

Distinguished Lecture: Dr. Marie Lathers

Dr. Marie Lathers, author and Treuhft Professor of French and Humanities in the Department of Modern Languages and Literatures at Case Western Reserve University, captivated an audience on the trials and tribulations of women astronauts portrayed in films, both on the earth before they leave, and in space once they arrive. Her fascinating lecture that held the attention of the 30+ attendees was a joint event with the Ohio Aerospace Institute on May 31, 2017.

Dr. Lathers both entertained and educated us on women in outer space portrayed on the big screen from as far-reaching as 1929 to near-present day in 2013 with references including but not limited to Friede, director Fritz Lang's *Woman in the Moon*, *Barbarella*, Roger Vadim's sexpot in space, *Ellie Arroway*, of *Contact*, and *Ryan Stone*, the less memorable spacewoman of *Gravity*. She identified Ridley Scott's movie *Alien* (1979) as the first modern film to take seriously the role of women in space and suggests that the Space Race for women, beginning with the Mercury 13 in the 1960s, was both reflected in and furthered by films.



Dr. Marie Lathers captivated an audience of over 30 attendees at the Ohio Aerospace Institute.

Dr. Lathers received her Ph.D. from Brown University in 1989 and then taught for 12 years at Iowa State University before coming to Case Western Reserve University (CWRU) in 2001.

She has written two books about French literature and art, as well as the book *Space Oddities: Women in Outer Space in Popular Film and Culture, 1960-2000* (2010). She has also published numerous articles in academic journals, and a translation from French into English of a book on African theater. She has received several grants from the National Endowment for the Humanities and a Fulbright Award to spend 2008-09 in Cameroon. She teaches French culture and literature, women's studies, and general humanities courses in English, one of which is on the topic of women in outer space movies. She also holds an MA in English literature from CWRU. She is currently working on another novel.

Following her well-received lecture lasting nearly an hour, the attentive audience engaged Dr. Lathers with a variety of questions... from those that reached back to the early and historical women-in-films debut of *Woman in the Moon* (Germany, 1929) to the recent release of *Gravity* (2013).



Dr. Marie Lathers providing an entertaining lecture on women in outer space as portrayed in films.

Section Chair Welcome



Hello Northern Ohio Section.

I would like to introduce myself to you as your new Section Chair effective June 1, 2017. Local sections are where the action begins... and I will strive to inspire, support and guide each of you and our section as a whole to be a vital link to the aerospace community and to advance the future of aerospace at a grass roots level.

I'm passionate about many aspects of aeronautics including skydiving, recreational flying, powered hang gliding, paragliding, ultra-lighting, gliding and more. I worked on the KC-135 jet engine for many years in the USAFR, I tested a variety of engines including jet engines as well as Stirling engines for many years at NASA, and now I'm working in NASA Aeronautics to merge advancements driven by the non-aeronautics world with traditional aeronautics disciplines to unearth new possibilities for commercial aviation.

It is my privilege to serve you as the Northern Ohio Section Chair, thank you for this opportunity.

Peggy Cornell
AIAA Northern Ohio Section Chair

2017 Cleveland Auto Show Event

A special event hosted by SAE Cleveland at the Grand Ballroom at the I-X Center focusing on the recent development of the 2017 Acura Hybrid NSX, the only super car to be built in the United States and right here in Ohio.

First, a presentation was given by the R&D department detailing all of the design features of the vehicle. They began by discussing the multi-material structure that was created using advanced manufacturing techniques that made the car very lightweight without sacrificing rigidity. They then went over the aerodynamic design and how the car manipulates the incoming air to cool some of the engine components as well as provide a downward force to improve stability at high speeds. This leads to exceptional performance as well as high efficiency. After that, they discussed the dynamic capabilities of the car and how it utilizes torque-vectoring to make remarkably tight turns at high velocities.

Finally, the racing team talked about how they were involved in the development of the vehicle at every step of the process. Their feedback allowed the engineers involved in this project to make adjustments to optimize the overall design so that it could handle more naturally on the racetrack as well as off. To wrap things up, they showed the intense dashcam footage from their race up Pikes Peak in Colorado. This was footage was not for the faint of heart!

