For future newsletters, submit story ideas and photos (with captions & NASA media release forms) to me (fava@phunds.phys.lsu.edu). Deadline for submissions for the Fall 2014 Space Porter is Friday, October 17, 2014.

Colleen H. Fava, Manager
LASPACE GETS TWO NEW MEMBERS!
WELCOME BATON ROUGE COMMUNITY COLLEGE & DELGADO COMMUNITY COLLEGE

In response to a new funding opportunity from NASA Space Grant Office of Education, LaSPACE has successfully recruited our first two community college affiliates! We offer a big, warm welcome to Baton Rouge Community College (BRCC), located in the capital city, and Delgado Community College (DCC) of New Orleans.
LaSPACE-Funded Southern University Student, Andre Spears Wins 1st Place in National Competition

Mr. Andre’ Spears, Mathematics and Physics Major and Space Grant Scholar at the Timbuktu Academy (SGS-TA) at Southern University and A&M College, participated in the 2014 Emerging Researchers National (ERN) Conference.

The conference was held in Washington D.C. on February 20-22, 2014 at the Renaissance Washington D.C. hotel. Andre’ was a recipient of a conference travel award. The award covered the costs of his meals, registration, lodging, and airfare.

Mr. Spears was among hundreds of students who gave technical presentations on their research. He won 1st place in the Physics Category for his poster presentation. The title of his research project is “4D Tracking The Motility of Euglena Cells Using Digital Holographic Microscopy.”

Andre’ conducted this research during his summer 2013 internship in the Department of Physics at the University of South Florida (USF). His research mentors at USF were Dr. Xiao Yu and Dr. Myung Kim. The poster competition consisted of nine (9) undergraduates from eight (8) different universities.
Ms. Janice Carter, a biology undergraduate of Southern University at New Orleans, presented her research at the Emerging Researchers National (ERN) Conference in STEM, Feb. 20-22nd 2014 in Washington, DC. Ms. Carter is mentored by Dr. Illya Tietzel, the SUNO Institutional Representative to the Louisiana Space Grant Consortium (LaSPACE).

Ms. Carter was awarded a full conference travel award that included airfare, conference registration fee and lodging. This was Ms. Carter’s first national conference, and in addition to attending the conference as an awardee, she also gave a talk titled ‘LEGO Robotics Could Increase Female Interest in STEM’ at ERN Conference this year.

Ms. Carter presented her research that was funded by the LaSPACE consortium sustaining grant “SUNO Space-Related Program Activities Creating Experiences for Undergraduates and Faculty of Minority Institutions” (SUNO SPACE UFOM). Drs. R. Belmasrour, Assistant Professor in Mathematics, assisted the student with the statistical analysis. Dr. M. Elaasar and Dr. I. Tietzel, Principal Investigator of the grant, provided supervision and project oversight.
LSU launched Space Day on March 28, 2014, an inaugural event spearheaded by the LSU College of Engineering and Lockheed Martin, with support from NASA, LaSPACE, LSU College of Science, Department of Physics & Astronomy, The Society of Physics Students (SPS), Jacobs Technology, and The National Center for Advanced Manufacturing (NCAM) at Michoud. The event featured educational outreach for middle school students, tabling and displays for undergraduate recruitment into STEM, and an open keynote address from Wanda A. Sigur, vice president and deputy, civil space, space systems for Lockheed Martin Corporation. LaSPACE staff and LSU students currently participating in the 2013-2014 Louisiana Aerospace Catalyst Experiences for Students (LaACES) offered information and demonstrations on high altitude ballooning in the state and across the country.

In the photos on the left, Hannah Gardiner, LSU Physics Senior and former LaSPACE program participant, leads a look & learn for local middle school students which allows students to participate in a real-time display of angular momentum.
LaSPACE Visits Baton Rouge Community College for 2014 BRCC Geaux Green Day

In support of our mission to spread the word about LaSPACE programs at our affiliate institutions, Baton Rouge Community College (BRCC) invited LaSPACE to participate in their second annual Geaux Green Day.

BRCC's "Geaux Green Day" is an activity of the STEM Division and Green Bears Club held in conjunction with Earth Day on the BRCC campus. This is an event open to the students, faculty, and staff at BRCC, and also attracted some family and friends of current students.

Various organizations across the Baton Rouge community were invited to come and share information about what they do related to sustainability, conservation, recycling or any green/ environmental-friendly practices they may be involved with or how their work may impact the environment. Some BRCC students enrolled in several science courses also be showcased course related research projects during the event.

