



AFFILIATES

- Bethany College
- Bluefield State College
- Fairmont State University
- Glenville State College
- Marshall University
- NASA IV&V Facility
- National Radio Astronomy Observatory, Green Bank
- Polyhedron Learning Media, Inc.
- Shepherd University
- TechConnectWV
- The Clay Center for the Arts and Sciences of WV
- TMC Technologies
- West Liberty University
- West Virginia State College
- West Virginia University
- West Virginia University, Institute of Technology
- West Virginia Wesleyan College
- Wheeling Jesuit University
- WV High Technology Consortium Foundation

A Message from the Director

Dear Friends,

The NASA West Virginia Space Grant Consortium (WVSGC) supports many programs that focus on research, collaborations with high-technology industries, student fellowships as well as K-12, and public outreach programs. In this issue, we aim to highlight a few of those programs. Thanks to the dedication and hard work of our faculty, our affiliates, our board members, and our colleagues, the Space Grant Consortium and NASA EPSCoR continue to expand their coverage and services in West Virginia.

We are pleased to welcome Mr. Al Najjar, director of the Clay Center for the Arts and Sciences, and Dr. Milan C. Vavrek, Interim Vice President for Academic Affairs at Glenville State College, to our Board of Directors. We are looking forward to their contributions and guidance in shaping the future of the consortium. We would also like to take this opportunity to express our deep gratitude to Mr. Lewis Ferguson and Dr. John Peek as they leave the consortium’s board of directors. We wish them well in their future endeavors. Finally, we would like to congratulate our 2015-16 NASA Scholars at the affiliate level. We wish them the best in their research career and look forward to their future participation in our programs.

Majid Jaridi, Ph.D., Director

Student Research Snapshot of the Month

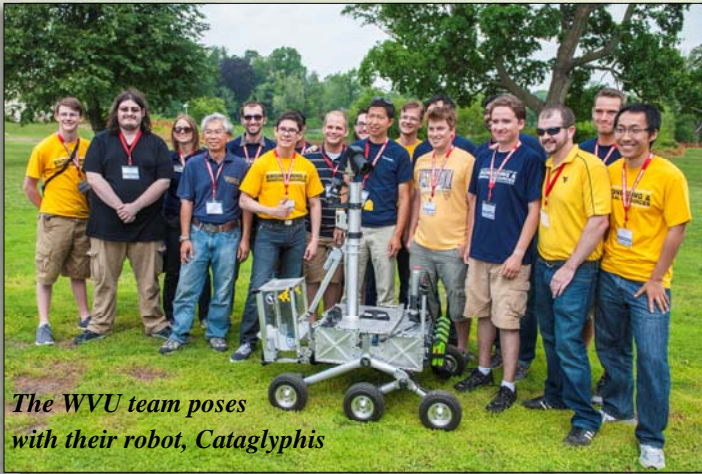


Notashia Baughman, WV Wesleyan College undergraduate research student, working in a nitrogen-filled glovebox. She conducted her research under the mentorship of Dr. Joanna Webb on the NASA EPSCoR Research grant entitled “Olefin Hydrogenation with transition metal complexes bearing chiral nitrogen-based ligands.”

Upcoming Events

- TechConnect West Virginia 2015 “Spirit of Innovation Awards,”
Culture Center, State Capitol Complex, Charleston WV November 16, 2015
- FIRST Lego League State Tournament, Fairmont State University December 5, 2015
- NASA S.P.A.C.E. Day, Falcon Center, Fairmont State University April 16, 2016

WVU Engineering Students make History



The WVU team poses with their robot, Cataglyphis

A team of 16 West Virginia University engineering students competed in the fourth annual Sample Return Robot Challenge as part of NASA's Centennial Challenges. They obtained the first level two victory in the competition's four-year history and a \$100,000 award for its performance. This is the second year that WVU has proven its talents in the robotics field during the competition; they were the first team to successfully complete level one during their Challenge debut in 2014, which qualified them to return and compete at level two this year—where they secured another first when they successfully completed level two.