(Text and photos courtesy of Kevin Eliason)



AIAA NOS 2017 Honors and Awards Picnic

On August 2, 2017, the AIAA Northern Ohio Section (NOS) gathered at the NASA Glenn Research Center (GRC) Picnic Grounds to recognize award recipients and celebrate the accomplishments of the past year. As the event commenced, approximately 45 participants had the opportunity to spend some time socializing, renewing acquaintances, and enjoying a wonderful picnic dinner comprising barbequed ribs, brisket, pork, chicken, and side dishes catered by [Famous Dave's Bar-B-Que](#). We were honored that our Region III Director, Dan Jensen, accepted our invitation to the picnic and arrived safely from Indiana to join us and partake in the event. Following the meal, honorees were recognized.

To view additional photos taken during the festivities, please visit the link below to the photo album posted on the AIAA NOS Facebook page:

[Photo Album: AIAA NOS Awards & Honors Picnic 2017](#)

AIAA NOS Honorees Listing:

- AIAA 2017 Aerospace Power Systems Award: Thomas W. Kerslake (NASA Glenn Research Center)
- AIAA 2016 Sustained Service Award: Sanjay Garg (NASA Glenn Research Center)
- AIAA 2017 Associate Fellows:
 - Jonathan Burt (NASA Glenn Research Center)
 - Victor A. Canacci (Jacobs Aerospace & Technology Inc)
 - Ann O. Heyward, (Ohio Aerospace Institute)
 - Kevin J. Melcher (NASA Glenn Research Center)
 - Michael L. Meyer (NASA Glenn Research Center)
 - Gerard E. Welch (NASA Glenn Research Center)



From left to right: Roger Tokars (Young Professionals Chair), Jim Gilland (Past Chair) with daughter, Geoffrey Landis (Honors & Awards Chair), Christine Pastor-Barsi (Vice Chair), Al Juhasz (Technical Chair), Peggy Cornell (NOS Chair), Jonathan Litt (Secretary), Dan Jensen (AIAA Region III Director), and Edmond Wong (Communications Chair).



Congressional Visits Day 2017

Each spring, AIAA hosts an event in Washington, D.C., called Congressional Visits Day, or CVD, to educate members of Congress on public policy issues involving the aerospace community. Issues range from STEM education, technology transfer, to Sequestration. Ohio always has a strong team and this year was no exception.

This year, Team Ohio 2017 consisted of four students (representing Kent State University, which has recently started a student section, and the Ohio State University) and two professionals. Of these attendees, two were Northern Ohio Section members: Amber Abbott-Hearn and Dr. Michael Heil. During CVD2017, Team Ohio visited all of the 18 Ohio U.S. Congressional members, speaking with either legislative aides or the Congressional members themselves. The meetings reaffirmed that the policies that the aerospace

community generally supports are supported by Ohio U.S. Congressional members.

Please consider joining Team Ohio for CVD 2018 in March 2018! Please contact Amber Abbott-Hearn at amber.abbott@gmail.com for more information.



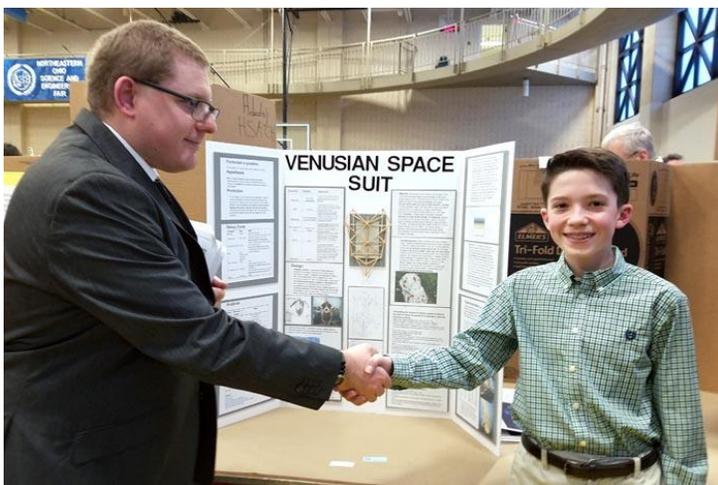
Left to right: Mike Heil, Jillian Yuricich, U.S. Senator Sherrod Brown, Amber Abbott-Hearn (NOS Public Policy Chair), Kayleigh Gordon, and Brian Munguia.

Northern Ohio Section Judged and Sponsored Special Awards for Area Science Fairs

In March 2017, AIAA NOS continued its support of the Northern Ohio regional science fairs. Each year NOS offers \$400 in prizes for Aerospace related projects, which are judged by volunteers members of the section.

