



AeroSpace FRONTIERS

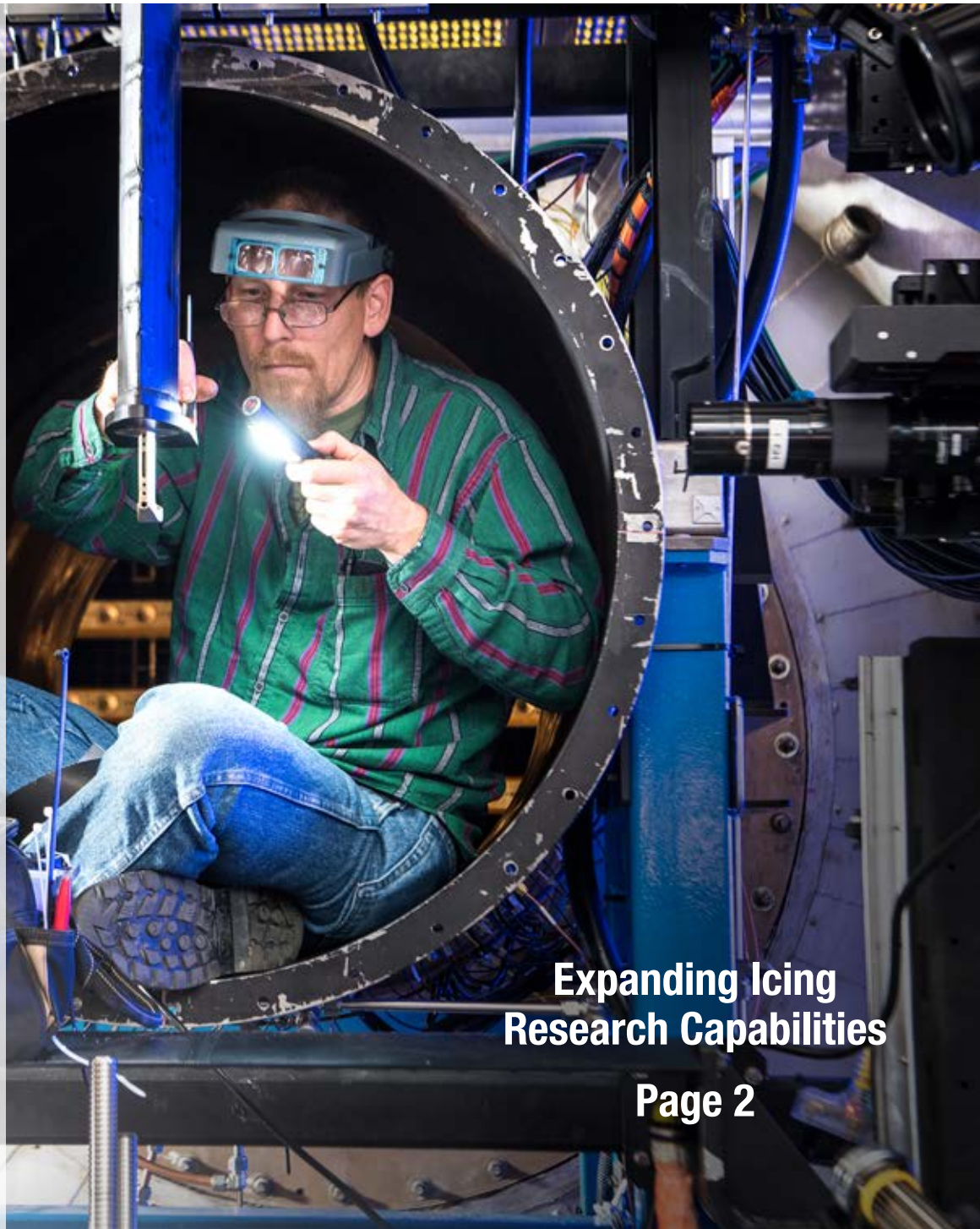
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Safety—One of Glenn's Seven Expected Behaviors

We are hosting over 200 students and interns this summer season, and it is wonderful to see so many new faces at the center. Keeping in mind the safety of everyone around us, it is important for all to drive attentively, put away our mobile devices in transit while driving and walking, observe all signage—especially in the test laboratories, and follow safety practices when operating equipment. Demonstrating a vigilant commitment to a safe environment through good situational awareness and communication helps assure a safe workplace.