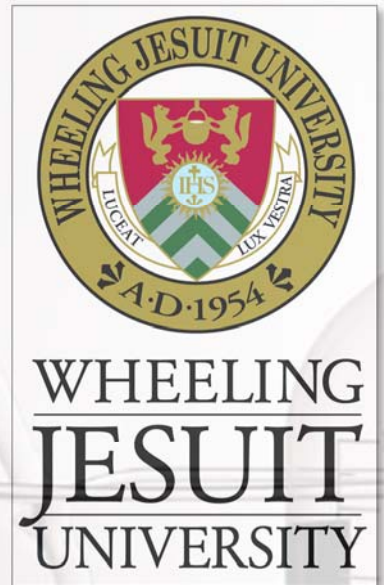
While no other collegiate teams qualified to compete in the level two Challenge, MIT, RPI and Oregon State University all competed in the level one Challenge. NASA Centennial Challenges were initiated in 2005 to engage the public in the process of advanced technology development. The program offers incentive prizes to generate revolutionary solutions to problems of interest to NASA and the nation. Competitors are not supported by government funding and awards are only made to successful teams when the challenges are met. The winning team from WVU plans to use the prize money as seed funds for scholarships for engineering students to help expand the program in its future.



Wheeling Jesuit Students keeping busy with Research

Wheeling Jesuit University's 16th Annual Student Research and Scholarship Symposium was held on April 14th 2015. Several students who were awarded funding from the NASA WV Space Grant Consortium participated in this event where they presented the results of their research to faculty and fellow students. Space Grant awardees who won in their category were Elizabeth Bain, Collin Huth, and Brett Szeligo.

Space Grant scholar Evan Collins, along with Emily Robinson, presented to the Haig Science Award committee. In order to apply for this honor, each senior must maintain at least a 3.5 GPA in all science and math courses as well as present an independent research project to the Haig Committee that embodies the concept of "individual excellence for public usefulness" to qualify for the award. A medal and \$2,500 was awarded to Emily Robinson. Although Evan did not win, it was an honor to be considered for this award. WJU sophomore chemistry major, Brett Szeligo, was awarded an Undergraduate Research Fellowship in the amount of \$5,000 this past spring. In March, Space Grant scholars Jeff Becca, Andrew Eisenhart, and Nate Barker presented at the American Chemical Society meeting held in Denver, CO. Partial funding was provided by Space Grant for their travel.



Wolfgang Zober, a junior physics major, spent six weeks at NASA Goddard Space Flight Center located in Greenbelt, MD. Zober expressed his appreciation for this opportunity and stated that, due to this internship, it has "solidified his interest in becoming a scientist," and he now wants to obtain his Ph.D. in astrophysics. During this experience, he received guidance from Goddard astrophysicists in choosing a graduate program.



WVSU students travel to NASA Goddard Space Flight Center

This summer, Dr. Micheal Fultz, Associate Professor of Chemistry at West Virginia State University, accompanied 13 students to the NASA Goddard Space Flight Center for a one-day visit. The students were able to see the James Webb telescope prototype, the satellite repair robotics center, the astrobiology labs, and much more. They also went to the Smithsonian Air and Space Museum, as well as several other museums, making the most of their trip to Washington, DC.



Working Together to launch West Virginia into Space

More than 100 miniature cube satellites, or CubeSats, orbit the planet in a silent ballet. West Virginia is about to join the dance for the first time with the help of a new collaboration between West Virginia University, NASA's Independent Verification and Validation (IV&V) Program, the NASA West Virginia Space Grant Consortium, and TMC Technologies in Fairmont, WV. This will be the first time that a NASA CubeSat mission from West Virginia will orbit Earth. It is slated to launch as an auxiliary payload on a NASA rocket in mid-2016 through NASA's CubeSat Launch Initiative Program. The NASA IV&V Program, in partnership with TMC Technologies, WVU, and the WVSGC, have been competitively selected by the NASA CubeSat Launch Initiative (CSLI) to design and construct the first ever CubeSat from West Virginia. CubeSats are small space satellites that are used to perform space- and earth science-related experiments. Being selected by NASA means that the CubeSat will be launched from either a spacecraft launch vehicle or from the International Space Station. WV was the only "rookie" state chosen by NASA.

