

CASW Council for the
Advancement
of Science Writing

Fifty-Sixth Annual Briefing

New Horizons in Science

HOSTED BY

The George Washington University

PART OF

SCIENCE  WRITERS
2018

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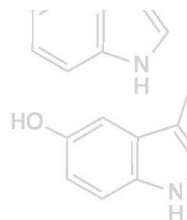
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SEE INSIDE BACK COVER FOR MORE SPONSORS

#SCIWRI18

SCIENCE WRITERS
2018 WASHINGTON, DC



Hosted event, trip or tour NASW workshop registrants only

R Limited seating; advance registration required

FRIDAY, OCTOBER 12

1 - 5 pm	Getting Real: Science Writing in AR and VR SciWriUnited: A regional SciWri groups congress R Marvin Center, Room 307
3 - 5 pm	Interactive workshop: How to submit a successful pitch R Marvin Center, Room 405
3:30 - 4:15 pm 4:30 - 5:15 pm	Butterfly CRISPR workshop; Tour of the Harlan Greenhouse R Science and Engineering Hall
5:30 - 7:30 pm	Welcome Reception Science and Engineering Hall

SATURDAY, OCTOBER 13

7:30 - 8:15 am	National Association of Science Writers business meeting Marvin Center, Grand Ballroom
8:30 am - 6:30 pm	NASW workshops Marvin Center, Lisner Auditorium, and Jack Morton Auditorium
7 - 10 pm	ScienceWriters annual awards night R Washington Marriott Georgetown

New Horizons in Science

AT THE GEORGE WASHINGTON UNIVERSITY

SUNDAY, OCTOBER 12

7:45 am

Exhibit Hall opens

Marvin Center Grand Ballroom and Continental Ballroom

7:45 - 8:45 am

Continental breakfast

Exhibit Hall

8:45 am

Lisner Auditorium

Welcome

Robert Miller

vice president for research, George Washington University

Humans have big brains. So what?

If comparative studies of the human brain have a mantra, it might be “size matters.” And indeed, our brain’s remarkable size explains many of the unique behaviors and capabilities of our species. Yet Chet Sherwood wants to find answers to questions that size doesn’t explain. Through comparative studies of gorilla, chimpanzee, and bonobo brains, he has identified hot spots of evolution, brain regions associated with social context and reward. Could similar “hot spots” help explain what makes us human as well? Still other studies hint that developmental and environmental factors might explain more about human brain evolution, and especially our capacity for culture, than either genes or morphology. Sherwood will offer a few provocative thoughts about what makes humans distinctive.

Chet Sherwood

professor and chair, Department of Anthropology, and codirector of the Mind-Brain Institute, George Washington University; co-director, National Chimpanzee Brain Resource

10:05 am

Lisner Auditorium

Concurrent sessions

The Wild West of stem cell therapy

Twenty years ago, in November 1998, human embryonic stem (ES) cells were introduced to the world. Derived in a nondescript laboratory at the University of Wisconsin, the master cells of human development sparked immediate hope for an

#BigBrainsSoWhat
@chet_sherwood

Science + Science
Writing panel
organized and
moderated by Terry
Devitt and Marilyn
Marchione

#WildWestStemCells
 @pfnoepfler
 @MMarchioneAP

Jack Morton
 Auditorium

#CellsInSitu

inexhaustible supply of cells for therapy to potentially treat conditions such as Parkinson's, diabetes, heart disease, spinal cord injury, and other disorders. ES cells are now widely used in research and for industrial applications such as drug screening. Their use in the clinic has lagged, but in the meantime the advent of induced pluripotent stem cells, coupled with a dearth of regulation, has enabled unproven treatments to come to market, in some cases with tragic consequences. This session will explore the Wild West landscape of stem cell therapy and how to separate legitimate science from snake oil.

Paul Knoepfler

professor, Department of Cell Biology & Human Anatomy, Genome Center, Comprehensive Cancer Center & Institute for Regenerative Cures, University of California Davis School of Medicine

Peter Marks

director, Center for Biologics Evaluation and Research, U.S. Food and Drug Administration

Wounds, plants, and poisons: Zooming in on cellular processes to solve problems on the farm and battlefield

Akos Vertes is a chemist and inventor driven to understand how important biological processes work within individual living cells. How are novel chemical and biological weapons metabolized? How do plant-symbiotic bacteria, such as the rhizobia that infect the roots of soybeans, fix nitrogen from the air? What is the role of the microbiome in wound healing? Vertes and his collaborators are taking on these challenges with a combination of newly developed tools, including an invention called laser ablation electrospray ionization (LAESI), which allows rapid, high-resolution, in situ mass spectrometric analysis of a cell's metabolites as well as proteins and other components.

Akos Vertes

professor of chemistry, biochemistry, and molecular biology, George Washington University

11:05 am

Coffee break

Exhibit Hall

11:30 am

Concurrent sessions

Lisner Auditorium

Kilauea: High-tech observation gives scientists a look inside a restless planet

This spring, one of the most active volcanoes on our planet began a dramatic eruption. Fissures opened up beneath homes on the island of Hawai'i as Kilauea's crater collapsed, releasing rivers of lava into the sea. This latest eruption, likely the biggest since scientists began observing Kilauea, "took Hawai'i from being an interesting long-term science experiment to now, all sorts of surprises," says Rick Wessels,

#KilaueaLessons

Jack Morton
Auditorium

#Violence
WhatWorks
@MaryEllsberg

part of a team of geophysicists observing the eruption in minute detail with high-tech tools that include instrumented drone flights and high-resolution satellite imaging. Wessels will provide an up-to-the-minute report on what scientists are learning from this year's eruption.

