oakland North Field, Novato, San Martin, and Hollister, just to name a few.

One thing they have over commercial airlines is no need to book two weeks in advance for the best rate. For example, their rates start at \$250 per person to South Lake Tahoe, if three people travel together. A group flying back and forth the same day will get the best rate. From the website (www.GaryAir.us) people can get quotes and more information about fares.

The plane is based at Reid-Hillview Airport in San Jose. Having the plane near the population base is more economical than keeping it at the most popular destination. Dave Guerrieri, who is also the company's first pilot, expects to fly mostly

during daylight hours. Mornings provide the safest and most comfortable flying conditions when flying to the mountains. The single engine airplane can also fly at night, but it is not recommended in mountainous terrain. "For those situations, that's when it's best for us to fly them in a twin engine aircraft," says Mr. Guerrieri. "We are working to add a Beechcraft Baron to our certificate very soon. It will also be more capable during rainy weather."

The FAA clearance was granted more than 2 years following their first application. During this time inquiries have been coming in from second homeowners and skiers in mountain areas in Tahoe and Mammoth.

It's not just people recreating in resort areas who the Guerrieris anticipate using their service. Their plane, they say, is ideal for shuttling the businessperson between multiple cities in a day. It also allows people living in more remote areas to get to larger cities for meetings and back again. GaryAir serves many small and large businesses who can greatly improve their efficiency by attending several business meetings in dispersed locations and be home with their families for dinner.

They anticipate creating a ride-sharing program for people who want to go to the same place but don't want to charter the entire plane for themselves. Dave had worked as a software engineer for GTE and Boeing before returning to his piloting career. "Ride share systems created for automobiles could also be used for aircraft, allowing all modes of transportation to work seamlessly," he explains.

With everything so easy and accessible on the Internet, we can easily serve the entire West Coast from one office in NASA Research Park," Guerrieri notes.

They aren't worried about the ongoing recession impacting their business, saying they've seen the charter industry beginning to rebound. The couple brought their plane to the Sky Air Show at Lake Tahoe Airport in August, and several other airport events around Northern California. They have supported several community charity events over the years in Silicon Valley and Lake Tahoe, giving away free flights for live and silent auctions, so they already have good name recognition. "One of the best things about being a small business is the ability to personally connect to the community, and the feeling that we can contribute to local quality of life like no big business can," says Mr. Guerrieri.

More information about GaryAir can be found at:

Website: www.GaryAir.us

Email: info@GaryAir.us

Phone: (408) 805.4359

For more information about NASA's Flight Deck Display Research Laboratory:
humansystems.arc.nasa.gov/groups/FDDRL/

This article was adapted from an article originally posted in October at www.laketahoenews.net

Women @ the Frontier of Innovation and Entrepreneurship



Photo Caption: Women @ the Frontier (L-R) Susan Fonseca-Klein, Liddy Karter, Sonia Arrison Senkut, Rebecca Moore, Laurie Yoler, Cynthia Kenyon, Yvonne Cagle

Bringing together a diverse group of innovators and entrepreneurs, from different backgrounds and industries, is key to Singularity University's vision for changing the world. To that end, SU recently hosted "Women @ the Frontier" (W@F), the first in a series of forums featuring top women entrepreneurs, humanitarian, innovators, scientists and techies creating positive change around the globe.

Led by SU Founding Architect Susan Fonseca-Klein and moderated by SU Trustee Sonia Arrison Senkut, Women @ the Frontier featured an amazing group of women from biotech, humanitarian outreach, innovation, space, and venture capital discussing their journey in leveraging exponential trends, leadership and the power of entrepreneurship to design solutions that could positively impact one billion people.

In addition to the panel of leading women, the event showcased top organizations significantly transforming the lives of women and girls, including: Anita Borg, Pachamama Alliance, Women2.0, Girls in Tech, NAWBO, Spark, Samasource, ThinkIndia, Green Energy Tech, NCWIT, Soul of Money, and many others.

Why a women's forum? W@F creator Fonseca-Klein explained, "The solutions needed to address today's grand challenges require true diversity of ideas, experiences, culture and disciplines. In order to achieve this goal, we must raise the voice of women from a whisper to a conversation, highlighting successful female pioneers and including the wisdom of mothers, daughters, sisters, and wives."

Many thanks again to Liddy Karter of Karter Capital Advisors, Laurie Yoler of GrowthPoint Technology Partners, Rebecca Moore of Google Earth Outreach program, Cynthia Kenyon of UCSF's Hillblom Center for the Biology of Aging, BlogHer's Lisa Stone, and astronaut Yvonne Cagle of NASA Ames for their words of inspiration and leadership.

