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2016 USA SCIENCE & ENGINEERING FESTIVAL **RECAP REPORT**

GRAND FINALE EXPO: APRIL 16 - 17, 2016
WALTER E. WASHINGTON CONVENTION CENTER IN WASHINGTON, DC



2016 USA Science & Engineering Festival Recap Report

Founding and Host Sponsor: Lockheed Martin

Thank you for your generous support of the 4th USA Science & Engineering Festival. Our goal was to create the largest celebration of science and engineering in the United States, and we think it's fair to say: we did it – with your help!

The Festival took over the entire 2.3 million square feet of space at the Walter E. Washington Convention Center to inspire the next generation of our country's STEM workforce. Based on estimated numbers from the Convention Center, more than **365,000 people** attended over the 4 days (X-STEM and Sneak Peek Friday included)! This represents an increase of about 12% over the 2014 Festival (325,000 people attended). Many exhibitors reported that roughly 10,000 visitors stopped by their booth over the course of the 3-day Expo, and some said upwards of 70,000 passed through their booths! We had attendees representing all 50 states in the U.S., and even had international attendees from over 50 different countries.

Sneak Peek Friday, hosted by the Chevron, included **60,000+** students, teachers, military families, government officials and press – a 33% increase from 2014. We had attendees from 38 states. Saturday and Sunday brought in **150,000+** people each day!

Our X-STEM Symposium, hosted by MedImmune, was a huge success. With over 50 visionary speakers, X-STEM was attended by **more than 3,000** students and teachers from area and underserved schools, homeschoolers, and military families.

In addition, over **200,000 people** participated in our Nifty Fifty program, hosted by InfoComm International, the Traveling Festival, powered by Michigan Tech MindTrekks, and other pre-Expo events. Special events were held in advance of the Expo, including a private reception at Howard University in honor of the X-STEM program and a special Sponsor appreciation reception hosted by The Under Secretary of Defense for Acquisition, Technology and Logistics - Mr. Frank Kendall. The event was attended 200+ sponsors, VIP's and many key government officials.

Another **300,000 individuals** celebrated science & engineering at 200+ Satellite Events and Affiliate Festivals around the world.

We hosted many major STEM Professional Events at the Convention Center at the same time as our event, including the [U.S. Environmental Protection Agency \(EPA\) P3](#) college student competition. By partnering with these Organizations, the Festival engages other STEM professionals, administrators, VIPs, educators, top policy makers and others to actively participate in the Expo.



Thank you to our amazing [sponsors](#), including our **Founding and Presenting Host [Lockheed Martin](#)**, for helping us accomplish all of this and more! The majority of our sponsors also participated as Festival exhibitors and created some truly unforgettable moments for our attendees. Your support has made a lasting impact on so many people, including children who will remember the Festival as an introduction into the vast and exciting world of STEM. Thank you sponsors!

We would like to hear from you if we haven't already through our Exhibitor survey we sent out: what was your experience at the Festival? We would love to hear your thoughts and suggestions. Please complete the survey here if you haven't already:

<https://scholarnexus.wufoo.com/forms/exhibitor-feedback/>

4th USA Science & Engineering Festival – By the Numbers:

- 365,000 attendees over 4 days
- 3,000+ hands on activities
- 50+ live performances by science celebrities, explorers, best-selling authors, entrepreneurs and world-renowned experts
- 1,000+ participating organizations
- 2,000+ participating schools
- 1,000+ volunteers
- Science Celebrities including Grammy Award Winning They Might Be Giants; Big Bang Theory's Wil Wheaton; NASA astronaut Jessica Weir; Dinosaur Train's Scott Sampson, OCEARCH Shark Tracker Chis Fischer, Vlogbrothers Youtube sensation Hank Green, and many others.
- The Festival was attended by key Government and Administration officials such as Mr. Frank Kendall, Under Secretary of Defense; Megan Smith, Chief Technology Officer of the United States; Dr. Jo Handelsman, Associate Director for Science at the White House Office of Science and Technology Policy; David L. Goldfein, Vice Chief of Staff of the U.S. Air Force, Dr. Ellen Stofan, NASA Chief Scientist, and many other notable government figures (see below for more).

Festival Evaluations and Demographics:

The Festival drew a large, diverse audience of all ages, ethnicities and backgrounds, from professionals to novices, from science enthusiasts to the merely curious.