Embracing safety is one of our seven expected behaviors at Glenn Research Center. Have a safe summer!

AeroSpace Frontiers

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Submit short articles and calendar items to the editor at doreen.b.zudell@nasa.gov.

Editor: **Doreen B. Zudell**, ATS,
216-433-5317

Assistant Editor: **S. Jenise Veris**, ATS

Design: **Jami Drost**, ATS

Managing Editor: **Kelly R. DiFrancesco**

Circulation: **Angela Williams**, ATS,
216-433-8921

On the Cover



Photo by Jordan Salkin
GRC-2018-C-03268

Ken Trsek prepares instruments for an icing test in the PSL.

Expanding Icing Research Capabilities

Electronics Technician Ken Trsek, Wind Tunnel Branch, wires a heater on an instrumentation strut while preparing for an icing test in NASA Glenn's Propulsion Systems Laboratory (PSL). The strut is part of a new Multi-Probe Traversing System (MPTS). The MPTS is expanding PSL's icing research capabilities by allowing both a test article and various probes to be inserted in and out of the flow during a single testing session. During this test, researchers are investigating the fundamental physical mechanisms of ice-crystal icing by simulating conditions that occur in jet engines when ingesting ice crystals.



Trending With Tech Transfer

Multijunction Solar Cells

Glenn's Technology Transfer Office has signed an evaluation license with Willingboro, New Jersey-based Katsujinken Foundation. The foundation will investigate hydrogen production using solar water splitting. This process will use solar power and a direct electrical current to drive a chemical reaction that will produce hydrogen, resulting in high solar-to-hydrogen efficiency. Glenn's Selenium Interlayer for High-Efficiency Multijunction Solar Cells will be used to accelerate research, development and prototyping in the energy sector and environmental monitoring.

For more information on NASA Glenn's technologies available for licensing, visit: <http://technology.grc.nasa.gov>.