Purdue Launches West Coast Partnership Center at NRP

by John Christopher Boyle

More than 200 people packed the Computer History Museum auditorium in Mountain View, CA, on Oct. 29 to help Purdue kick off its West Coast Partnership Center.

The center will serve to link Purdue's expertise in engineering and technology with the West Coast's high tech companies and entrepreneurs.



Purdue President France A. Córdova at Purdue's West Coast Partnership Center kickoff Oct. 29 at the Computer History Museum, Mountain View, CA. From 1993 -1996, Dr. Cordova was the youngest person, and first woman, to serve as NASA Chief Scientist, acting as the primary scientific advisor to the NASA administrator.

"Along with the many alumni attending were West Coast technology executives, media representatives, local officials and parents of current Purdue students," said John C. Boyle, who heads up the new office. "The majority were from the Silicon Valley area, but some came from as far away as Los Angeles and Oregon. I met alums who graduated as recently as last year and as long ago as 1958."

President France A. Córdova led a delegation of distinguished faculty and administrators who traveled to Silicon Valley to take part in the event.



John C. Boyle, head of Purdue's new West Coast Partnership Center, speaks at the kickoff. Boyle, with a BS in EE from Purdue, and an MBA from Stanford University, has worked for corporations including Hewlett-Packard and General Motors, startups and smaller companies such as VeriFone and 3Com, and has been a partner in two Silicon Valley venture capital firms, Worldview Technology Partners and Matrix Partners.

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An afternoon symposium included leading Purdue innovators discussing their work:

* Philip Low, the Ralph C. Corley Distinguished Professor of Chemistry, who has five targeted cancer drugs currently undergoing human trials and a company in place to commercialize them.

* Michael Ladisch, Distinguished Professor of Agricultural and Biological Engineering, who directs multidisciplinary research efforts in bioenergy, bioprocessing, bioproducts, biorecovery and bionanotechnology.

* Alyssa Panitch, associate professor of biomedical engineering, who is developing innovative matrix materials to repair damaged bones, spinal cords, arteries and other tissues.

* Gerry McCartney, vice president for information technology, chief information officer, and the Olga Oesterle England Professor of Information Technology, who is overseeing innovative use of IT in higher education, including creation of the nation's largest campus cyberinfrastructure for science and engineering.

Purdue already has strong ties to Silicon Valley and California, home to more than 18,000 alumni, the largest group after Indiana and Illinois. Purdue's West Coast Partnership Center, located in NASA Research Park Bldg. 19, is designed to send Purdue technical expertise to the West Coast, bring research and development dollars back to Indiana, and provide Purdue's faculty with new ideas for exploration.

JUSTAP Conference

by Jim Crisafulli, Director
Hawaii Office of Aerospace Development

The State of Hawaii, host of the JUSTAP Conference, recently launched the Pacific International Space Alliance (PISA) - a public-private partnership to facilitate multinational collaboration on both robotic and human missions to space. Designed to reduce the costs and enhance the benefits of future space exploration, this dynamic coalition is now collaborating with NASA and the Pacific International Space Center for Exploration Systems (PISCES - also headquartered in Hawaii) to enable a sustainable human presence beyond low-Earth orbit through a proposed development of an international research park on the Moon that will provide multiple scientific, educational and commercial benefits to nations worldwide. Plans for the proposed international lunar research park could include prototyping through analog facilities on the Moon/Mars-like terrain of Hawaii's "Big Island", leading to a precursor "robotic village" on the lunar surface that will pave the way for future human habitation.



Dr. Dan Rasky, Director of NRP's Space Portal, presented at the recent Japanese United States Science Technology and Space Applications Program (JUSTAP) annual conference on November 14-18th, 2010 on the big Island of Hawaii.

Kentucky Space Announces Japanese ISS Launch

The HTV2 unmanned Japanese Spacecraft to the International Space Station (ISS) was successfully launched January 22, 2011, transporting three Kentucky Space associated CubeLab™ payloads. The launch took place at the Tanegashima Space Center in Japan.

These scientific payloads are part of the NanoRacks LLC/Kentucky Space joint initiative involving microgravity R&D on the ISS. The NanoRacks (NR) Platform, co-developed and built by NR and KS, provides a standardized platform and open architecture for experiment payloads on ISS. A NASA Space Act

Agreement with KS partner NR provides for regular missions to the ISS.

The three missions include:
An experiment from Ohio State University (OSU) investigating the effects of microgravity on noncrystal growth.

A payload developed by Valley Christian High (CVH) School in San Jose, California investigating growth dynamics of particular plants that might be used for human consumption on extended space missions.
A special microscope facility developed by NanoRacks LLC for ongoing on board the ISS for future ISS experiments.