One of the ways we will measure the success of the 4th Festival is by gathering extensive feedback from sponsors, exhibitors/performers, volunteers and attendees by conducting formal surveys and analyzing the results, as well as informal outreach for testimonials and feedback to



determine how we can improve the Festival in the future. Based on the feedback that we collected and analyzed thus far, the 4th Festival was very well received! Below is a summation of this feedback to date:

- Exhibitors – We surveyed the 1,000+ organizations participating to rate the Festival overall (1=poor, 10=fantastic), and the average rating is **9.3**
- Performers – We surveyed the 50+ performers participating to rate the Festival overall (1=poor, 10=fantastic), and the average rating is **9.8**
- Attendees – We surveyed the Sneak Peek teachers (over 1,500) who signed up in advance and the general attendees had the option to complete an online survey. When asked to rate the Festival overall (1=poor, 10=fantastic), the average rating is **8.2**
- Volunteers – We surveyed the 850+ volunteers participating to rate the Festival overall (1=poor, 10=fantastic), and the average rating is **9.5**

We had an optional pre-registration form on the Festival website to ignite interest for the Expo, and had just about 36K people pre-register to attend. For statistical purposes, we asked for gender and ethnicity, although it was optional. We received a good response and are able to evaluate the breakdown of ethnicities and genders that the Festival served.

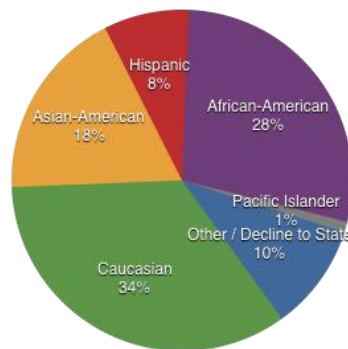
As this 10% pre-registration info translates to the 365K attendees, here is a demographic snapshot:

Gender Breakdown of Attendees:

The breakdown of male to female attendees was just about exactly 50/50.

Ethnicity Breakdown of Attendees:

- 34% Caucasian
- 28% African-American
- 18% Asian-American
- 8% Hispanic
- 1% Native American
- 1% Pacific Islander
- 10% Other/Decline to State



Age Range by Grade:

10 and Under	20%
Middle School/Junior High	22%
High School	18%
18+	40%



Geographical Breakdown by Region:

Greater Washington DC - 85%
(Includes DC, MD, VA, WV)

Northeast – 8%
(Includes CT, DE, MA, ME, NH, NJ, NY, OH, PA, RI, VT)

Southeast – 3%
(Includes AL, FL, GA, KY, NC, SC, TN)

Midwest - 1%
(Includes IA, ID, IL, IN, KS, MI, MN, MO, ND, NE, SD, WI)

South – 1%
(Includes AR, LA, MS, OK, TX)

West – 1%
(Includes AK, CA, CO, ID, HI, AZ, NM, NV, MT, UT, WA)

International – 1%
(Including Germany, France, England, Egypt, Canada, India, Greece, Pakistan, and many others)

Government Relations:

With the incredible help of K&L Gates, the 4th USA Science & Engineering Festival received tremendous government support, acknowledgment and endorsement. Leading up to the Festival, the U.S. Senate once again unanimously supported the efforts of the USA Science & Engineering Festival and passed S. Res. 411, designating the week of April 11 as “National Science & Technology” week. In the spirit of collaboration, the Festival worked with the White House to promote national awareness of STEM throughout the week, including participation in 2016 White House Science Fair on Wednesday, April 13th.

The Festival began on Thursday, April 14th, with our X-STEM Symposium, which was opened by remarks from Dr. Jo Handelsman, Associate Director for Science at the White House Office of Science and Technology Policy. Other high-level government officials who took part in X-STEM included, Major General Jackie Van Ovost, Vice Director of the Joint Staff at the Pentagon and Dr. Nora D. Volkow, Director of the National Institute on Drug Abuse (NIDA) at the National Institutes of Health.

The Friday evening sponsor appreciation reception held at the Women in Military Service for America Memorial and hosted by the Department of Defense (DOD), included more than 200 sponsors, VIP’s, dignitaries and high-level government officials. The reception opened with a



welcome address from The Under Secretary of Defense for Acquisition, Technology and Logistics - Mr. Frank Kendall, and featured several other senior DOD and government officials.