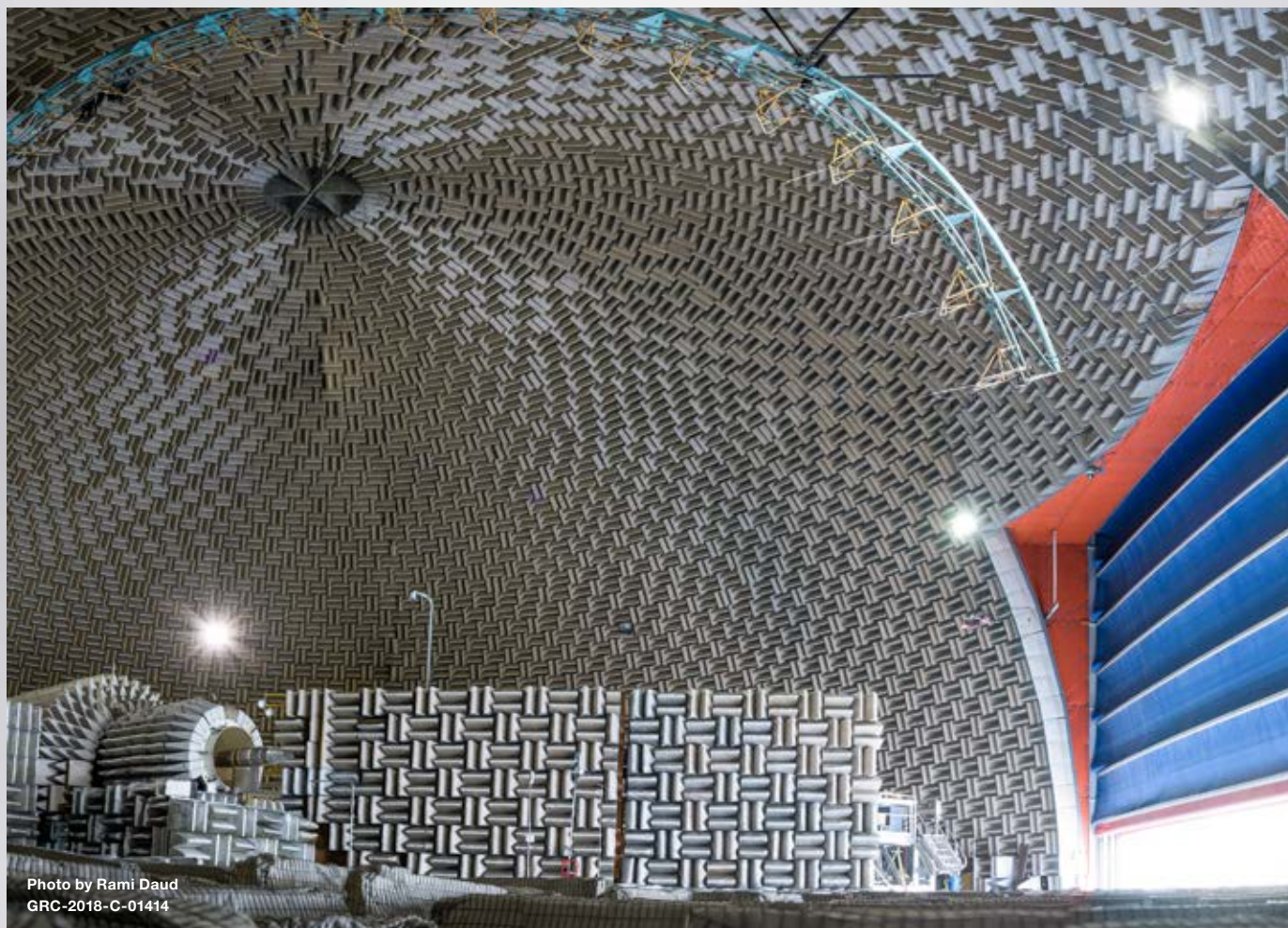


Photo by Rami Daud
GRC-2018-C-01414

Glenn's AAPL offers an environment to conduct tests aimed at reducing noise produced by an aircraft's engine exhaust.

Evaluating the Noise of Future Aircraft

As air traffic continues to surge in the United States, neighbors who live near airports are complaining about the escalating noise. All the while, the demand for faster aircraft that travel at supersonic speeds is accelerating.

To address the expected noise levels of future aircraft, NASA's Commercial Supersonic Technology project is already developing technologies focused on reducing the noise produced by an aircraft's engine exhaust.

Acoustics experts at Glenn recently used the center's Aero-Acoustic Propulsion Laboratory (AAPL) to complete an evaluation on a small-scale model of a Learjet engine exhaust, or nozzle, system.

The blue, curved array at the top of the AAPL dome held microphones for making the noise measurements and simulating a flyover. The large door to the right was opened to exhaust the air from the jet during tests.

"This recent test succeeded in creating a simulated environment which closely matched flight tests," said Dennis Huff, Acoustics Branch. "The results provide us with a unique opportunity to investigate how well noise levels produced in the lab can be compared with flight test noise data."

By Nancy Smith Kilkeny



GRC-2018-CN-00024



Photo by Rami Daud
GRC-2018-C-02423



GRC-2018-CN-00025



GRC-2018-CN-00026

Photos by Christine Staschiak

Focus on Sustainability

Greening Glenn One Event at a Time

Earth Day, a global event, celebrated 48 years on April 22. To do our part, NASA Glenn conducted several events over the last 3 months to show employees ways to reduce pollution and embrace environmental best practices. Here are a few sustainability events conducted through Glenn's Sustainability Program.

At top left: Sustainability Officer Tom Hartline officially kicked off the celebration, April 19. Cleveland Indians' Senior Director of Ballpark Operations Jerry Crabb shared Progressive Field's sustainability practices.