Pictures from Top to Bottom: Dr. Guzik discusses the LaACES program with a BRCC student and his family during Geaux Green; Dr. Guzik introduces two BRCC students to a circuit board used in high altitude ballooning payloads; Research Associate Doug Granger discusses video of a recent ballooning flight with two BRCC students.
A team of LSU mechanical engineering seniors worked with faculty and graduate students at Southern University, as well as engineers at NASA’s Jet Propulsion Laboratory, to design a chamber and heat transfer experiment that will be used to understand how insulation will behave in Venus’ high-pressure atmosphere. Mel Triay, Austin Cooley, Dominick Sparacino, Thomas LaCour, and Jordan Castillo worked in 2013 to design, build, and test the chamber, which works at pressure up to 100 times the pressure at sea level on Earth. This chamber will be used to understand how porous insulation behaves under extreme conditions. They completed the work as part of the mechanical engineering department’s Capstone Design class. They worked together with their LSU faculty adviser, Michael James Martin, a Southern University team consisting of Redeemer Nutsugah, Stephen Akwaboà and Patrick Mensah, and Michael Pauken to go from design requirements to working prototype in 8 months. The chamber has already been used to measure the properties of insulation materials being considered for future landers. Redeemr Nutsugah presented initial results obtained from this chamber at the 2014 AIAA Science and Technology Forum and Exposition in Washington DC.
On 12/5/2013 the chair, faculty and students of the Department of Natural Sciences were given the rare opportunity for a tour at the NASA Michoud Assembly Facility on 13800 Old Gentilly Rd., New Orleans, LA 70129. Dr. Tietzel of SUNO contacted Chip Howat, Public Affairs Officer of Jacobs Technology, MSFOC, at the NASA Michoud Assembly Facility. Mr. Howat kindly gave a tour that included examples of the work contributing to the Space Launch System (SLS) and Orion Flight hardware, which aim at human exploration beyond earth towards asteroids and Mars. Participants were Dr. Murty Kambhampati, Professor of Biology and departmental Chair; Dr. Mostafa Elaasar, Professor of Physics; Dr. Illya Tietzel, Associate Professor of Biology; Ms. Janice Carter, Biology undergraduate and SUNO SPACE UFOM research student; Ms. Sonya Hill, Biology undergraduate and SUNO SPACE UFOM Science Messenger; Mr. Keith Perkins, Biology undergraduate and URM research student.
Students in LSU’s Biological Sciences, Biological Engineering, Electrical Engineering, and Mechanical Engineering Departments have been working together to create design an experiment to operate on a NASA DC-8 to measure microbe concentrations at high altitude.

The project, funded through NASA’s USIP (Undergraduate Student Instrumentation Program), involves Nathan Bergquist, David Branch, Hayato DeSouza, Jordan Falgoust, Robert Fink, Courtney Irwin, Giselle Medina, Chris Pitre, Rachel Rhodes, and Anthony Thompson, of Mechanical Engineering, together with Matthew Loupe of Electrical Engineering and Jennifer Farrar of Biological Engineering, have been working with their faculty advisers Michael Martin of Mechanical Engineering and Brent Christner of Biological Sciences to design the sampling system. Biological Sciences graduate student Noelle Bryan has also advised the students on the science requirements.

The students presented their preliminary design at the AIAA (American Institute for Aeronautics and Astronautics) Student Conference in Albuquerque in April. They expect to fly on the NASA aircraft based out of Palmdale, California in June.
This past year, over 2000 Louisiana elementary and middle school students have benefited from the yearly SciBotics teacher training and robotics curriculum that is offered at Sci-Port with significant funding from LaSPACE.

The training allows teachers to learn how Science, Technology, Engineering and Math (STEM) can be incorporated into their classroom to enhance their lessons. This is accomplished through the use of the LEGO Mindstorms NXT platform.

Students get a chance to showcase their STEM skills by competing in the Regional Autonomous Robotic Circuit (RARC) competitions that are held during the course of the year.

The pictures above and below highlight how excited students are to be able to show what they have learned in the classroom.

Over 300 teams have competed so far in this year’s circuit and the next RARC competition will be on May 3rd at the Bossier Civic Center.
Louisiana NASA EPSCoR is operated as a Cooperative Agreement between NASA and the Louisiana Board of Regents (BOR) with scientific & technical management support from the Louisiana Space Grant / NASA EPSCoR (LaSPACE) program management office at LSU. Staff from LaSPACE and the BOR work together to support NASA EPSCoR objectives, programs, and opportunities. As a team we promote funding opportunities in the state, and manage the proposal application process and active project awards.

**NASA EPSCoR in Louisiana: Project Spotlight**

**Bio-mimetic Self-Healing Composite Sandwich for Impact Tolerant NextGen Aerospace Structures**  
Guoqiang Li, PhD, Associate Professor, LSU, Department of Mechanical Engineering

Just shy of three years into the project, the PI reports significant progress, and anticipates that all goals and objectives will be met at the end of this one year no-cost extension period. Dr. Li’s third year annual report summary states:

The structure relaxation behavior of cold-drawing programmed shape memory polymer fibers have been determined, which ensures the long-term crack-closing capability of shape memory polymer fibers. The healing-efficiency of conventional thermosetting polymer dispersed with short shape memory polymer fibers has been investigated. It demonstrates the ability for repeatedly healing wide-opened cracks by short shape memory polymer fibers. A new grid stiffened composite with a hybrid hollow metallic tube reinforced shape memory polymer core was fabricated and its self-healing capability has been evaluated. In combination with the results in Year-1 and Year-2, it preliminarily proves that the proposed idea works. Education activities are progressing smoothly with several participating students receiving their M.S. and B.S. degrees. Our team is also recognized by LSU and SU as evidenced by a number of faculty and student awards received.