Rick Wessels

remote sensing geophysicist, Volcano Disaster Assistance Program, U.S. Geological Survey

Preventing violence against women and girls: What works

Mary Ellsberg began international epidemiological studies documenting violence against women and girls as a public health problem more than three decades ago, and today her group is recognized by the World Health Organization as setting the standard for safe and ethical research on this sensitive topic. Over time they have begun working in many countries, often in conflict settings, to explore what works to reduce levels of violence and exploitation of women. Ellsberg has found that although laws are important, changes in social norms and strong women's movements are far more important in reducing violence against women around the world. She will review the latest global data and tell stories about progress against violence from countries as different as South Sudan, Nicaragua, and Papua New Guinea.

Mary Ellsberg

professor of global health and international studies and director, Global Women's Institute, George Washington University

12:30 pm

Lunch with a Scientist R

Various Locations

2:30 pm

Lisner Auditorium

#RescuingResearch

Patrusky Lecture

Systemic flaws in the biomedical research enterprise

Biomedical research, says Shirley Tilghman, is experiencing a Dickensian moment: it is both the best of times and the worst of times. Remarkable advances in imaging technology, and the power of genomic and proteomic methods to interrogate the behavior of single living cells, promise new insights into the fundamental workings of the natural world and significant improvements in human health. At the same time, the system has fallen into a Malthusian dilemma in which too many individuals are chasing too few resources. The consequence is a hypercompetitive environment where it is increasingly difficult for innovation and creativity—essential ingredients for producing great science—to thrive. This lecture will explore the systemic flaws in the structure of the biomedical enterprise, looking at causes and offering some solutions.

Shirley M. Tilghman

President Emerita and professor of molecular biology, Princeton University

3:30 pm

Coffee break

Exhibit Hall

4 pm

Lisner Auditorium

Concurrent sessions**Troubled intersections: Police violence, gentrification, and HIV/AIDS prevention**

Lisa Bowleg's work takes her to urban neighborhoods where HIV continues to take a heavy toll among unemployed and/or unstably housed Black men. In Washington, D.C., even as the epidemic eases elsewhere, more than 16,000 persons are living with HIV/AIDS. Bowleg's expertise in intersectional issues has led her to examine the social and structural stressors that seem to undermine prevention efforts. Her research shows that police violence, gentrification, and racism are working against public health efforts in areas that already have poor health services. Just as important as recognizing these as stressors affecting mental and physical health, she says, is thinking carefully about how we talk about them.

#FightingUrbanHIV

Lisa Bowleg

professor of applied social psychology, Department of Psychology, George Washington University; director, Social and Behavioral Sciences Core, D.C. Center for AIDS Research

Jack Morton Auditorium

Discovery, retraction, and crisis: How and why press reporting on science matters

Drawing on research from the Science of Science Communication project, Kathleen Hall Jamieson will share new content analyses of the ways in which the mainstream press makes sense of scientific discoveries in general and controversial science in particular. She will also reveal the results of experiments showing how various press narratives about science affect public trust in this way of knowing.

#SciMediaNarratives
@AAPCPenn**Kathleen Hall Jamieson**

professor, Annenberg School for Communication, University of Pennsylvania; director, Annenberg Public Policy Center

Marvin Center Amphitheater

Weird science: Case studies in communicating quantum physics

As quantum computers transition from academic curiosities to marketable products, more journalists and communicators are grappling with the underlying science. Quantum physics has a reputation for being abstruse and technical, and it can be difficult to communicate a new discovery about the quantum world without resorting to clichés. This session will examine trends in quantum computing coverage and explore the ways that researchers, communicators, and reporters view the challenge of communicating this subject with words and images.

Science + Science
Writing panel
moderated by Curt
Suplee; organized
by Chris Cesare

#Quantumania
@LizzieGibney
@orzalc**Emily Edwards**

director of communications and outreach, Joint Quantum Institute, University of Maryland

(continued next page)

Elizabeth Gibney
senior reporter, Nature

Christopher Monroe
Distinguished University Professor & Bice Seci-Zorn Professor, Department of Physics, Joint Quantum Institute, and Center for Quantum Information and Computer Science, University of Maryland

Chad Orzel
associate professor, Department of Physics and Astronomy, Union College, Schenectady, New York

5 - 7 pm

ScienceWriters reception
Exhibit Hall

MONDAY, OCTOBER 15

7:45 am

Exhibit Hall opens
Marvin Center Grand Ballroom and Continental Ballroom

7:45 - 8:30 am

Continental breakfast
Exhibit Hall

8:30 am

Lisner Auditorium

Concurrent sessions
Differential privacy: Science provides researchers and census-takers a better way to protect personal data

Can the privacy of individual data truly be protected? In the world of research data—health and social science studies—several proposed ways of protecting personal data have left individuals vulnerable to “re-identification” within data sets. Computer scientist Cynthia Dwork and her colleagues have solved these problems with a new approach, called differential privacy, that is now being used in many research studies and will be used by the U.S. Census Bureau in the upcoming decennial census. In the past the bureau has relied on “security by obscurity,” using secret methods to make identification of individuals difficult. Dwork will explain how differential privacy works, why it is a good idea, and why it will allow the Census Bureau to reveal its privacy algorithm to all.

#DifferentialPrivacy

Cynthia Dwork
Gordon McKay Professor of Computer Science in the John A. Paulson School of Engineering & Applied Sciences, Harvard University; Radcliffe Alumnae Professor, Radcliffe Institute for Advanced Study; distinguished scientist at Microsoft

Jack Morton
Auditorium

A detailed X-ray map of the galactic plane
New telescopes, space-based instruments, and computational power have given astronomy ever better eyes on the sky, driving the field forward into a true “multimessenger” age when a fuller,

#XRayGalaxy

ever more detailed picture of the universe can be painted. Chryssa Kouveliotou's team is now engaged in mapping our galactic plane in X rays, a task that could be approached only in very limited ways until now. The new map will complement the mappings of the galactic plane that have been done in all other wavelengths and measure the X-ray thickness of the Milky Way. This work has already led to identification of transient objects and X ray-emitting binary stars. Kouveliotou will provide an update on the mapping project and describe how our understanding of many of these objects, and of the evolution of stars, continues to change.