The Northeastern Ohio Science and Engineering Fair (NEOSEF) took place March 7, 2017 at John Carroll University. The judges awarded 6 prizes, totaling \$200 to students in grades 7-12th. The judges were: Kevin Melcher (NASA GRC), Aaron Schinder (NASA GRC), Kyle Johnson (NASA GRC), Kevin Eliason (HX5-Sierra), David Sagerser (retired). The winners of the first place awards of \$50 were:

- Benjamin Stuk, grade 7-8, Ballard Bray Middle School, Venusian Space Suit
- Daniel Anand, grade 9-10, Home School, Biomimicry inspired designs for capillary flow and contact angle in microgravity

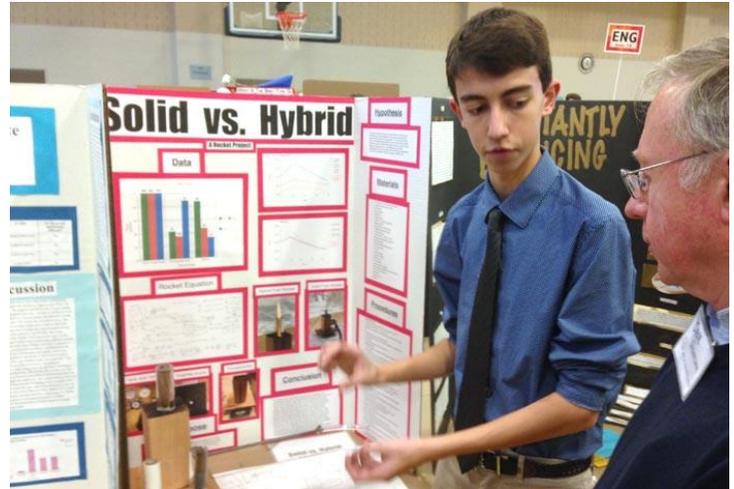


Benjamin Stuk (Ballard Bray Middle School) congratulated for his first place award by AIAA NOS judge Aaron Schinder (NASA GRC).

The second place awards of \$25 went to:

- Austin Bissel, grade 11-12, Mentor High School, Design an EmDrive to test thrust anomaly
- Antonion Linek, grade 9-10, West Geauga High School, Solid vs. Hybrid
- Rahul Jagetia, grade 11-12, University School, Designing of a T-tail horizontal tail airfoil
- Alex Kmetko, grade 7-8, University School, Take flight: environmentally friendly materials for parachutes

The Northwest Ohio District 2 Science Day (NWDSD) took place on March 11, 2017 at the University of Toledo. The judges, who awarded 6 awards (3 per age category) totaling \$200, were Julie Kleinhenz (NASA GRC), Luis De la Vega



Antonion Linek (West Geauga High School) explaining his project to AIAA NOS judge David Sagerser.

(University of Toledo), David Friedlander (NASA GRC), and Rex Delventhal (NASA GRC). The winners of the first place awards of \$50 were:

- Mark Semro, grade 5-6, May the Frictional Force be with You
- Elijah Gladden, grade 7-10, Descent of a Parachute

The second place awards of \$25 went to

- Jillian Frost, grade 5-6, We are the Crystal Gems
- Paige Yustick, grade 5-6, More that your score can increase while gaming
- Jimmy Duwve, grade 7-10, Increasing Legroom in Commercial Airplanes
- Christopher Ferguson and Elliot Wannemacher, grade 7-10, Experimental vs Theoretical Probability Using the Game 'Risk'

Congratulations to all the awardees and a big THANK YOU to the judges for volunteering their time.



The Northeastern Ohio Science and Engineering Fair (NEOSEF) took place March 7, 2017 at John Carroll University.