Above: Garlic mustard pulls at Lewis Field and Plum Brook Station help prevent the invasion of this non-native species, April 26, May 31 and June 6.

At top right: Rain Barrel Workshop, May 17, shows employees how to construct a rain barrel to conserve water and combat storm water pollution.

At right: Cub Scout Pack 72 of Lakewood scatter milkweed seeds along the Lewis Field fitness trail to help increase pollinator habitat for monarch butterflies, June 8.



Photo by Christine Staschiak
GRC-2018-CN-00023

Mission Support Leaders Visit, Discuss Future Architecture Program



Photo by Rami Daud
GRC-2018-C-03041

Left to right, Tenney, Brade and Ziehm answer employees' questions regarding MAP and how it will benefit the agency.

On tour across NASA centers, the Mission Support Directorate (MSD) Roadshow stopped at Lewis Field, June 5. MSD leaders from Headquarters updated employees and answered questions on the Mission Support Future Architecture Program (MAP).

MAP is NASA's next major optimization initiative following the Business Services Assessment (BSA). MAP will transform Mission Support services from their current state to an enterprise operating model.

After meeting with Glenn's executive office and senior management staff, the MSD visitors hosted Town Hall meetings with Glenn's Office of Chief Financial Officer and Office of Human Capital Management. These two Mission Support service areas are progressing in the first phase of projects under MAP.

During an All Hands Meeting with center employees, MSD Associate Administrator Dan Tenney outlined current and future challenges the agency faces in meeting its mission.

He showed how MAP will enable the agency to maintain its mission focus while improving efficiency, ensuring local authority and valuing the workforce.

"Mission Support provides the services, support and capabilities needed to enable our mission," Tenney affirmed. "MAP optimizes mission support services by moving toward a more interdependent model and freeing up resources to re-invest in facilities, IT and other capabilities necessary for achieving NASA's missions."

Following Tenney's presentation, MSD Deputy Associate Administrator Ron Brade and Assistant Associate Administrator for Resources and Performance Management Lisa Ziehm joined him in a panel discussion. They answered questions from employees in the audience and via the Conferences i/o Audience Response System.

MSD leaders wrapped up their visit by sharing lunch and conversation with Glenn's Early Career personnel.

By Doreen B. Zudell



GRC-2018-C-02975

Photos by Bridget Caswell



GRC-2018-C-03004

Sustainability Fair and Farmers Market, May 22, showcases local sustainability organizations and vendors.



Glenn Hosts Metrology, Calibration Experts

Jack Weigand, right, addresses National Conference of Standards Laboratories International (NCSLI) members during a tour of the Flow Lab, May 18. NASA Glenn's Metrology Services staff hosted the NCSLI Spring Section Meeting, which gathered metrology and calibration professionals from around the region to discuss relevant topics affecting their businesses. Participants also toured the new Calibration Laboratory to learn about its capabilities and management systems. The meeting featured Dr. Craig Shakarji, National Institute of Standards and Technology, and Helga Alexander, International Accreditation Service.



GRC-2018-C-02647

Photo by Bridget Caswell

NEWS AND EVENTS



60th Anniversary Series Brings Co-workers Together

In celebration of NASA's 60th anniversary, Glenn held its first 60th x Six Lunch, June 6. Ashley Cantor (at podium), Glenn Equal Employment Opportunity Office; and Raquel Eatmon (looking on), founder of Woman of Power Conference and Project Heard, spoke on the word "courage." After their presentations, attendees broke into small groups and shared their personal thoughts of courage. The series is designed to bring employees together—to learn *with* each other, *about* each other and *from* each other. Upcoming luncheons focus on Aug. 8, vision; Aug. 29, diversity; and Sept. 12, legacy. Stay tuned to *Today@Glenn* for details and registration.

Photo by Bridget Caswell
GRC-2018-C-03137

Asian Heritage Celebrated at Glenn and in the Community

The Office of Diversity and Equal Opportunity, along with the Asian/Pacific Islanders Advisory Group (APIAG) hosted Glenn's Asian American and Pacific Islander Heritage Observance, May 15. The event featured Dr. Denise Su, director of Partnerships & Programs and curator and head of Paleobotany & Paleoecology at the Cleveland Museum of Natural History. She discussed her research, her experiences at field-dig sites and fielded questions focused particularly on how paleoecology incorporates many scientific disciplines to reconstruct ancient ecosystems.