Chryssa Kouveliotou

professor of astrophysics, George Washington University and director, Astronomy, Physics, and Statistics Institute of Sciences (APSIS), George Washington University

9 am

Tour 1 of GW Nanofabrication and Imaging Center R

Science and Engineering Hall (check in at lobby info desk)

9:35 am

Concurrent sessions

Lisner Auditorium

The Slave Wrecks Project: A participatory exploration of the brutal trade that built modern economies

Of all the shipwrecks that have been pulled from the sea by archaeologists, only one, the São Jose, is a slave ship. And yet scholars have now documented more than 38,000 slave ship voyages, and at least 1,000 slave ships are known to lie beneath the seas. Stephen Lubkemann heads a worldwide Slave Wrecks Project that collaborates with communities from which slaves were taken and with historians and ethnographers around the world. He will explain the growing evidence that slaving was a cornerstone of modernization, fueling the growth of globalization as well as our own nation. The Slave Wrecks Project is also an effort to change how science is done. Participating communities in Mozambique, Senegal, Brazil and Cuba are being invited to set the project's agenda and are engaging in land-based archaeology to find the roots and manifestations of slavery on the ground.

#SlaveWrecks

Stephen Lubkemann

associate professor of anthropology, international affairs, and Africana studies; director of the Diaspora Research Program, George Washington University; research associate, Smithsonian Institution National Museum of African American History and Culture

Jack Morton Auditorium

Dams in Amazonia: A developing climate threat

Hydroelectric power is widely accepted as a climate-sparing solution to burning fossil fuels. And under the Kyoto Protocol, developing countries can get "carbon credits" for building dams as a supposed path to clean energy development. But the construction of massive dams now under way in the vast

#AmazonDams

Amazon region of Brazil, Philip Fearnside has shown, is likely to worsen rather than relieve climate change. Drawing on decades of research on deforestation and climate issues in Amazonia, Fearnside has shown that many existing and under-construction tropical dams have a bigger atmospheric carbon impact than do fossil fuel power generating plants, as flooded forests and decaying aquatic plants and weeds release large amounts of carbon dioxide and methane. Fearnside says the Amazon dam-building program for which Brazil is claiming carbon credits will result in major methane emissions that may stymie progress toward the Paris agreement's global temperature goals. The dams are also displacing indigenous people, destroying the livelihoods of local populations, blocking fish migrations, reducing biodiversity, and threatening human health through mercury methylation.

Philip Fearnside

research professor, Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil

10:35 am

Coffee break

Exhibit Hall

10:50 am

Apollo plus 50: The past, present, and future of the space program

Lisner Auditorium

Panel discussion moderated by Jeffrey Kluger; organized by Alan Boyle

The year ahead brings a series of golden anniversaries for Project Apollo, including Apollo 8's first round-the-moon mission in 1968 and the Apollo 11 moon landing in 1969. Now the moon is taking center stage once again in America's human spaceflight program, with Mars looming as a long-range goal. An all-star panel will reflect on the Apollo legacy and how our space odyssey will be different this time around.

Valerie Neal

space history curator, Smithsonian National Air and Space Museum

Scott Pace

executive secretary, National Space Council; former director, Space Policy Institute, George Washington University

Harrison Schmitt

Apollo 17 astronaut; former U.S. senator, R-N.M.; associate fellow at the University of Wisconsin-Madison; member of the National Space Council Users Advisory Group

#ApolloPlus50
@jeffreycluger

11:50 am

Lunch break

Lunch on your own

12 - 12:45 pm

Lunchtime yoga R

GW Milken Institute School of Public Health

12:15 pm

Tour 2 of GW Nanofabrication and Imaging Center R

Science and Engineering Hall (check in at lobby info desk)

1 pm

Lisner Auditorium

#LearningfromAutism
@KevinPelphrey

Autism research: New questions about the developing brain

The young but rapidly growing field of autism studies is generating a steady stream of fundamental questions about the development of brain connectivity before and after birth. Kevin Pelphrey is looking at some of these questions through new lenses. First, he is focusing on an understudied population, girls on the autism spectrum. The rarity and different nature of girls' experience with autism raises particular questions. For one, might autistic girls carry a higher load of genetic mutations, or could their disorder involve an outside factor such as an immune response? He is also beginning to gather genomic, medical and developmental data on a wide population of newborns, making it possible to follow children from before birth through adolescence and test a number of ideas about autism. Pelphrey will report on new studies that may provide insight into how the process of growing and pruning neural connections works in the developing fetus and newborn.

Kevin Pelphrey

Harrison-Wood Professor of Neurology, University of Virginia School of Medicine

2 pm

Lisner Auditorium

*Science + Science
Writing panel
organized by
Eduardo Franco
Berton*

#AmazonStories
@edufrancoberton
@Barbara_Fraser
@sabmc

The Amazon in crisis

The Amazon biome includes more than 25% of the known plant and animal species on Earth and more than 60% of the remaining tropical forest. It is also home to 385 indigenous groups, as well as an estimated 100 uncontacted tribes. These communities are locked in land-rights struggles as the building of dams, roads, mines, and oil wells continues, possibly pushing the Amazon to the brink of ecological collapse. The stories are complex and challenging to tell. This session will provide an update on the state of the world's largest biodiversity reserve, its exploitation, and its threatened communities. A scientist, a freelance science writer, and a scholar-filmmaker will reflect on the opportunities and challenges of telling the stories of the Amazon today.