In addition, more than 50 major government officials and high level VIPs attended or participated directly in Festival events including Dr. Reginald Brothers, Under Secretary for Science and Technology, Department of Homeland Security; Stephen Welby, Assistant Secretary of Defense for Research and Engineering (DoD); Mary Miller, Principal Deputy Assistant Secretary of Defense for Research and Engineering (DoD); Maj. Gen. Jackie Van Ovost, Vice Director, Joint Staff, The Pentagon; Gen. David L. Goldfein, Vice Chief of Staff, U.S. Air Force; Christopher Thomas, Administrator of the Defense Technical Information Center (DoD); Dr. Melissa Flagg, Deputy Assistant Secretary of Defense for Research (DoD); Kristen Baldwin, Acting Deputy Assistant Secretary of Defense for Systems Engineering (DoD); Honorable Patrick J. Murphy, Acting Secretary of the Army; Congressman Randy Hultgren, U.S. Representative (IL-14); Dr. Ellen Stofan, Chief Scientist of NASA; Dr. Robert M. Califf, Commissioner of the U.S. FDA; Dr. Alberto Gutierrez, Director of the Office of In Vitro Diagnostic Device Evaluation and Safety, Federal Drug Administration (FDA); Dr. Ann Bartuska, Deputy Under Secretary for Research, Education, and Economics (USDA); Dr. Sonny Ramaswamy, Director, National Institute of Food and Agriculture (USDA); Dr. Anthony Fauci, Director, National Institute of Allergy and Infectious Diseases (NIAID - NIH); Dr. Nora Volkow, Director, National Institute on Drug Abuse (NIH); Dr. Jessica Meir, Astronaut, NASA; Dr. Kenneth Olden, Director, National Center for Environmental Assessment, U.S. EPA; Honorable LaDoris Harris, Director of the Office of Economic Impact and Diversity (DOE); Col David A. Slade, Director Acquisition Career Management, U.S Air Force; Dr. David E. Walker, Deputy Assistant Secretary, U.S. Air Force; Dr. Richard Spinrad, Chief Scientist, NOAA; Dr. Aprille Ericsson, Program Manager for Small Business Innovative Research and Small Business Technology Transfer Research, NASA Goddard Space Flight Center; Dr. John Brophy, Manager, NASA Jet Propulsion Laboratory; Dr. Richard Buckius, Chief Operating Officer, NSF; Dr. Joan Ferrini-Mundy, Assistant Director of the Education and Human Resources Directorate, NSF; Dr. Daniel Evans, Program Director, Division of Astronomical Sciences, NSF; Dr. Tina Bahadori - Chemical Safety Scientist, U.S. Environmental Protection Agency; Sgt. Arrick Jones, U.S. Army Mission Support Battalion; Dr. Deborah Bass - Mars Exploration Scientist, NASA's Jet Propulsion Laboratory; Dr. Joshua Bell - Anthropologist, Smithsonian National Museum of Natural History; Mr. Bobak Ferdowsi - Aerospace Systems Engineer, NASA's Jet Propulsion Laboratory; Dr. James Johnson Jr. - Environmental Scientist, U.S. EPA; Dr. Franklin Damann, curator, National Museum of Health and Medicine; Lonnie Price, Director, Office of Security Technology, U.S. Department of State; Herbert Jackson, Chief Administrative Officer, U.S. GPO; Elvis S. Cordova, Deputy Under Secretary for Marketing and Regulatory Programs, USDA; Dr. Dana Perkins, Microbiologist, U.S. Department of Health and Human Services; Dr. Richard Spinrad, Chief Scientist, NOAA; and NIH Director Francis Collins, among others.

In addition, hundreds of Legislative and White House staff members came to the Expo.



Media Coverage:

In an effort to drive attendance to the Festival, we developed a four-prong media strategy—focused around the Washington, DC/Baltimore markets—to generate pre-event coverage. In addition, NBC4 came on board as the official television media partner of the Festival for 2016, further extending the reach of the Festival.

The strategy was highly successful, resulting in significant pre-event and onsite event coverage that helped spark interest in, and awareness of, the event, including a 100%+ increase in website traffic over the 2014 Festival.

More than 60 press members checked in over the four days, resulting in broad exposure for the X-STEM Symposium, Sneak Peek Friday and 2-day Festival throughout the local community and beyond.

Media Stats at a Glance:

- 5 billion viewership/readership from press on Festival-related news
- 700+ stories written, recorded or broadcast about Festival, not including coverage by the 1,000 partner organizations in their trade and internal press
- 80+ postings to electronic calendars and media outlets
- 40+ bloggers contacted
- 70+ calendars / blogs featuring the Festival
- 30 schools targeted for Nifty Fifty Program
- 17 articles featuring Nifty Fifty Program
- 6 radio interviews
- 4 morning talk show features
- 18 tailored pitches to local media
- 6 local media features on Sneak Peak
- 18 releases / media advisories written and distributed
- 60+ reporters covering the Festival in person

Most of these figures should be considered "minimums" as there were undoubtedly instances of postings or other features of which we are unaware.