On May 19 and 20, APIAG members and a diverse group of center employees supported the annual Cleveland Asian Festival that attracted nearly 40,000 attendees. They staffed two technology booths, the Picture Yourself in Space photo booth and EVA, the inflatable astronaut, to promote STEM careers and Glenn's diverse workforce.

By S. Jenise Veris



Photo by Marvin Smith
GRC-2018-C-02358

Dr. Su describes the effort of setting up camp on a dig.



Photo by Wayne Wong
GRC-2018-CN-00028

NASA technology booths draw a steady crowd at the Asian Festival.



GRC-2018-C002587

Glenn Remembers the Fallen

Glenn employees assembled at the flag pole outside of the Administration Building, May 24, to participate in the annual Memorial Day Observance conducted by the Veterans Awareness Committee. Plum Brook Station Director David Stringer delivered a quote from President Abraham Lincoln's Gettysburg Address given at the dedication of the Soldiers' National Cemetery honoring those who died in the Civil War. He called on us to remember the men and women who made the ultimate sacrifice and our responsibility as civilians to do our part in the fight to preserve and protect our Union—the United States of America.

Stringer, far left, joins Dr. John Betterson, Supply Management Specialist and Tom Hartline, Glenn's Facilities, Test & Manufacturing director, in a salute to the fallen after placing a wreath at the flag pole.

Photo by Marvin Smith

Event Features Stamp Dedication, Post-Mission Briefing

NASA Glenn employees gathered in the MIC auditorium, May 29, for a special event commemorating the spirit of space exploration: a Sally Ride Stamp Dedication ceremony and post-flight mission briefing by NASA astronaut Randy “Komrade” Bresnik.



Photos by Rami Daud
GRC-2018-C-02801

Dr. Kavandi, right, and Bresnik join Young, far left, on stage to unveil the Sally Ride commemorative stamp.



GRC-2018-C-02804

Bresnik explains how he and fellow astronauts adapted to an extreme weather training exercise.

Center Director Dr. Janet Kavandi kicked off the event with personal reflections of Sally Ride, America's first woman astronaut, and highlights of Ride's career as a pioneering astronaut, brilliant physicist and dedicated educator. Following a biographical video of Ride's contributions, Northern Ohio U.S. Postal Service District Manager Sharon Young provided remarks and unveiled the Sally Ride "Forever" commemorative stamp. The stamp features a colorful portrait of Ride in her light-blue space suit with a dramatic depiction of a space shuttle lifting off in the background.

Bresnik followed with an in-depth video presentation of Expedition 52/53—from training to mission completion—that was both informative and entertaining. His presentation allowed the audience to share his admiration for crew collaboration and ground communications. These areas are critical to life and work aboard station, and enabled Bresnik to view his newborn daughter 254 miles below on Earth.

By S. Jenise Veris



Best paper honorees, left to right, are Arend, Hearn, Gazzaniga, Hirt, Wolter and (inset) Hardin.

AIAA/INPSI Best Paper

Six members of NASA Glenn's Propulsion Division received an American Institute of Aeronautics and Astronautics (AIAA) Best Paper Award presented at the 2018 AIAA Aerospace Sciences Meeting, AIAA SciTech Forum. The AIAA Inlets, Nozzles, and Propulsion Systems Integration Technical Committee selected the team's paper: "Performance Calculations for a Boundary-Layer-Ingesting Fan Stage from Sparse Measurements." The co-authors include Stefanie Hirt, John Wolter, David Arend and Tristan Hearn, with contractors Larry Hardin (UTRC) and John Gazzaniga (ZINT).



Guest speaker U.S. Secretary of Transportation Elaine Chao, with honoree Vyas, and FAPAC President Olivia Adrian.