Barbara Fraser

independent journalist, Peru

Sabrina McCormick

associate professor, Milken Institute School of Public Health, George Washington University

Philip Fearnside

research professor, Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil

3 pm

Coffee break

Exhibit Hall

Tour 3 of GW Nanofabrication and Imaging Center R

Science and Engineering Hall (check in at lobby info desk)

3:15 pm
Lisner Auditorium

#ClimateScience
inCourt
@sabmc

Climate science on trial

While the public closely watches how government leaders are responding to climate issues, away from the headlines the science of climate change is being litigated through lawsuits filed at the state and federal level. Industries are suing to block regulatory action, while public-interest groups are suing to force action. Sabrina McCormick analyzes this action to see how science is being wielded as a tool for action or dismissed by judges as unsettled or irrelevant. Can sea-level rise be claimed in a suit against a coal-fired power plant? She'll provide an update on the legal waterfront.

Sabrina McCormick

associate professor, Milken Institute School of Public Health, George Washington University

4:05 pm
Lisner Auditorium

#DisruptedHealth
@amizota

Chemical exposures and consumer health: The case of uterine fibroids

Phthalates and other endocrine-disrupting chemicals are widespread in food packaging, personal care products, and even household dust, breast milk, and drinking water. Ami Zota's work has documented many of the pathways of exposure to these substances, which have been linked to cancer and developmental and reproductive disorders. In a novel study, Zota currently is looking at uterine fibroids, which disproportionately affect African-American women. She and her colleagues hope to understand whether chemical exposure might cause changes in gene expression that could be heritable. Zota will report on interdisciplinary efforts to update regulations and industrial practices, and how such studies can inform changes that could reduce kinds of exposure that are hazardous to all.

Ami Zota

assistant professor, Department of Environmental and Occupational Health, Milken Institute School of Public Health, George Washington University

TUESDAY, OCTOBER 16

8 am - 5 pm

NASW information access summit R
Marvin Center, Room 309

All field trips depart from and return to the Washington Marriott Georgetown.

8 am

USP field trip R

8:30 am

Medimmune and Georgetown UMC field trips R

9 am

University of Maryland field trips R

NIST field trip R

New Horizons in Science

2018 SPEAKERS



Lisa Bowleg

professor of applied social psychology, Department of Psychology, George Washington University; director, Social and Behavioral Sciences Core, D.C. Center for AIDS Research

Lisa Bowleg is a leading scholar of the application of intersectionality to social and behavioral science research, as well as research focused on HIV prevention and sexuality in black communities. Her qualitative and quantitative research focuses on the effects of social-structural context, masculinity, and resilience on black men's sexual HIV risk and protective behaviors; and intersectionality, stress, and resilience among black lesbian, gay, and bisexual people. She has served as the principal investigator of three NIH-funded R01 studies focused on HIV prevention with black heterosexual men in the U.S. She is also the principal investigator of The Intersectionality Toolkit Project, a grant from the W. K. Kellogg Foundation to develop an intersectionality checklist, case studies, and an implementation guide for policymakers and organizations who develop programs and policies for diverse women and families. In 2014, the American Psychological Association's Committee on Psychology and AIDS awarded her its Psychology and AIDS Distinguished Leadership Award.

teamrepresent.columbian.gwu.edu



Cynthia Dwork

Gordon McKay Professor of Computer Science in the John A. Paulson School of Engineering & Applied Sciences, Harvard University; Radcliffe Alumnae Professor, Radcliffe Institute for Advanced Study; distinguished scientist at Microsoft

Cynthia Dwork is a member of the U.S. National Academy of Sciences and the U.S. National Academy of Engineering. She has made pioneering contributions to the fields of distributed computing, cryptography, and privacy-preserving data analysis, specifically the introduction and development of differential privacy and its application to reproducibility of results. Her most recent focus is algorithmic fairness.

www.seas.harvard.edu/directory/dwork



Emily Edwards

director of communications and outreach for the Joint Quantum Institute, University of Maryland

Emily Edwards is a science communicator who specializes in making illustrations. She oversees the public information efforts for the University of Maryland Physics Department and the Joint Center for Quantum Information and Computer Science. Her team's communication products include news stories, graphics, and the podcast "Relatively Certain." Edwards leads a National Science Foundation sponsored project that aims to build a visually driven quantum physics web application for non-expert learners. Prior to getting into science communication, she attended graduate school in physics at the University of Maryland. She is passionate

about increasing public awareness, appreciation, and understanding of physics and also enjoys building demos and talking to kids about science.

jqj.umd.edu/people/emily-edwards

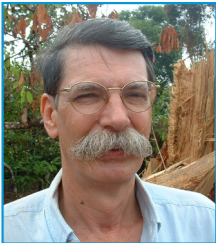


Mary Ellsberg

professor of global health and international studies and director, Global Women's Institute, George Washington University

Mary Ellsberg is the founding director of GW's Global Women's Institute, a university-wide institute dedicated to producing policy-oriented research to promote gender equality and the empowerment of women and girls. She has more than 30 years of experience in international research and program work on gender and public health issues. Her deep connection to global gender issues stems not only from her academic work but also from living in Nicaragua for nearly 20 years leading public health and women's rights advocacy. She was a member of the core research team of the World Health Organization's multicountry study on domestic violence and women's health. Ellsberg has written more than 40 books and articles on gender-based violence and ethical and the methodology of violence research. She earned her doctorate in epidemiology and public health from Umea University in Sweden.