AIAA Northern Ohio Section Provides Tour of NASA Glenn Research Center to Area College Students

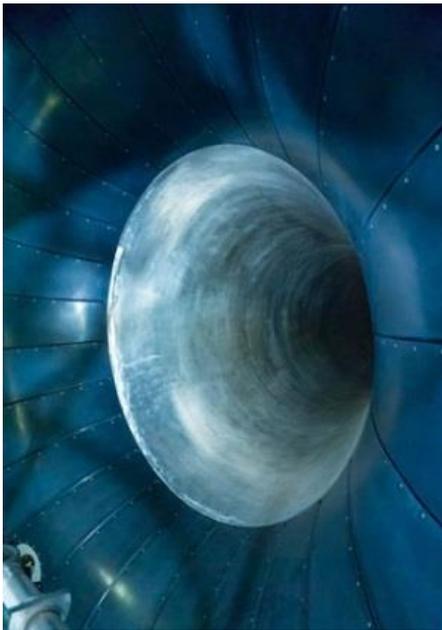
The AIAA Northern Ohio Section supported a tour of NASA's Glenn Research Center (GRC) facilities for area AIAA college members on March 15th, 2017. The tour was organized by Joseph Connolly (NOS University Chair) and serves as one of the primary recruiting events for new chapter members. This year, approximately 16 students participated. AIAA NOS coordinated with facilities engineers for a tour that included the Propulsion Systems Laboratory (PSL), the Electric Propulsion Laboratory (EPL), and the Propulsion Controls Simulation Laboratory. In addition, participants were given a presentation on NASA Glenn's Biomimicry Initiative by Amanda Vondeak. To conclude the tour, Lance Foster provided a lecture on leadership and the multiple paths to an engineering career. The facilities gave the students insight into the diverse research activities being conducted at NASA Glenn. *(Photos courtesy of Edmond Wong)*



NASA GRC's Propulsion Systems Laboratory (PSL).



AIAA NOS College members touring NASA GRC's Electric Propulsion Laboratory (EPL).



NOS Judging at AIAA Region III Student Conference

The American Institute of Aeronautics and Astronautics (AIAA) held its Region III Student Conference on March 24–25 at the University of Michigan in Ann Arbor, Michigan. The conference brought in 52 students from 11 universities, as well as NASA and industry members, including Lockheed Martin, Rolls-Royce, and Williams International.

Northern Ohio Section Chair, Peggy Cornell, supported the event by judging the undergraduate and graduate level formal presentations for technical content and communication skills. Monetary prizes were awarded to the top three winners in each category. Tours of the Aerospace Engineering labs at the University of Michigan were also given during the conference. The judges provided feedback and constructive criticism for the students during this STEM event to help them further develop their presentation skills and self-confidence.



Judges for the Region III Student Conference (left to right): Thomas Mirowski, Jeff Herbon, Peggy Cornell (NOS Chair), Jon Vartanoff (Head Judge), Karen Albrecht, George Placinta, Dan Jensen (Region III Director), Janice Gong, John Zipay (NASA JSC), Dustin Moyer.

AIAA Northern Ohio Section Concludes Mentoring Program

The AIAA Northern Ohio Section recently concluded a follow on pilot of the AIAA mentoring program that was developed to help provide guidance to the AIAA student members as they navigate the transition to professional members, and to provide an opportunity for more senior AIAA professional members to support the development of the future aerospace workforce.

The program began in September 2016 with an email soliciting student members interested in being mentored, and support from professional members willing to serve as mentors. The response to that process was 7 mentees and 7 mentors who were subsequently paired with each other based on a reviews of profiles submitted by each of the participants. An orientation/kick-off event was held on 10/11/2016 at an area restaurant. Subsequently, mentoring plans were developed, reviewed and accepted, and the

mentor-mentee pairs began meeting 1 to 2 times per month to implement their plans. Progress was monitored through monthly status reports submitted by the participants, and at a social at the 2/13/2017. A mid-term tag-up meeting on 3/8/2017 and a Tour of NASA Glenn on 3/15/2017 were used to provide feedback to the participants regarding their reports, as well as to solicit feedback about the program processes. Finally, program close-out event was held on 4/24/2017, and an overview of the program goals, demographics, lead observations, and thoughts on moving forward were given.

NOS currently plans to continue the Mentoring program in the fall of 2017 with a new group of student mentees. Furthermore, NOS is looking to help other sections create mentoring programs by sharing the Section's experiences and resources with them.