According to Mr. Wade Linger, President of TMC Technologies, "TMC is proud that the STF-1 CubeSat is being designed and built in WV. TMC is excited that its software-simulation work for the NASA IV&V Program can be leveraged for small, space satellites." TMC firmly believes that software-simulation for NASA missions will continue to improve safety and reliability, while making cost effective use of taxpayer dollars.

For more information, please visit www.stf1.com



West Virginia Students attend Helicopter Training

The 2015 Helicopter Unmanned Aircraft Systems Workshop provided students with practical knowledge of fixed and rotary winged aircraft, as well as exclusive tours of leading aerospace companies such as KAMAN Aerospace and Sikorsky Aircraft. The program took place on June 14th through 19th, 2015 at Central Connecticut State University in New Britain, CT. Hosted by the Connecticut Space Grant Consortium in collaboration with the North Carolina Space Grant Consortium, the six day program provided students with hands-on experience as well as classroom



Students flew in a Sweitzer 300 helicopter

instruction on aerodynamics, wind tunnel testing, control theory, VTOL RC aircraft, and a multitude of other topics. Jordan Cox, alumnus of WVU Institute of Technology and graduate student at West Virginia University, and Denise McCready of Pierpont Community and Technical College, attended this year's workshop.



Jordan Cox, West Virginia University and John Jagtiani, University of Bridgeport, CT. showcase their design.



NASA WVSGC awarded Community College & Technical Schools Grant

Technical Schools Program. The \$500,000 award will go towards the WV Statewide Partnership to Advance Community College Education in STEM (WV SPACES). WV SPACES is a program that offers opportunities to community and technical college students, along with faculty assistance as they seek meaningful educational opportunities and future jobs in STEM fields. In the inaugural year, 12 educators and seven students participated in the program. Alan Zube, Blue Ridge CTC, received a Summer Faculty Fellowship at NASA Langley. When asked to describe the most memorable experience he had during the fellowship program, he replied, "Oh so many... I think participating in the open house at Wallops Island was one of the best. First, it was fun doing the Ultraviolet STEM activity that NASA designed, and educating about 500 young people about the benefits and dangers of ultraviolet radiation. Second, I ran in the 5K on the Runway at Wallops. Third, was being able to see all the planes, rockets and other equipment at the Wallops facility."

For more information, please visit:
wvspacegrant.org/programs/wvspaces

NASA WVSGC received an award under the NASA Space Grant Competitive Opportunity for Partnerships with Community Colleges and Technical Schools Program. The \$500,000 award will go towards the WV Statewide Partnership to Advance Community College Education in STEM (WV SPACES). WV SPACES is a program that offers opportunities to community and technical college students, along with faculty assistance as they seek meaningful educational opportunities and future jobs in STEM fields. In the inaugural year, 12 educators and seven students participated in the program. Alan Zube, Blue Ridge CTC, received a Summer Faculty Fellowship at NASA Langley. When asked to describe the most memorable experience he had during the fellowship program, he replied, "Oh so many... I think participating in the open house at Wallops Island was one of the best. First, it was fun doing the Ultraviolet STEM activity that NASA designed, and educating about 500 young people about the benefits and dangers of ultraviolet radiation. Second, I ran in the 5K on the Runway at Wallops. Third, was being able to see all the planes, rockets and other equipment at the Wallops facility."