globalwomensinstitute.gwu.edu



Philip Fearnside

research professor, Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil

Philip Fearnside, an ecologist at Brazil's National Institute for Research in Amazonia, has lived and worked in the Brazilian Amazon for over 40 years and is one of the foremost authorities on global warming and deforestation in the world's largest tropical forest. After completing a biology degree at Colorado College, Fearnside went to India as a Peace Corps volunteer working on fisheries in reservoirs (and dams remain one of his major interests). He then earned a Ph.D. at the University of Michigan, where he turned his attention to the Amazon after India barred American researchers following Nixon's "tilt" towards Pakistan in the Bangladesh war. His research has tackled issues related to deforestation, dams, climate change, and environmental services. He is the author of hundreds of publications and a book, *Human Carrying Capacity of the Brazilian Amazon*. In 2006 Thompson-ISI identified him as the world's second most-cited scientist on the subject of global warming, and in 2011 as the seventh in the area of sustainable development. He has received many national and international honors, including the U.N. Global 500 Award, the Conrad Wessel Prize, the Chico Mendes Prize, and election to the Brazilian Academy of Science.

philip.inpa.gov.br



Barbara Fraser

Independent journalist (Peru)

From Mexico to Tierra del Fuego, Barbara Fraser has reported on topics as varied as retreating glaciers, oil spills in the Amazon, and the search for South America's earliest inhabitants. She has lived in Peru for nearly 30 years and has worked as a full-time freelance journalist since 2003, specializing in environment, science and public health, as well as issues affecting indigenous peoples. Her work has appeared in *Nature*, *Science*, *EcoAméricas*, *Sapiens*, *The Lancet*, *Mongabay.com*, *National Geographic Online*, and other publications.

barbara-fraser.com



Elizabeth Gibney

senior reporter, Nature

Elizabeth Gibney joined *Nature* as a physical sciences reporter in 2013, after working for *Times Higher Education* and the U.K.-based science policy publications *Research Fortnight* and *Research Europe*. Before that, she spent two years as a staff writer at CERN, Europe's high-energy physics laboratory. Gibney has a degree in natural sciences from the University of Cambridge and a M.Sc. in science communication from Imperial College London. At *Nature* she covers

topics ranging from quantum physics to Brexit in print, online, audio, and video formats.

[Nature.com/news](https://www.nature.com/news)



Kathleen Hall Jamieson

professor, Annenberg School for Communication, University of Pennsylvania; director, Annenberg Public Policy Center

Kathleen Hall Jamieson has authored or co-authored 16 books, including *Cyberwar*, *Spiral of Cynicism* and *The Obama Victory: How Media, Money and Message Shaped the 2008 Election*, which won the American Publishers Association's PROSE award in 2010. Her paper "Implications of the Demise of 'Fact' in Political Discourse" received the American Philosophical Society's 2016 Henry Allen Moe

Prize. Jamieson is a co-founder of FactCheck.org and its subsidiary site, SciCheck, which monitors political speech for the misuse of science. She is a fellow of the American Academy of Arts and Sciences, the American Philosophical Society, the American Academy of Political and Social Science, and the International Communication Association.

www.annenbergpublicpolicycenter.org



Paul Knoepfler

professor, Department of Cell Biology & Human Anatomy, Genome Center, Comprehensive Cancer Center & Institute for Regenerative Cures, University of California Davis School of Medicine

Paul Knoepfler is a biologist and genomics researcher at the UC Davis School of Medicine who is also interested in bioethics and policy research. For more than eight years, he has been running "The Niche," a blog on stem cells and other cutting-edge life science technologies that in part serves as a check on predatory, for-profit stem cell clinics. He helped to develop the new California law on stem cell clinics that

requires the businesses to post notices to patients. His TED talk on the potential use of CRISPR in humans to make designer babies has had more than 1.2 million views. He was also recently on Bill Nye's new show as a guest panelist on the same topic. He has written two books: *Stem Cells: An Insider's Guide* and *GMO Sapiens: The Life-Changing Science of Designer Babies*.

www.chromatin.com



Chryssa Kouveliotou

professor of astrophysics, George Washington University and director, Astronomy, Physics, and Statistics Institute of Sciences (APSIS), George Washington University

Chryssa Kouveliotou is an affiliate scientist of NASA's Swift and Fermi Gamma-Ray Burst Monitor missions and the science team chair of the Transient Astrophysics Observatory on the International Space Station (TAO-ISS). In 2015, she retired as a senior scientist of high-energy astrophysics at NASA's Marshall Space Flight Center. A founding

member and principal investigator of multiple scientific collaborations worldwide, Kouveliotou has 462 refereed publications and coedited three books. She has received the Descartes, Rossi, and Heineman Prizes and a decoration as a Commander of the Order of the Honor by the Greek government and is a member of the National Academies of the U.S., Netherlands and Greece. She obtained her Ph.D. from the Technical University of Munich and holds honorary doctorates from the University of Amsterdam and the University of Sussex.

physics.columbian.gwu.edu/chryssa-kouveliotou



Stephen Lubkemann

associate professor of anthropology, international affairs, and Africana studies, director of the Diaspora Research Program, George Washington University; research associate, Smithsonian Institution National Museum of African American History and Culture

As a maritime archaeologist and scholar of heritage, Stephen Lubkemann has conducted research in North America, the Caribbean, and Africa for over two decades. In 2008, he cofounded and serves as the international coordinator of the Slave Wrecks Project, an international collaboration of more than 80 scholars in 11 countries. He coauthored the best-selling volume *From No Return: the 221 Year Voyage of the Slave Ship São Jose* about the slave shipwreck whose artifacts are featured at the Smithsonian National Museum of African American History and Culture. His research as a cultural anthropologist has focused on social change in war-torn societies (Angola, Mozambique, Liberia, South Africa) with a particular focus on diaspora politics, refugees, and displacement; development and humanitarian action; and post-conflict justice and rule of law. His book *Culture in Chaos* was a finalist for the Herskovits Award of the African Studies Association. He has published dozens of peer-reviewed articles and book chapters and coedited four peer-reviewed volumes, including the leading reader on Africa, *Perspectives on Africa: A Reader in Culture, History, and Representation* and the forthcoming *A Companion to the Anthropology of Africa* (Wiley-Blackwell).