The Kentucky Space ISS Mission Operations Center (at the University of Kentucky) expects to begin "initiating the experiments in mid- February." The CVH and OSU experiments will return to Earth later on a subsequent return mission.

Kentucky Space LLC is a nonprofit enterprise involving select Kentucky universities, including Morehead State University and the University of Kentucky, focused on small entrepreneurial and educational space solutions.

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"Bloom Boxes" Help Power Adobe Headquarters in San Jose

By Dana Hull
dhull@mercurynews.com

NASA Research Park startup Bloom Energy has maintained a low profile since it first raised the curtain on its fuel cell technology at a highly orchestrated news conference on September 27, 2010. But Adobe Systems was set to announce late Monday that it has chosen Bloom Energy's technology to help power its corporate headquarters in downtown San Jose, making it Bloom's largest single-site installation to date.



The Adobe building in downtown San Jose

Adobe installed 20 vertically shaped wind turbines, made by Windspire Energy of Reno, at its headquarters in January. But with 2,500 employees and about a million square feet of office space, Adobe is eager to do even more to reduce its energy footprint.

Adobe's high-rise offices at Park Avenue and Almaden Boulevard lack the roof space usually required to make solar power an attractive investment, so Adobe looked at fuel cells.

Fuel cells use hydrogen, natural gas, methane or other fuels to generate electricity through an electrochemical process that produces a fraction of the emissions of a typical power plant. For decades, researchers have tried to perfect solid oxide fuel cells, which operate at temperatures above

800 degrees Celsius and can use fuels other than hydrogen. Bloom Energy says it has solved the major solid oxide engineering challenges and that its devices can recycle the waste heat to produce more electricity.

"We looked at several fuel cell providers," said Randy Knox III, Adobe's director of facilities and environmental programs. "The bright spot for Bloom is they reuse the heat to make the process more efficient."

Twelve of the Bloom devices -- commonly known as "Bloom Boxes" -- were installed in late August and are now generating electricity from Adobe's roof. Each Bloom Box provides 100 kilowatts, enough power for about 100 U.S. homes. The 12 together generate about 1.2 megawatts, enough for about 30 percent of the Adobe Towers' electricity needs.

The fuel cell technology is not cheap: The commercial-scale boxes cost \$700,000 to \$800,000 each and come with a 10-year warranty on performance that includes any maintenance and replacement parts.

Adobe declined to discuss how much they paid Bloom, but Knox said Adobe expects the boxes to generate enough electricity for it to recoup its investment in four to six years. Unlike solar power and wind, which are intermittent and dependent on the weather, fuel cells have the advantage of being able to run 24 hours a day, 365 days a year. Bloom Energy first vaulted onto the cleantech stage in February, at a jam-packed news conference that featured Gov. Arnold Schwarzenegger and former U.S. Secretary of State Colin Powell. The startup announced that Google, eBay, FedEx and Wal-

Mart were among its first customers, and that 20 Bloom Boxes were up and running.

Now with the 12 at Adobe, more than 50 Bloom Boxes have been installed, the company says, and it expects to have 100 in place by the end of the year.

"We're trying to quietly go about building our business and growing our installed base," said Stu Aaron, Bloom Energy's vice president of marketing.

The company is also hiring and has more than 500 employees, up from about 300 in February.



The new Bloom Boxes

Dignitaries Visit NASA Research Park



Dr. Robert Baertsch discusses the SkyTran simulator with former Secretary of State George Shultz. Also pictured: George Loisos (Loisos + Ubbelohde) and Tiffany Montague (Google) on November 18, 2010.



Former U.S. Secretary of Transportation Norman Mineta tours the SkyTran maglev installation at Ames with Christopher Perkins, chairman of Unimodal Systems, on November 12, 2010.

Nobel Prize recipient Dr. Baruch Blumberg and Dr. Martine Rothblatt, Founder and CEO of United Therapeutics, met with Ames Center Director Dr. Pete Worden Jan. 11, 2011, after arriving Ames for an extensive briefing on NASA Research Park by NRP Director Michael Marlaire. Dr. Rothblatt, the Founder of Worldspace and Sirius Satellite Radio, is involved with the space program in numerous ways.



Second Conference on the Exploration of Phobos & Deimos

The Second International Conference on the Exploration of Phobos and Deimos will be held March 14-16 2011 at NASA Ames Research Center, Moffett Field, CA. The conference is cosponsored by NRP Partner The Mars Institute, the SETI Institute, and the Lunar and Planetary Institute.

For more info see:
<http://www.seti.org/PhD2011>



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