The Festival kicked off with a press conference and ribbon cutting ceremony on Sneak Peek Friday on the main Curie Stage at the Convention Center. Speakers included Dana (Keoki) Jackson, VP and Chief Technology Officer (CTO), Lockheed Martin; Marc Schulman, Executive Director, USA Science & Engineering Festival; Blair Blackwell, Manager of Education and Corporate Programs, Chevron; and Samuel R. Thomas, Jr., Senior Vice President, Events DC. The ceremony concluded with remarks and the ribbon cutting ceremony by Festival founder Larry Bock's daughter, Tasha Bock, and included roughly 20 students onstage to showcase the importance of STEM to our future generations.



Sneak Peek day brought out dozens of reporters (and resulted in more coming out during the weekend). Notable among these was:

- WJLA: Story that ran in its afternoon/evening news
- NBC4: Interview with Marc Schulman from the floor
- [Examiner.com](#)
- [WTOP](#)
- [US News \(1\)](#)
- [US News \(2\)](#)

Tailored Pitching:

The Festival media team developed and pitched relevant stories ideas and angles to interest a variety of national and local media outlets and beat reporters to include:

- [Washington Post KidsPost Section](#)
- [Comcast Newsmakers with Chris Nelson](#)
- [Washington Post Express](#)
- [NBC4 online](#)
- [NBC4 Viewpoint](#)
- NBC4 Series of interviews from Convention Floor with Steve Spangler, Wil Wheaton, Doktor Kaboom, and Grand Hank
- Sirius XM: Ten interviews with different sponsors/speakers for its kids show
- We also ran an 8-page supplement in the Washington Post with the theme “The Future of STEM” and included features of many Festival stars like Grammy Award Winning They Might Be Giants, NASA Astronaut Dr. Jessica Meir, Woods Hole Oceanographic Institution’s Dr. Anne Cohen, creator of the #HipHopEd movement, Chris Emdin, Lockheed Martin’s Stephen Frick and many others. View the supplement by [clicking here](#).

Other media highlights include:

Calendar Listings:

The Festival was included in nearly 500 print and electronic calendars. Our team secured media advisories to get the Expo, Nifty Fifty, and X-Stem events on media and event calendars, resulting in inclusion in magazines like *Where* and *DC Modern Luxury*, several parts of *The Washington Post* including the Weekend Section (first page), and numerous weeklies to include



(but are not limited to) the *Capital Gazette*, *Washingtonian*, and *The Washington Post's* Going Out Guide and Going Out Guide DC.

Online calendar postings included (but are not limited to) all local patch.com sites, *American Towns*, *Baltimore's Child*, *Chesapeake Family*, *DC Pages*, *Eventful*, *The Georgetown*, *Trip Advisor*, *Washington Family*, *Zvents*, local TV and radio stations, and over 50 mommy blogs.

Our efforts to attract attendees were bolstered by the Festival extensive pick-up in local calendars, including being selected as the Editor's Choice event by the *Washington Post* and the *Washingtonian*. The *Washington Post* also included prominent event mentions in these sections: Health, KidsPost, Going Out Guide, and Going Out Guide's Kids Newsletter. Also the local family magazine's also provided visible calendar listings including *Washington Parent*, *Chesapeake Family*, and *Washington Family* magazines.

Drive-Time and Community Affairs Radio Show Interviews:

Radio:

The Festival scheduled a variety of community affairs and drive time radio interviews to generate more buzz, including two on WTOP—the region's most listened to radio station. Here is a list of the most significant interviews:

- WTOP
 - Meeta Sharma from Techbridge for [NAE show](#)
 - Kids, Lockheed and Marc Schulman with reporter at Expo
- WPGC
 - Marc Schulman on Community Affairs show
- Fresh FM
 - USA Science Cheerleader
- El Zol
 - NASA bi-lingual executive, top rated Spanish language station
- WPFW
 - Marc Schulman live interview on MetroWatch

Morning Shows:

The Festival secured interviews on local morning/mid-day shows during the weeks leading up to event, including:

- [News 8's Let's Talk Live with Ann Makosinski](#)
- NBC4 with Chris Fischer, Ocearch
- [WJLA with Greg Gage](#)
- [WUSA with Jessica Meir](#)



Festival Activities:

Nifty Fifty Programs:

We secured coverage of more than 30 Nifty Events, and many articles resulted. Among these:

[Connection Newspaper](#)

[Alexandria News](#)

[Prince William Living](#)

[Centre View News](#)

[Falls Church News Press](#)

[Washington Post](#)

[City Biz](#)

[Montgomery County Sentinel](#)

[Baltimore Education Channel](#)

Woodbridge Patch

Baltimore Afro

[Prince George's County Sentinel](#)

NBC4: Covered two events (scheduled for 4, but 2 were canceled)

Media Partnerships:

We secured media partnerships with over 30 Organizations, which meant free advertising in TV, radio, web, print and social media. Media partners include Activity Rocket, American Association for the Advancement of Science, American Chemical Society, American Scientist, Career Communications Group, Inc., CBS Radio, C&EN, CrazyEngineers, Destination DC, Discover Magazine and Astronomy Magazine, DiversityComm, Engineering.com, Federation of American Societies for Experimental Biology, Forbes/Wolfe, IEEE-USA, Innovation & Tech, Meredith Parents Network (MPN), NBC4, Parents Magazine and Parents Latina Magazine, PENTON Media, Physics Today, Science Buddies, Science Channel, Scientific American, ser Padres, Sigma Xi, SiriusXM Satellite Radio and Teen Life.