slawwrecksproject.org



Peter Marks

director, Center for Biologics Evaluation and Research, U.S. Food and Drug Administration

As director of the FDA’s CBER, Peter Marks oversees biological products including vaccines, blood and blood products, and cellular, tissue, and gene therapies. A physician and research scientist, he received his graduate degree in cell and molecular biology and his medical degree at New York University. He worked at Brigham and Women’s Hospital, in the pharmaceutical industry, and then at Yale University. He joined the FDA in 2012 as deputy director of CBER and became director in 2016. Marks is board certified in internal medicine, hematology and medical oncology and is a Fellow of the American College of Physicians.

www.fda.gov/AboutFDA/CentersOffices/ucm481936.htm



Sabrina McCormick

associate professor, Milken Institute School of Public Health, George Washington University

Sociologist and filmmaker Sabrina McCormick investigates the social factors that determine how quickly we can mitigate and adapt to climate change. She also investigates why diverse groups respond to information about climate change and take action or not, how and why U.S. cities act on climate change, and the health risks associated

with a changing climate. McCormick makes films that tell the human story behind climate change. Her award-winning fiction and documentary films include the feature "Tribe," set in the Brazilian Amazon, and two segments of the Emmy-winning Showtime series "The Years of Living Dangerously," among other projects produced by her company, Evidence Based Media. She was a Robert Wood Johnson Health and Society Scholar at the University of Pennsylvania and an AAAS Science and Technology Policy Fellow at the Environmental Protection Agency. Her policy experience includes advising cities, the White House, members of Congress and the U.S. Department of State. She has written two books and more than 50 articles and book chapters.

www.sabrinamccormick.com



Christopher Monroe

Distinguished University Professor & Bice Seci-Zorn Professor, Department of Physics, Joint Quantum Institute, and Center for Quantum Information and Computer Science, University of Maryland

Christopher Monroe is a quantum physicist who specializes in the isolation of individual atoms for applications in quantum information science. In 1995, he led a team at National Institute of Standards and Technology that demonstrated the first quantum logic gate, exploiting trapped atoms for the first controllable qubit demonstrations. At the University of Michigan and now at the University of Maryland, he has continued his work using atoms as the building blocks for quantum computers, finding new ways to scale up the number of connected trapped-ion qubits and taking the first steps toward a scalable, reconfigurable, and modular quantum computer. In addition to his academic position, he is cofounder and chief scientist at IonQ in College Park, Md.

iontrap.umd.edu



Valerie Neal

space history curator, Smithsonian National Air and Space Museum

Valerie Neal has been a space history curator at the Smithsonian since 1989 and is current chair of the Space History Department and co-chair of the museum's team for the national Apollo 50th Anniversary celebration. Her research, exhibition, and collection responsibilities focus on human spaceflight in the space shuttle era and beyond. She has written a book on spaceflight, a biography of the space shuttle Discovery, and a book about space science on the shuttle in the 1980s.

She has also edited two books on space exploration, published a variety of essays and short pieces, and curated three major exhibitions on eight Smithsonian Channel documentaries. Before joining the Smithsonian, Neal spent a decade in Huntsville, Alabama, as a writer, editor and manager for more than 25 NASA publications on shuttle and Spacelab missions, the space sciences, NASA's Great Observatories and astrophysics, and NASA history. She also participated in underwater astronaut crew training activities and worked in mission support for four shuttle missions. She has taught at the University of Minnesota, the University of Alabama in Huntsville, Vanderbilt University, and Georgetown University.

airandspace.si.edu/sites/default/files/documents/people/vneal_pubs_1.pdf



Chad Orzel

associate professor, Department of Physics and Astronomy, Union College, Schenectady, New York

Chad Orzel is the author of three books explaining science for non-scientists: *How to Teach Quantum Physics to Your Dog* and *How to Teach Relativity to Your Dog*. The books explain modern physics through imaginary conversations with Emmy, his German shepherd. He is also author of *Eureka: Discovering Your Inner Scientist* on the

role of scientific thinking in everyday life. He has a B.A. in physics from Williams College and a Ph.D. in chemical physics from the University of Maryland, College Park, where he did his thesis research on collisions of laser-cooled atoms at the National Institute of Standards and Technology in the lab of Bill Phillips, who shared the 1997 Nobel Prize in physics (not for anything Chad did, but it was a fun time to be in that group). His blog, *Uncertain Principles*, appeared at scienceblogs.com from 2002 to 2017, and currently he blogs for Forbes. His next book, *Breakfast with Einstein: The Exotic Physics of an Ordinary Morning*, will be published in December 2018 by BenBella Books (U.S.) and Oneworld Publications (U.K.).

chadorzel.com



Scott Pace

executive secretary, National Space Council; former director, Space Policy Institute, George Washington University

Over the course of his career, Scott Pace has honed his expertise in the areas of science, space, and technology. In 2017, President Trump nominated him to serve as the executive secretary for the National Space Council, which streamlines and coordinates U.S. space policy and strategy. Previously, he was the director of the Space Policy Institute and professor of the practice of international affairs at George Washington University. He has also served at NASA, the White House Office of Science and Technology, and the RAND Corporation Science and Technology Policy Institute. Pace has received numerous awards including the NASA Outstanding Leadership Medal (2008), the U.S. Department of State Group Superior Honor Award, GPS Interagency Team (2005), and the NASA Group Achievement Award, Columbia Accident Rapid Reaction Team (2004). He earned a master's degree in aeronautics and astronautics, and technology and policy at the Massachusetts Institute of Technology and received a doctorate in policy analysis from the RAND Graduate School in 1989.

en.wikipedia.org/wiki/Scott_Pace#National_Space_Council



Kevin Pelphrey

Harrison-Wood Professor of Neurology, University of Virginia School of Medicine

Kevin Pelphrey is an internationally renowned neuroscientist and the parent of a young woman with autism. He utilizes brain science to develop biologically based tools for detection, stratification, and individually tailored treatments. He leads the National Institutes of Health Autism Center for Excellence-Multimodal Developmental Neurogenetics of Autism network, which spans seven national sites. He also directs an NIH postdoctoral training program to prepare scientist clinicians for independent careers translating multidisciplinary science into novel treatments for neurodevelopmental disorders. Until he moved to the University of Virginia October 1, Pelphrey directed the Autism and Neurodevelopmental Disorders Institute at George Washington University.