CTC Educators that attended either Systems Engineering (lead by Mr. Marcus Fisher, NASA IV&V) or the Cyber Security (lead by Roy Nutter) certification workshop gather together in the Engineering Sciences Building, WVU. Pictured above, left to right, Majid Jaridi, David Teets, Alan Zube, Anthony Hanners, Leslie Lovett, Marcus Fisher, Vincenza Cumbo, Bob Hayton, Jason Spencer, Shahed Mustafa, and Jenny Dawkins



Seeding Your Future Conference

Thanks in part to funding from a WVSGC Extension and Public Outreach grant, the second annual Seeding Your Future Conference will be held on October 3rd, 2015 at Shepherd University. The conference aims to bring approximately 100 middle-school aged girls to campus to participate in STEM- related activities, including a set of hands-on workshops and a panel of women either in or intending to be in STEM-related fields. Titles of this year's workshops include: "Surviving the Zombie Apocalypse," "Whose Blood is it Anyway?" and "Who's Galloping Gertie and Why Did She Fail?"

A complete list of titles and abstracts can be found on the conference website: www.SeedingYourFuture.weebly.com. For more information please contact Dr. Sytil Murphy or Dr. Jordan Mader at seedingyourfuture@gmail.com.



Education News from the National Radio Astronomy Observatory in Green Bank, WV

Submitted by Dr. Karen O'Neil, Site Director

In addition to the usual group of undergraduate students taking part in the NSF's "Research and Engineering for Undergraduates" (REU) program, NRAO in Green Bank hosted the second annual "Physicists Inspiring the Next Generation" (PING) camp for underrepresented minorities. A group of 13 rising 9th graders from all over the country came to Green Bank for 10 days. The students engaged in radio astronomy research projects with a 40-ft diameter radio dish, learned about stream ecology and tested the health of our local creek, soldered their own circuits and engineering cardboard boats, among many other things!

Also during the summer, Nathan Tehrani, a student from WVU, created a new feature presentation about astro-chemistry to be shown to thousands of WV students and teachers through the WV Space Public Outreach Team (SPOT). The presentation is called "How to Make a Planet... with Life!"

If you are interested in the SPOT program, or any other activities on site, please take a look at the programs available through:

<https://public.nrao.edu/look-deeper>



*Pictured above:
Nathan Tehrani, student mentor
at NRAO.*

*Below Left: Students solder
circuit boards.*

*Below Right: Nathan and the
camp participants.*



2015–2016

Undergraduate Research Fellowship

Marshall University

Deborah Amos
Jessyca Conatser
Robert Cooper
Berlynnna Heres
Caroline Hunter
Rachel Murphy
Justin Tomblin

West Virginia University

Allison Arnold
John Cordonier
Jordan Cox
Christie Cyktor
Victor Sivaneri
Vincent Spada
Ryan Watson
Piotr Wojciechowski

2015–2016

Graduate Research Fellowship

Marshall University

Samantha Garretson
Lydia Hager
Andrea Hensley
Aaron Holland
Alexis Kastigar
Noah Searis
Eric Sias

West Virginia University

Jared Beard
Evelin Flamenco
Magdalena Krasney
Samantha Melroy
Nicholas Ohi
Robyn Wiseman

Wheeling Jesuit University

Brett Szeligo



Students from this year's STEMPLOY camp and the WVU Mars Rover



Become the next Game-Maker

It's a known fact that kids love playing video games—and research has shown that playing video games makes you smarter. Creating their own video games encourages kids to take it to the next level. STEMPLOY's hands-on Mobile Game Design camp offered all of the tools and resources that students need to get started and experience this exciting field of study. Sponsorship from the NASA WV Space Grant Consortium made it possible to offer



this exciting and informative week-long camp for a group of middle school students on the campus of West Virginia University. Students were exposed to software engineering and computer science skills while using Unity 3-D software and learned the basics of object-oriented programming in JavaScript.



Share your Story!

Contact NASA WVSGC to share your story and keep us updated on ongoing events. We would love to feature you in our next issue!

STEMPLOY's founder, Dr. Lynn Dombrowski said: "The focus of the camp is on *how to be an innovator and entrepreneur*," while teaching students how to explore interactive solutions, write a business plan, and design games that can be used on mobile phones, laptops, and other devices.



NASA WVSGC

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