The advertising from our generous Media Partners included Blog posts, E-Blasts and Online Event Calendar Listings, Facebook and Twitter posts, Full and half-page print ads, Print articles, Radio spots and Web banners. Full and half page ads in media publications, along with the social posts, web banners, editorials and dedicated email blasts exposed the Festival to a readership audience of over 50 million people!



NBC4 Television Media Partnership:

In the weeks leading up to the Festival, our official television media partner NBC4 delivered:

- 30-second Awareness Schedule on NBC4: 110 GRPS (74 spots)
- Watch an example of the 30-second commercial on [YouTube here](#).
- Cross Platform Digital Ads: 753,000 digital impressions including a Festival guide, eblast, plus mobile and desktop ads
- 30 second & 15 second Promotional Schedule on NBC4: 113 GRPS (66 spots)
- News Coverage in lead up and at the Festival with over 2 dozen on-air and online stories
- Interviews leading up to the Expo and onsite at the Convention Center including interviews with Festival Director Marc Schulman, Lockheed Martin's Stephanie Hill, Festival Performers such as Wil Wheaton, Doktor Kaboom, Grand Hank and much more!

***Overall reach over 4 million viewers**

**This number is to be taken at a minimum*

Social Media:

Our successful social media efforts for the 4th USA Science & Engineering once again helped to create awareness about the Expo Finale Weekend and our mission to stimulate and sustain the interest of our nation's youth in science, technology, engineering and math (STEM) by producing and presenting the most compelling, exciting, and educational Festival in the world. Our social media marketing strategies attracted followers with engaging content and promotion of our STEM outreach programs while driving attendance to the Festival Expo Finale.

In addition to our social push, our sponsors and exhibitors also posted on their social media channels in a grassroots effort to spread the word about the Festival. Our high profile Festival speakers and performers including Wil Wheaton, NASA Astronaut Dr. Jessica Meir, They Might Be Giants, Steve Spangler, Science Bob and others shared news about the Festival on their social media channels to increase our overall exposure. Festival videos, including a video created by Congressman Randy Hultgren, can be found on our [YouTube Channel here](#).

**See the [Media Highlights addendum](#) for a full breakdown of social media numbers including a reach of 200 million people during the month of the Festival with the #SciFest hashtag alone!*



School Programs:

Nifty Fifty (times 4), sponsored by InfoComm International

The USA Science & Engineering Festival’s “Nifty Fifty (times 4)” program, sponsored by InfoComm International, featured almost 200 noted professionals from top science universities, corporations, non-profit organizations and governmental agencies throughout the United States. Nifty Fifty speakers were selected based on their major impact on the field of science and engineering either through research or through other fields such as law, business, government and public service. Individuals spoke at various elementary, middle and high schools to groups of 150 – 500 students throughout the 2014-2016 school years about their work and career paths, aiming to inspire the next generation of STEM professionals. Seventy-five of our Nifty Fifty speakers participated at the X-STEM Extreme STEM Symposium in 2015 and 2016 (see X-STEM program detail below).

Key speakers who spoke at Nifty Fifty school events included delegates from the National Institutes of Health, Lockheed Martin, FDA, U.S. Environmental Protection Agency, U.S. Department of Defense, U.S. Air Force, Defense Advanced Research Projects Agency (DARPA), Harvard University, Columbia University, NASA, National Institute of Allergy and Infectious Diseases, Carnegie Institution for Science and Johns Hopkins University, in addition to many other elite speakers. An official Festival program host attended each Nifty Fifty presentation to ensure the program ran smoothly and to observe the speakers and student reactions and provide feedback to the Festival’s Co-founder, Larry Bock, for improving the program in the future.

The Nifty Fifty Program reached over 32,000 students throughout the greater Washington DC and surrounding areas as well as 2,000 students in Northern California. We collected feedback through an electronic survey sent to teachers and Nifty Fifty hosts who participated in the program. The overall feedback was very positive (see survey results below).

Below is a synopsis of the teacher survey results from the Nifty Fifty (times 4) program.

Teacher Feedback:

If you had to grade your speaker's presentation and ability to engage the audience, what grade would you give him/her?