Harrison Schmitt

Apollo 17 astronaut; former U.S. senator, R-N.M.; associate fellow at the University of Wisconsin-Madison; member of the National Space Council Users Advisory Group

Selected for the scientist-astronaut program in 1965, Harrison Schmitt organized the lunar science training for the Apollo astronauts, represented the crews during the development of hardware and procedures for lunar surface exploration, and oversaw the final preparation of the Apollo 11 Lunar Module Descent Stage. He was designated mission scientist in support of the Apollo 11 mission. After training as backup lunar module pilot for Apollo 15, he served as lunar module pilot for Apollo 17, the last Apollo

mission to the moon. On December 11, 1972, he landed in the Valley of Taurus-Littrow as the only scientist and the last of 12 astronauts to step on the moon. In 1975, after spending two years managing NASA's Energy Program Office, Schmitt fulfilled a longstanding personal commitment by entering politics, serving a six-year term in the U.S. Senate beginning in 1977. The only natural scientist to serve in the Senate since Thomas Jefferson served as Vice President, Schmitt was a member of the Senate Commerce, Banking, Appropriations, Intelligence, and Ethics Committees. In his last two years in the Senate, he chaired the Commerce Subcommittee on Science, Technology, and Space as well as the Appropriations Subcommittee on Labor, Health and Human Services, and Education. He also has served as chair of the NASA Advisory Council. His scientific research concentrates primarily on the synthesis of data related to the origin and evolution of the moon and the terrestrial planets and on the economic geology of the lunar regolith and its resources. Currently he is an associate fellow in engineering at the University of Wisconsin-Madison, teaching "Resources from Space." His book, *Return to the Moon: Exploration, Enterprise and Energy in the Human Settlement of Space*, was published by Springer in 2006. Since 1964, he has been the author of many journal papers and book chapters related to exploration, space, and lunar science.



Chet Sherwood

professor and chair, Department of Anthropology, and codirector of the Mind-Brain Institute, George Washington University; co-director, National Chimpanzee Brain Resource

Chet Sherwood's research is driven by an interest in how brains differ among species, how this variation is correlated with behavior, how it is constrained by the rules of biological form, and how it is encoded in the genome. Within the scope of this research, he focuses on the examination of human brain organization in comparison to other primates, especially our closest living relatives, the great apes (chimpanzees, bonobos, gorillas, and orangutans). His research has been supported by the National Science Foundation, National Institutes of Health, the Wenner-Gren Foundation, and the Leakey Foundation. He was a recipient of a James S. McDonnell Foundation Scholar Award (2012). He serves as associate editor of the journals *Brain Structure and Function* and *Brain, Behavior and Evolution*.

cashp.columbian.gwu.edu/laboratory-evolutionary-neuroscience
anthropology.columbian.gwu.edu/chet-sherwood
www.chimpanzeebrain.org



Shirley M. Tilghman **2015 PATRUSKY LECTURER**

President Emerita and professor of molecular biology, Princeton University

Shirley M. Tilghman, a mammalian developmental geneticist, returned to teaching in 2013 after serving as Princeton University's 19th president beginning in 2001. During her earlier research career, she studied the way in which genes are organized in the genome and regulated during early development and was a member of the team that cloned the first mammalian gene. She was one of the founding members of the National Advisory Council of the Human Genome Project for the National Institutes of Health. A member of the Princeton faculty since 1986, she is an Officer of the Order of Canada and the recipient of a Lifetime Achievement Award from the Society for Developmental Biology, the Genetics Society of America Medal, and the L'Oreal-UNESCO Award for Women in Science. She is a member of the American Philosophical Society, the National Academy of Sciences, the National Academy of Medicine and The Royal Society of London. She serves

as a trustee of Amherst College, the Institute for Advanced Study, the Simons Foundation, and the King Abdullah University of Science and Technology. She also serves on the Science Advisory Board of the Chan Zuckerberg Initiative, is a director of The Broad Institute and is a Fellow of the Corporation of Harvard College.

rescuingsbiomedicalresearch.org



Akos Vertes

professor of chemistry, biochemistry, and molecular biology, George Washington University

Akos Vertes's research focuses on developing new analytical techniques that can be applied to diverse fields of chemistry, biology, and medicine. His research includes high-throughput and ultrasensitive methods in systems biology, proteomics and metabolomics, new methods for molecular imaging of biological tissues under native conditions, and single cell and subcellular analysis. One of his major accomplishments, a new ionization method called laser ablation electrospray ionization (LAESI), has received several awards. LAESI was named one of the Top 10 Innovations of 2011 by The Scientist magazine and earned a 2012 R&D 100 Award from R&D Magazine. His research has been presented in more than 160 peer-reviewed publications and two books. He is a coinventor on 17 patents and several pending patent applications. He was elected fellow of the National Academy of Inventors and received the 2012 Hillebrand Prize and the Oscar and Shoshana Trachtenberg Prize for Scholarship. He is a doctor of the Hungarian Academy of Sciences. Vertes has served as visiting faculty at the Lawrence Berkeley National Laboratory and as a visiting professor at the Swiss Federal Institute of Technology Zurich (ETH Zurich) in Switzerland.