Our team has already submitted or published about two dozen papers in archival journals and has submitted two utility patents. Overall, the project is meeting its research and education benchmarks.
Cosmic Ray Research: Supporting the pipeline from students to scientists

A Symposium Honoring John P. Wefel  | August 18-19, 2014
Louisiana State University, Baton Rouge, LA 70803

For over forty years, John Wefel has contributed to the scientific research and education communities through his sustained research in high energy astrophysics and his leadership of the NASA Space Grant & EPSCoR programs. On the occasion of his semi-retirement, please join us for a two-day symposium celebrating these two facets of his remarkable career.

The symposium will be held over two days in Nicholson Hall, the Physics & Astronomy building on the LSU campus; an evening event at LIGO is being planned for Monday night, as well as an off-site dinner on Tuesday evening. Talks will focus on some of John’s major research experiments such as ATIC, CRRES, & CALET, as well as his commitment to education and infrastructure development through the Space Grant & EPSCoR programs. Anticipated participants include, David Chenette, Louis Barbier, Shoji Torii, Jin Chang, John Mitchell, Bob Streitmatter, Mark Chrisl, John Clem, Major Ed Clayton, John Cooper, Greg Guzik, Mary Sandy, Keith Hudson, Mark Fisher, and Diane Detroye.

Special block rates available at the Lod Cook Hotel located on campus for reservations made now through Tuesday, July 15, 2014. Go to Thecookhotel.com, enter lodging dates first and then in the Group Code Block enter: 081514SPACE. Additional logistics are still being finalized. Direct inquiries to Colleen H. Fava, fava@phunds.phys.lsu.edu.

2014 LaSPACE Fall Council Meeting Coming Soon

The annual meeting of the LaSPACE Council will take place in the fall hosted by McNeese State University. Our thanks to Institutional Coordinator Ning Zhang for offering to host this year. In the next few months, affiliate representatives will begin receiving logistical information about this meeting.

In the meantime, we would love to hear from you about what you want to see and hear at our next meeting. Please send recommendations for talks (as well as proposals for your own talks) to Colleen H. Fava (fava@phunds.phys.lsu.edu) so we can shape an agenda that meets your needs.
Research Programs

Research Enhancement Awards (REA)
This program provides “seed” funding for an emerging researcher or an established researcher contemplating a new avenue of study with an opportunity to develop an idea in preparation for involvement in a bigger funded project.

Research Initiation Grants (RIG)
This opportunity is intended to improve involvement of faculty (and students) at LaSPACE four-year schools and HBCUs in the development of research projects that will bring these schools more into the mainstream of NASA-related activity.

Unsolicited Research Proposals (URP)
The overall goal of the URP program is to provide incentives for LaSPACE affiliate faculty and students to develop new research projects, collaborations, and training experiences and, thereby, increase the chances of Louisiana scientists to compete in the national R&D marketplace.

Outreach Programs

K-12/ Pre-College Programs
Programs and activities enhance and broaden knowledge of students and teachers, and include teacher preparation and enhancement, curriculum development, and student opportunities. The LaSPACE focus is on teacher training/professional development.

Informal Education Programs
Public service activities, which do not fall under K-12, include cooperative extension activities, public lectures, programs which might offer NASA Select programming, exhibits, and demonstrations.

External Relations Programs
Programs that involve the name, personnel, and facilities of the university or college that is running the program that serve institutions not covered by K-12 and the Informal Education sections. Target institutions include industry, federal (non-NASA), state and local government, professional societies, international organizations, and non-profit organizations such as philanthropies. It is expected that the programs will involve the provision of expert advice and/or training.

Student Programs

Fellows
The objectives of this program are to recruit superior graduate students in order to help encourage qualified individuals with interests in aerospace fields, to strengthen the educational base in Louisiana, and, to develop the aerospace research infrastructure in the state.

GSRA
This program aims to help attract more U. S. students for graduate study on consortium campuses, to promote diversity and to assist with thesis/dissertation research. The award can be used to augment student stipends, defray expenses for research, promote attendance at national meetings, or for other research related purposes.

LURA
This award provides student support for outstanding LaSPACE Undergraduate Research Assistants to engage in faculty-mentored, NASA-related aerospace, space sciences, or aeronautics research on a LaSPACE campus.

MRS Scholars
The MRS sub-program is designed to help attract more minority students to STEM fields at LaSPACE institutions to: (i) promote diversity in STEM education, (ii) attract/retain U. S. undergraduates in STEM fields, and (iii) involve more consortium institutions and students in Space Grant.

LaACES
LaACES usually involves a full academic year. The primary goal of the program is to give students realistic experience with the project management life-cycle, experiment construction, data collection, and analysis skills for the project.

Senior Design/ Higher Education
LaSPACE supports aerospace related Senior Design projects and/or space related competitions (e.g. Moonbuggy), as funds permit.
LaSPACE Mission:

To Enhance Space and Aerospace related research, education, and public awareness throughout the State of Louisiana and thereby promote STEM education, training of professionals, and economic development.