AIAA Engineer’s Week

In February, as part of the AIAA Engineer’s Week, Paul Hoyt Nelson conducted an hour-long talk on the NASA Unmanned Traffic Management (UTM) project for the Lockheed Martin (LM) Rotary and Mission Systems staff at their facility in Akron Ohio. Paul is the Integration Manager for Cybersecurity and Communications in the Airspace Operations and Safety Program (AOSP) office in NASA Aeronautics Research Mission Directorate and is an experienced Systems architect with a strong focus in cybersecurity law enforcement, technical research, operations, program management, and policy development. The talk titled “Safely Enabling UAS Operations in the Low-Altitude Airspace,” provided an overview of the UTM project and its goals, as well as the integration into the FAA’s efforts in Unmanned Aviation Systems (UAS) regulation and safety management. The talk was well attended by a majority of the approximate 120 facility staff members, with questions both during the presentation and in a short Q&A afterward.

During a detailed tour of the LM facilities, the dirigible operations were highlighted. It was interesting to see the impacts UTM might have on those operations domestically, and how these novel low altitude operations have to be considered in the research. For the talk itself, the overall progression of UTM research and development was described as in the figure below. This describes the increasing level of capability of the UTM systems, both in the service it provides and in the size and complexity of the environment it supports.

In its final research version, as described in Capability 4, UTM will support a variety of operational modes for UAS, as well as the more complex issues of high vehicle density and integration into urban environments. More information is available on the UTM website: <https://utm.arc.nasa.gov/>

NASA Glenn Conference Day

AIAA NOS Secretary Jonathan Litt made a presentation entitled, “Professional Societies—Importance to Your Career and Professional Life,” to over 50 NASA Glenn Summer Interns as part of Conference Day on June 29th.



AIAA NOS Secretary Jonathan Litt presents to summer interns at the NASA Glenn Conference Day.

The purpose of the presentation was to introduce the interns to the benefits of participating in Professional Societies, including publishing, career development, and networking, among others things.

The presentation was made under the auspices of the American Institute of Aeronautics and Astronautics Northern Ohio Section. Helping out with the presentation were Peggy Cornell, current Chair of the NOS, and NASA Intern Erin Tesny, who is the NOS Membership Chair. Audience members were encouraged to describe their Professional Society involvement, which resulted in a broad range of positive experiences being related. Afterward, several students stayed to ask questions and pick up AIAA membership literature.

UTM Technical Capability Levels (TCLs)



<p>CAPABILITY 1: DEMONSTRATED HOW TO ENABLE MULTIPLE OPERATIONS UNDER CONSTRAINTS</p> <ul style="list-style-type: none"> – Notification of area of operation – Over unpopulated land or water – Minimal general aviation traffic in area – Contingencies handled by UAS pilot <p>Product: Overall con ops, architecture, and roles</p>	<p>CAPABILITY 3: FOCUSES ON HOW TO ENABLE MULTIPLE HETEROGENEOUS OPERATIONS</p> <ul style="list-style-type: none"> • Beyond visual line of sight/expanded • Over moderately populated land • Some interaction with manned aircraft • Tracking, V2V, V2UTM and internet connected <p>Product: Requirements for heterogeneous operations</p>
<p>CAPABILITY 2: DEMONSTRATED HOW TO ENABLE EXPANDED MULTIPLE OPERATIONS</p> <ul style="list-style-type: none"> • Beyond visual line-of-sight • Tracking and low density operations • Sparsely populated areas • Procedures and “rules-of-the-road” • Longer range applications <p>Product: Requirements for multiple BVLOS operations including off-nominal dynamic changes</p>	<p>CAPABILITY 4: FOCUSES ON ENABLING MULTIPLE HETEROGENEOUS HIGH DENSITY URBAN OPERATIONS</p> <ul style="list-style-type: none"> • Beyond visual line of sight • Urban environments, higher density • Autonomous V2V, internet connected • Large-scale contingencies mitigation • Urban use cases <p>Product: Requirements to manage contingencies in high density, heterogeneous, and constrained operations</p>

Risk-based approach: depends on application and geography 14

AIAA NOS Baseball Group Outing

On Friday June 23, a sold out group of 30 AIAA members, their families, and guests enthusiastically cheered on the Indians (even through a little rain) as they played the Minnesota Twins. Unfortunately, the Tribe didn't pull it off and we lost the game 5-0... but the energy and excitement from our Northern Ohio Section fans was high, and we all had fun at Dollar Dog Night regardless.

The entire group stayed through the whole game and was rewarded with a glorious fireworks show at the end. Many thanks to the efforts of Chris Pestak for reserving the tickets and leading the charge!