Answer / Response Percent:

A	87.5%
B	12.5%



Do you think the Nifty Fifty talk was an effective way to get your students more interested in the sciences/engineering?

Answer / Response Percent

Yes	75%
To a certain extent	25%
No	0%

X-STEM Extreme STEM Symposium, sponsored by MedImmune

The **USA Science & Engineering Festival's 3rd X-STEM Symposium** was held on April 14, 2016 at the Walter E. Washington Convention Center in Washington DC. The 2016 X-STEM Symposium featured over 30 speakers representing top science universities, high tech and life science corporations, non-profit organizations and governmental agencies who spoke to an audience of middle through high school students in a "TED-style" format. This all day event featured multiple presentation sessions and workshops given by some of our nation's most respected individuals in science and engineering who spoke to audiences ranging in size from 100 to 1300. Student attendees had the opportunity to sit in on multiple engaging presentations and hands-on workshops. All X-STEM presentations were professionally filmed and will be downloadable from the Festival website at a later date.

The 2016 X-STEM Symposium was attended by more than 3,000 students, teachers, parents, military families, homeschool families and STEM enthusiasts.

Key speakers included delegates from the White House, U.S. Air Force, National Institute on Drug Abuse at the National Institutes of Health, NASA, Lockheed Martin, MedImmune, National Geographic, Blue Origin, OCEARCH, Festo, CyPhy Works, Woods Hole Oceanographic Institution, Caltech, MIT Media Lab and Columbia University, in addition to many other elite speakers.

We were joined by special guest speaker Dr. Jo Handelsman, Associate Director for Science at the White House Office of Science and Technology Policy. Dr. Handelsman delivered opening remarks to rally the crowd about the importance of the STEM fields as areas of education and career choices, as well as President Obama's interest in supporting opportunities in STEM for all students.

In an effort to celebrate the STEM luminaries participating at the X-STEM Symposium, over 19,000 X-STEM speaker trading cards were distributed to attendees at the event. Students collected and traded cards for their favorite X-STEM speakers. The Festival's concept of using trading cards to generate STEM excitement among kids was published last year in the Washington Post [here](#).



Here is a sampling of X-STEM speakers and their topics:

- **Patricia Bath, M.D.** - Growing up in Harlem, she had the undying dream to become a physician. Learn how she not only fulfilled that dream, but also made medical history as the inventor of the surgical procedure and device that revolutionized how cataracts are removed!
- **David Berman, M.D., Ph.D.** - Learn from the renowned physician-scientist and executive at MedImmune what the latest in immuno-oncology research is revealing in the fight against cancer!
- **Anne Cohen, Ph.D.** – She’s a scientist at the Woods Hole Oceanographic Institution who is hard at work save the world’s coral reefs from growing global acidity. Learn about this leading biogeochemist’s research on climate change and its impact on life in the ocean.
- **Christopher Emdin, Ph.D.** – This hip, exciting professor in the Department of Mathematics, Science and Technology at Columbia University has gained national attention for his genius in connecting kids in science through the rhythm and beat of urban hip-hop! Discover STEM in a new way through the magic of writing science raps and engaging in science rap battles!
- **Stephen Frick** – The career achievements of this former Navy fighter pilot and NASA astronaut include commanding the Space Shuttle Atlantis. Discover how his love of spaceflight is now taking on new dimensions in his current post at Lockheed Martin Space Systems!
- **Chris Fischer** – Get ready for an unforgettable experience with this Expedition Leader and Founding Chairman of OCEARCH as he takes you deep inside the world of the Great White shark using OCEARCH’s amazing Global Shark Tracker!
- **Carol Greider, Ph.D.** - This prominent molecular biologist at Johns Hopkins won the Nobel Prize in 2009 for her discovery of the key chromosomal enzyme, telomerase. Learn about this pioneering researcher's challenging road to her breakthrough discovery.
- **Nizar Ibrahim, Ph.D.** – He’s one of the fastest rising paleontologists on the international scene today. Let him take you inside his most noted achievements, including the discovery of one of the largest dinosaur bones ever unearthed in North Africa!
- **Geoffrey Ling, M.D., Ph.D.** - The career of this innovator and former Army officer includes developing revolutionary arm prostheses and novel approaches to treating traumatic brain injury on the battlefield. Discover his groundbreaking contributions spanning neuroscience, infectious disease, pharmacology research and battlefield medicine!
- **Ann Makosinski** - The story of this amazing 18-year-old student will inspire you! At the age of 15, she gained international attention for her invention of the Hollow Flashlight --



a flashlight that runs off the heat of the human hand. Discover what this innovation may mean for future energy-saving technologies!