Outstanding Individual Leadership Civilian Award

Manan Vyas, Inlets and Nozzles Branch, received the Federal Asian Pacific American Council (FAPAC) Outstanding Individual Leadership Civilian Award on May 17. The award recognizes Vyas as an exemplary individual who has demonstrated sound leadership and a highly effective means of promoting equal employment opportunity, affirmative action and diversity.

Orientation Sessions Welcome Summer Staff

NASA Glenn welcomed 218 summer interns and faculty during Higher Education 2018 Summer Internship orientation sessions, June 4 and 11. Glenn's Office of Education hosted the sessions that provided information on such topics as personal protective equipment, counterintelligence/counterterrorism and diversity and equal opportunity. Deputy Center Director Dr. Marla Pérez-Davis gave a center overview and encouraged students to "learn, but also make a contribution" during their time here. Pictured: Logistics Operations Manager (NASA Academy) Johnny Lopez, right, along with previous interns and current employees Diana Chan, left, and Christine Staschiak, served on a Tips for Success panel.



GRC-2018-CN-00029

Photo by Doreen B. Zudell

Farmers Market

Mark your calendar for the next Glenn Farmers Market on Tuesday, July 17, 10:30 a.m. to 1:30 p.m., Lewis Field Picnic Grounds.

Purchase fresh produce, homemade goods and more! Food trucks will be available. Some vendors only accept cash.

POC: Gabrielle Albrigo, 3-6313

Aerospace Toastmasters Club

Learn leadership and public speaking in a professional, friendly and encouraging atmosphere.

Aerospace Toastmasters meets every Thursday from 12:05 to 12:50 p.m. in building 54, room 101. Summer interns and staff welcome. See you there!

POC: Dale Force, 3-3520

Prayer Group

Are you here at Glenn for the summer? Are you looking to connect with the Glenn community and have some fellowship?

There are a number of prayer groups and Bible studies and they are all open to new members. Visit our website and check out the list of ongoing Christian activities.

www.grc.nasa.gov/prayergroup/

All are welcome!



Hinshaw

RETIREMENTS

Michael A. Heryak, Systems Management and Operations Branch, Facilities Infrastructure Division, retired June 1, 2018, with 27 years of service.

Thomas J. Hinshaw, Systems Management and Operations Branch, Facilities Infrastructure Division, retired June 30, 2018, with 31 ½ years of service.

Doris Tirone, Office of Human Capital Management, Capital Management and Consulting Division, retired May 31, 2018, with 25 years of federal service, including 7 ½ years with NASA.

MORE THAN A MEMORY

Dr. Zhu Leaves an Illustrious Legacy

Dr. Dongming Zhu, 55, a senior materials research engineer in Glenn's Environmental Effects and Coatings Branch, died suddenly, May 30. During Zhu's 24-plus years of federal service, including 16 years as a U.S. Army civil servant, he made significant contributions.

Zhu was internationally recognized in the area of turbine engine coating technology. Some of his accomplishments include a laboratory simulated turbine engine high-heat-flux environment testing and developing capability; turbine coating processing including establishing advanced Plasma Spray-Physical Vapor Deposition; and high heat flux thermomechanical fatigue-environment testing and modeling, to name a few.

Well-respected in the field of materials, Zhu earned the rank of fellow in both the American Ceramic Society and ASM International. He held five patents on thermal and environmental coatings. He earned an R&D 100 Award, Asian American Engineer of the Year and NASA's Exceptional Space Act Award and Exceptional Technology Achievement Medal.

Zhu was not only revered for his intellect, but also for his humble personality. "He set very ambitious goals for himself and worked tirelessly to achieve them," said Joyce Dever, deputy chief, Materials & Structures Division. "His innovativeness, determination and dedication will be missed."



Dr. Zhu



Herman

John R. "Jack" Herman, 90, a 1994 retiree with 31 years of NASA service, died May 25. Herman joined the NASA workforce as a program analyst and key contributor to the success of two major spaceflight programs. He managed various aspects of Centaur, the upper stage rocket and workhorse of the Launch Vehicles Program (1963 through early 1980). He later transferred to the Resources Analysis and Management Office, where he supported the Advanced Communications Technology Satellite (ACTS) Project, one of the most revolutionary breakthroughs in space communications history.