HELP WANTED

Volunteers Needed for Young Astronaut Day

For the past 25 years, NASA Glenn Research Center (GRC) and the Northern Ohio section of AIAA have hosted a STEM competition, Young Astronaut Day (YAD). Students from surrounding area schools, troops, and other organizations ranging from grades 1st – 12th compete in various hands-on competitive STEM activities. The goal is to give students the opportunity to solve engineering and scientific problems. This year's event will be held at NASA GRC on Saturday, October 28, 2017.

We are looking for volunteers that would like to help with this year's YAD event. Volunteers are needed to help with the engineering activities, coach student teams, and with various logistics like check-in. There will be 2 sessions of the event (8:00 am – 12:30 pm & 1:30 pm – 6:00 pm); volunteers are welcome for one or both sessions. Please contact Ashlie Flegel (ashlie.b.flegel@nasa.gov) to sign up.

Registration is also open for student teams until September 15, 2017. If you know of a school or group that is interested in participating, please direct them to <https://aiaanos.org/yad> to sign up. Teams will be selected by lottery on Sept 15.

If you have questions regarding the event, please contact Julie Kleinhenz (julie.e.kleinhenz@nasa.gov) or Ashlie Flegel (ashlie.b.flegel@nasa.gov).

NOS Council Opening: Public Policy Chair

The Northern Ohio is looking for an enthusiastic person to help all of us advance, improve, and connect in our field. Specifically, there is an opening on the Section Council in the following area:

Public Policy Chair

The Public Policy Chair organizes section public and political interactions, including national AIAA events such as Congressional Visits Day and August is for Aerospace, as well as state or local interactions (panels, information to local politicians if requested). Our section, and Ohio in general, has been quite active and successful in this arena in the past.

If you are interested or have further questions, please contact the Section Chair, Peggy Cornell (peggy.a.cornell@nasa.gov).

Volunteer Wanted to Lead Mentor Program

AIAA NOS is looking for an interested member to lead our mentoring program in its third year. Although the program's forms and processes are now well established, we are looking for someone to send email notices, help facilitate mentee-mentor pairing, and follow up with mentees to ensure they are able to accomplish their program goals. If you are interested, please contact Joseph.W.Connolly@nasa.gov.

Program Overview:

AIAA Objectives

- Maintain a global high-performing aerospace workforce by providing a formal mechanism for more senior AIAA members to share their wealth of experience and knowledge with future aerospace professionals.

Participant Objectives

- Those who participate as mentees will have the opportunity to develop skills and knowledge for professional growth, expand their professional network, and gain career advice from a source outside the mentee's current employer. Those who participate as mentors also gain an opportunity to share knowledge, build relationships, and contribute to the profession.

Participants

- Mentees should be young professionals, graduate students, or junior/senior level undergraduate students in aerospace fields.
- Mentors should be aerospace professionals with at least 10 years of experience. Mentors over the age of 35 and are in mid-career or senior-level positions (e.g. senior manager, department head, or subject matter expert) are preferred.

Get Involved!

Northern Ohio Section Officers and Council Members

Officers

Peggy Cornell	Chair	216-433-2748	peggy.a.cornell@nasa.gov
Christine Pastor-Barsi	Vice Chair	216-433-3867	christine.m.pastor@nasa.gov
Jonathan Litt	Secretary	216-433-3748	jonathan.s.litt@nasa.gov
Kevin Eliason	Treasurer	216.433.3541	kevin.p.eliason@nasa.gov
James Gilland	Past Chair	440-962-3142	james.h.gilland@nasa.gov

Council Members

Edmond Wong	<i>Communications</i>	216-433-8917	edmond.wong@nasa.gov
Geoffrey A. Landis	<i>Honors & Awards</i>	216-443-2238	geoffrey.a.landis@nasa.gov
Erin Tesny	<i>Membership</i>		erin.tesny@gmail.com
<i>Vacant</i>	<i>Public Policy</i>		
Julie Kleinhenz	<i>STEM K-12</i>	216-433-5383	julie.e.kleinhenz@nasa.gov
Al Juhasz	<i>Technical</i>	216-433-6134	albert.j.juhasz@nasa.gov
Joe Connolly	<i>University</i>	216-433-8728	joseph.w.connolly@nasa.gov
Roger Tokars	<i>Young Professionals</i>	216-433-8771	roger.p.tokars@nasa.gov
Maggie Kolovich	<i>Student Branch Representative(CSU)</i>	330-442-2713	maggiekolovich@gmail.com



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