- **Jessica Meir, Ph.D.** – Since childhood, she dreamed of becoming an astronaut. Now discover how that dream has become a reality for this marine biologist and recent graduate of NASA’s rigorous astronaut training program, and how she could possibly be selected to be among the first humans to travel to Mars!
- **Spyridon (Spiros) Michalakis, Ph.D.** - Explore the future of physics with this amazing quantum physicist from Caltech University who served as scientific advisor for the Hollywood movie, Ant-Man.
- **Maj. Gen. Jacqueline D. Van Ovost** – From serving as an Air Force command pilot, to her current position as Vice Director of the Joint Staff at the Pentagon, this military leader knows the key role that STEM plays in keeping the nation defense-ready. Discover how she is using her STEM background -- including her degrees in Aeronautical and Mechanical Engineering -- to maintain America's national security!
- **Nora Volkow, M.D.** – Why are youngsters in their teen years more vulnerable to drug addiction? The answer lies in a critical stage of brain development, says this pioneering research psychiatrist and Director of the National Institute on Drug Abuse at the NIH. Discover how adolescents can mitigate the risk!

The complete list of speakers can be found [here](#).

Attendee Feedback - Below is a synopsis of attendee survey results from the 2016 X-STEM Symposium:

Please rate speaker's presentation and ability to engage the audience (5 stars = Fantastic, 1 star = Disappointed):

Five Stars	57%
Four Stars	31%
Three Stars	9%
Two Stars	2%
One Star	1%

Do you think the X-STEM Symposium was an effective way to get you and/or your students more interested in the sciences/engineering?

Yes	94%
To a certain extent	6%
No	0%

Attendee Breakdown:

Breakdown of Attendees by School Type:
Public School 47%



Home School and Other	28%
Private School	18%
Military Family	6%
Science Magnet	2%

Breakdown of Attendees by Age/Grade Level:

MS (grades 6-8)	39%
HS (grades 9-12)	39%
Combination ES, MS, HS	14%
ES (grades 5 and lower)	5%
18 and over	3%

Breakdown of Attendees by Region:

Greater Washington DC	79% (includes DC, MD, VA, WV)
Northeast	10% (includes PA, CT, DE, MA, NE, NH, NJ, NY, OH, RI, VT)
Southeast	4% (includes AL, FL, GA, KY, NC, SC, TN)
Midwest	2% (includes IA, ID, IL, IN, KS, MI, MN, MO, ND, NE, SD, WI)
South	2% (includes AR, LA, MS, OK, TX)
West	2.6% (includes AK, CA, CO, ID, HI, AZ, NM, NV, MT, UT, WA)
International	.4%

Stay tuned for X-STEM videos that will be made available on our website shortly.

Traveling Festival – Powered by Michigan Tech Mind Trekkers:

We continued our two-year partnership with the [Michigan Tech Mind Trekkers](#) and took the Festival to five different stops in 2015/16. Events included the FIRST Robotics Competition (St. Louis, MO) and the National Boy Scout Jamboree (Summit Bechtel Reserve, WV). Through these efforts USASEF reached and enhanced its' exposure to over 100K additional national attendees, bringing our unique brand of hands-on outreach to other major STEM events across the United States.

Volunteers and X-STEM Ambassador School Program:

More than 1,400 student leaders, local scientists, engineers, STEM professionals, and parents joined the Volunteer Outreach Team to spread the word about the Festival.

We continued our X-STEM School program, creating a network of student STEM ambassadors who helped to further spread the message to their communities about the importance of the



Festival through our Volunteer Outreach program. Community and X-STEM Volunteer Ambassadors provided outreach to the community by promoting the Festival through their organizations, employers, libraries, and STEM events and we increased the number of X-STEM Schools by 20%. There are also certified X-STEM Schools representing 20 states. [Please click here to see the certified X-STEM Schools and learn more about their STEM outreach!](#)

The Festival X-STEM Ambassadors were eligible for free tickets to the 2015 and 2016 X-STEM Symposiums, priority registration for Nifty Fifty Speakers, discounted EXPO booths, and other Festival partner benefits.

Several Festival Ambassadors have gone before their school boards, PTSA's and community events to deliver persuasive presentations about Festival opportunities.

The Volunteer Outreach Team grew by leaps in bounds in 2015/16, delivering over 125K Festival bookmarks and 10,000 posters through individual conversations with their teachers, administrators, STEM leaders and organizations about the importance of science & engineering in America.