vertes.columbian.gwu.edu



Rick Wessels

remote sensing geophysicist, Volcano Disaster Assistance Program, U.S. Geological Survey

Rick Wessels leads the volcano remote sensing team for the Volcano Disaster Assistance Program (VDAP) which is cofunded by the USGS and the Office of U.S. Foreign Disaster Assistance. VDAP responds to volcano crises in Latin America, Southeast Asia, and Africa through both local and remote interactions with in-country volcano observatories. Wessels also leads the high-resolution remote sensing responses to U.S. volcanoes with his team at the USGS National Civil Applications Center (NCAC) in Reston, Va. He and his team monitor more than 150 volcanoes around the globe using satellite remote sensing. Wessels and the NCAC team have been heavily involved in daily monitoring and mapping of the changes at the ongoing Kilauea Volcano eruption.

avo.alaska.edu/about/staff.php?dirid=61



Ami Zota

assistant professor, Department of Environmental and Occupational Health, Milken Institute School of Public Health, George Washington University

Ami Zota focuses on environmental justice and improving health equity through advancements in science, policy, and clinical practice. Her research identifies novel pathways linking social disparities, environmental exposures, and reproductive and children's health. She is also committed to developing innovative approaches to science communication so that her research can more effectively be used to

inform decision-making. She has helped shape health and safety standards for consumer product chemicals by participating in legislative briefings, providing technical assistance to nongovernmental organizations, and communicating through mainstream and social media outlets. Recipient of a career development award from the National Institutes of Health for her research on environmental health disparities, she was recently recognized as a Pioneer Under 40 in Environmental Public Health by the Collaborative on Health and the Environment. She is an associate editor of *Journal of Exposure Science and Environmental Epidemiology* and serves on the editorial boards of *Environmental Health Perspectives* and *Environmental Epigenetics*. She received her master's and doctorate in environmental health at the Harvard School of Public Health and completed postdoctoral fellowships at Silent Spring Institute and UCSF Program on Reproductive Health.

publichealth.gwu.edu/departments/environmental-and-occupational-health/ami-zota

PANEL MODERATORS



Terry Devitt

director of research communications, University of Wisconsin-Madison

Terry Devitt has covered the science waterfront at University of Wisconsin-Madison for more than three decades. He has been writing about human embryonic stem cells since they were first derived in a small, nondescript laboratory at the University of Wisconsin in 1998.



Eduardo Franco Berton

environmental investigative journalist and photojournalist

Based in Bolivia, Eduardo Franco Berton has 10 years of experience reporting on Amazon issues, biodiversity, conservation, wildlife and indigenous topics. He is the founder and editor of the Environmental Information Network (RAI-by its acronyms in Spanish), a Bolivian website that covers news about science, nature, and conservation. As a freelance journalist he has published reports with Earth Journalism Network (EJN), Mongabay, Mongabay Latam, and O Eco among other media outlets. He is a member of the Society of Environmental Journalists and NASW.

www.blueforesta.org
www.raibolivia.org
www.eduardofrancoberton.org



Jeffrey Kluger

editor at large, Time magazine

Jeffrey Kluger oversees *Time's* science and technology reporting. He has written or cowritten dozens of cover stories for the magazine and regularly contributes articles and commentary on science, behavior and health. He is the author of 10 books, including *Apollo 8: The Thrilling Story of the First Mission to the Moon* and *Lost Moon: The Perilous Voyage of Apollo 13* (with astronaut Jim Lovell). *Lost Moon* was the basis for the 1995 movie *Apollo 13*, and Kluger and director Ron Howard teamed up to write *The Apollo Adventure: The Making of the Apollo Space Program* and the movie *Apollo 13* as a tie-in to the film. Before joining *Time*, Kluger was a staff writer for *Discover* magazine, where he wrote the "Light Elements"

humor column, and served as an editor for the *New York Times Business World Magazine*, *Family Circle* and *Science Digest*. Kluger, who is also an attorney, has taught science journalism at New York University.

science.time.com/author/kluger/



Marilynn Marchione

chief medical writer, The Associated Press

Marilynn Marchione joined the Associated Press in 2004 after 28 years as a reporter and editor at the *Milwaukee Journal Sentinel*, the *Chicago Sun-Times* and the *Akron Beacon Journal*. As the AP's chief medical writer, she covers medical meetings and looks for consumer-oriented stories with an eye for news you can use. In 2010, she won CASW's Victor Cohn Prize for Excellence in Medical Science Reporting. Her work has also been recognized by the Associated

Press Managing Editors Association and others. She has held numerous fellowships, including a four-month Knight epidemiology fellowship at the U.S. Centers for Disease Control and Prevention. Her journalism degree is from Kent State University.



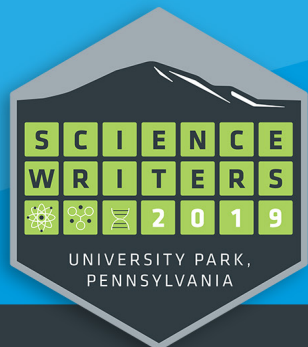
Curt Suplee

freelance science writer, Washington, D.C.

Curt Suplee has published more than 1,000 newspaper articles, five popular books, and dozens of magazine articles, including four National Geographic cover stories. He worked for 25 years as a writer and editor at the *Washington Post*, where he was twice nominated for the Pulitzer Prize, and he spent seven years at the National Science Foundation. Among other honors, he has won the AAAS Science Journalism Award, the American Chemical Society's Grady-Stack Award for Interpreting

Chemistry to the Public, and two national prizes from the American Astronomical Society. He is a member of the Authors Guild and NASW and is a lifetime national associate of the National Research Council of the National Academies.

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