Upcoming Center Events



2018 Center Picnic Thursday, Aug. 23

11 a.m. to 2 p.m.

Lewis Field Picnic Grounds

Rain Date: Friday, Aug. 24
(same time and location)

Come enjoy lively music, picnic fare and
fun activities with your co-workers.

Registration begins Wednesday, July 18!

Retirees:

You are cordially invited to attend, so spread the word.
For more details and to register, retirees may call
Barbara Madej at 216-433-2305.

Employees:

Check *Today@Glenn* for registration details.

POC: Betsy Lavelle, 216-433-3198



Family Day Saturday, Aug. 25

9 a.m. to 5 p.m. at Lewis Field

Register by this Wednesday, July 18!

Current employees (civil servants and contractors) and
their guests are invited to a fun-filled day of facility tours
and activities! Ten amazing facilities will be open,
including the hangar, Zero-G drop tower and
Aero Acoustic Propulsion Lab (AAPL).

See *Today@Glenn* for details and staffing opportunities.

POC: Dovie Lacy, 216-433-5163



GSEL MOBILE LIBRARIAN

The Glenn Science and Engineering Library (GSEL) Mobile Librarian will be visiting OAI through July 19, and building 5 from July 31 to Aug. 9. A Glenn reference librarian will be ready to assist employees with subject searches, finding specific books and articles and other information needs on the spot.

POC: Robin Pertz, 3-5776

AUGUST OUTDOOR SIREN TESTING

The Emergency Management Office staff will conduct an outdoor mass notification "voice" test at building 6 on Wednesday, Aug. 1 at Lewis Field. An audible siren test on the "lock-down" tone will be conducted on Saturday, Aug. 4.

POC: Allen Turner, 3-6826

IFPTE LOCAL 28, LESA MEETING

LESA will hold its next membership meeting, Wednesday, Aug. 8, noon, in the Glenn Employee Center's Small Dining Room.

ACTS BANQUET

Reservations and full payment (cash/check) for the Sept. 14, ACTS 25th Anniversary Banquet are due on Wednesday, Aug. 8. The event will be held at the West Side Irish-American Club, Olmsted Township, 5 to 10 p.m.

For more information, and to get on the email list, contact Alan Hewston at Alan.W.Hewston@nasa.gov, 216-433-3556, or Kathleen Kelley at Kathleen.A.Kelley@nasa.gov, 216-433-5180.



Photo by Doreen B. Zudell
GRC-2018-CN-00021



Photo by Doreen B. Zudell
GRC-2018-CN-00022



Photo by Rami Daud
GRC-2018-C-02565

National Lab Day Promotes STEM Careers

Students from Cuyahoga, Erie and Lorain counties participated in NASA Glenn's 2018 National Lab Day, geared to inspire grades 6 to 8 students to become interested in the science, technology, engineering and mathematics (STEM) fields.

On May 16, Plum Brook Station welcomed 90 students for a day of hands-on activities, facility tours and a rocket launch carrying student-designed payloads. Two days later, Glenn's Office of Education (OE) hosted 192 students at Lewis Field to participate in facility tours, a design challenge and career exploration stations. Special thanks to employees from both campuses who organized and staffed these events!

At top left: Students from Horizon Science Academy, Lorain, participate in a Space Communications Challenge at Plum Brook Station.

At left: Eighth graders from Vermilion Local Schools discover that their egg payload survived after being launched to over 1,000 feet in a rocket at Plum Brook Station.

At bottom left: OE facilitators Roger Storm, second from left, and Tara Strang, far right, help students test their straw truss structure during the engineering design challenge at Lewis Field.

Below: James Mullins shares highlights of the Altitude Combustion Stand at Lewis Field.



Photo by Rami Daud
GRC-2018-C-02526

Emergency and Inclement Weather Lines

Lewis Field: 216-433-9328 (WEAT)
Plum Brook Station: 419-621-3333

Connect With Glenn