Over 650 volunteers supported the Festival Expo weekend, committing over 4,000 volunteer hours to ensure the Festival's success. Volunteers took on roles as ambassadors, supported stage shows, manned information booths, sold merchandise and helped attendees navigate the Expo. Nearly 300 of the volunteers were students, between the ages of 13-18, volunteering for school credit, while gaining meaningful experiences. Our outreach team is a grassroots opportunity for concerned students and civic leaders to make a difference in STEM education with community leaders.

Volunteer Feedback:

90% of volunteers indicated that their overall experience was an 8 or higher on a scale of 1-10.

Volunteers planning to continue to volunteer for the USA Science & Engineering Festival:

Yes, Definitely! – 86%

Maybe – 14%

No – 0%

A Grassroots Effort:

The Festival is a grassroots effort and Partners include over 1,000 science & engineering organizations in the US. For a complete listing of all partners click here:

<http://www.usasciencefestival.org/about/partners>



Here are just a few examples of hundreds of emails we received after the Expo:

“What an AMAZING experience! We were there for 4 hours and each exhibit was better than the next. My girls (ages 9, 6) and son (aged 4) came home and were very enthusiastic about science and couldn't stop talking about the amazing time they had at the Festival. “Can we go back mommy” is something I have heard over and over. We are sad that it is biennial, so we'll have to wait two more years for the return, but we will be there. This Festival is something not to miss! The hard work paid off of all of the organizers and volunteers both! Thank you Thank you! You are helping make SCIENCE FUN!!! I have told all of my friends and family to mark your calendars for the next one!!!”

“This was our first time attending and my daughter and I loved it! My 6 year old extracted DNA from a strawberry, explored how water flows in water sheds and rocked out to They Might Be Giants. We loved our YouTube fave, Hank Green, and got tons of great ideas for at home science fun. Every parent with a curious kid needs to check this festival out.”

“Amazing as always! It's definitely getting more popular as this year (2016) was the biggest crowd we've experienced since 2012. So many opportunities for all ages to explore old interests and discover new ones. This event will always be remembered as my son's first formal introduction to STEM and now he wants to pursue astrophysics as a career. My future rockstar of science and engineering!”

“Our family has attended since the first festival. The 4th USA Science & Engineering Festival has been the best so far! Our focus this year was for our teens to explore career opportunities and ideas. Both teens found lots of great and inspiring information to pursue careers in STEM. We came to the Sneak Peak, and came back on Saturday with friends. It was fun, educational, and entertaining. A great event to make memories!”

“This festival provides great science-related exposure & interactions for kids & adults. If you're a teacher, you will leave with a bag full of resources! If you're qualified specifically for a science-related job, this is a great opportunity to see what's available for you. If you're interested in the science field, many colleges have representatives and informational tables. The Convention Center did an excellent job of maintaining the facility with the masses of people coming and going. I HIGHLY recommend attending this event!”

“Had an amazing time on Saturday with my 7 year old son. Even got to meet Steve Spangler and sit front row center for his stage Show, "Sick Science." And the live feed from the International Space Station was amazing!”

“I am a grandma that was there all the way from Michigan. My son is fascinated by all things geeky and could have moved into the convention center and stayed. My grandsons (7 and 5)



were busy every minute. You almost made me rethink my 40-year career of nursing! Can't wait to do it again!"

"My four children, ranging in ages from 7 to 14, absolutely love the festival. They get to see all the latest and greatest technology and receive hands-on learning. All of my children enjoyed the robotics area because they actually got to use them. Let the festival go on for a week, so that we can see everything!!

"My children and I have attended all four festivals since the outdoor event on The Mall in 2010. It was a great experience to hear someone from NASA talk about Mars exploration and to see an American Bald Eagle and a European Barn Owl in person at the SeaWorld Exhibit! There are lots of hands-on experiments and fun STEM takeaways. Always a fun, family event."

"This was an absolutely enthralling experience. I came on Friday with a home-school child that I sometimes teach, and returned for all of Saturday and Sunday. In exhibit after exhibit I found experts in a variety of fields who were willing to answer my scientific questions and discuss strategies for STEM education. I attended all three previous Festivals and can hardly wait for the next one."

"I brought my 10 and 12 year old grandchildren to the festival. We all had an amazing time. They were so enthralled by all of the activities and learning going on that I had to force them after 3.5 hours to stop to eat lunch. They gave me 15 minutes and were anxious to get back to exploring. I could hardly get them out at closing; they didn't want to miss a thing! Six solid hours of learning and fun- thank you!

"My entire family loves the festival. There is so much to see and do for everyone of all ages. Even if you don't think of yourself as a "science" person, you will love it!

You can view pictures of the Expo weekend taken by our professional photographer on our website in the coming weeks, the link can be found here:

<https://www.flickr.com/photos/usasef/>

We can't thank you enough for your tremendous support and look forward to hearing from you!

The Festival Team