

The Rightful Place of Science?

May 16-19, 2010

Tempe, Arizona

Presented by Consortium for Science, Policy & Outcomes

rethinking the role of science in society

About CSPO

The Consortium for Science, Policy and Outcomes at Arizona State University is an interdisciplinary intellectual network aimed at enhancing the contribution of science and technology to society's pursuit of equality, justice, freedom and overall quality of life. CSPO creates knowledge and methods, educates students, cultivates public discourse and fosters policies to help decision makers and institutions grapple with the immense power and importance of science and technology as society charts a course for the future.

CSPO's unique and productive synthesis of theoretical, empirical and problem-oriented research and tool development is driven by three guiding ideas: desired outcomes can drive science; the value in society of new knowledge is determined by how it is used, and by whom; and the definition of the problem helps determine the relevance of the research.

CSPO believes that politics and the ideas, institutions and the people behind them – and not science alone – determine the outcomes of science and technology in society. In this view, science policy is vastly more complex – as well as more interesting and malleable – than merely setting a budget for scientific research and development.

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Table of Contents

Conference Information	2
Welcome	3
Program	4
Presenters	8
Opening Remarks, Welcome & Presentation of CSPO Prize.....	8
Keynote Speakers.....	8
Exemplars.....	8
Plenary Panelists.....	10
Moderators.....	11
Keynote Respondents.....	11
Next Generation of Science & Technology Policy Leaders.....	12
Next Generation of Science Communicators.....	14
CSPO Hosts for the Next Generation of STP Leaders Roundtables.....	15
Session Descriptions	17
Roundtables: Next Generation of Science & Technology Leaders.....	17
Tabletop Salons	20
10-Minute Plays.....	23
Field Trips	24
Conference Location	26
Acknowledgements	30

Conference Information

Registration Desk

The conference registration desk will be staffed throughout the conference, and they are happy to assist you. Registration desk hours and locations are:

Saturday, May 15:	3:30—5:00pm / Hotel Lobby
Sunday, May 16:	3:00—5:00pm / Rooftop Terrace
Monday, May 17:	7:00am—7:00pm / Abbey Patio
Tuesday, May 18:	7:30am—7:00pm / Abbey Patio
Wednesday, May 19:	7:30am—12 Noon / Abbey Patio

Meals

Conference registration includes light continental breakfast and breaks on Monday, Tuesday and Wednesday; a buffet lunch on Tuesday; and the evening receptions, with cash bar and light hors d'oeuvres, on Sunday, Monday and Tuesday. All other meals are "on your own." In addition to the hotel's restaurants, you may pick up a list of nearby restaurants at the conference registration desk.

Emergencies

If you have a medical emergency, call 911. If you need assistance for other reasons, go to the conference registration desk or to the hotel front desk in the lobby.

Internet access & business services

The Tempe Mission Palms Hotel offers an on-site, state-of-the-art business center (7am-10pm), including Pentium computer, Internet and e-mail access, laptop port printer, copier, and fax machine. In addition to the Business Center, the Tempe Mission Palms offers high-speed, wireless Internet access ("TMPH") throughout the hotel.

Weather and attire

Tempe is a part of the Arizona desert, which usually gets 330 days of sunshine a year. May is the beginning of the dry part of the summer, with daytime sunshine, balmy evenings, little to no precipitation, and very low humidity. The average high in May is around 95°F/35°C and the average low is around 65°F/18°C. Conference attire is Arizona casual. Consider light clothing for daytime activities. With possible fluctuations in temperature due to air conditioning in the meeting rooms, you may want to bring a light jacket or sweater to the conference sessions.

Getting Around

The Tempe Mission Palms Hotel is located across the street from Arizona State University and is within walking distance to Mill Avenue and Old Downtown Tempe's shopping, dining and entertainment district. The hotel concierge can assist you with your transportation needs and questions.

Free Shuttles: Tempe's free Orbit neighborhood shuttles (small blue busses) and ASU's Flash (large bus) provide frequent (approximately every 15 minutes) transit around downtown Tempe, the university and other parts of Tempe. No boarding pass or ticket of any kind is required to ride these shuttles. Simply board the bus at any shuttle stop along the route. For routes and schedules, visit online at <http://www.tempe.gov/tim/Bus/Orbit.htm> for the Orbit and http://uabf.asu.edu/parking_commuter_shuttle_tempe for the Flash.

Public Transportation: Tempe is served by Valley Metro for public transportation — bus, shuttle and light rail services. For fares, routes and schedules, call (602) 253-5000 or visit online at <http://www.valleymetro.org/>. The 20-mile light rail connects Tempe, Mesa, and Phoenix, with two convenient stops just one to two blocks on either side of the hotel.

Taxicab: Two local cab companies are Union Cab (480-303-9999) and Discount Cab (602-903-2760), and the hotel concierge can assist you with obtaining a cab.

Hotel Airport Shuttle: The Tempe Mission Palms provides complimentary airport transportation to and from Phoenix Sky Harbor International Airport from 5:30am to 10:30pm.

Door Prizes

The conference will be giving away door prizes by random draw on Wednesday morning, 9:55am, just prior to the start of the Plenary Panel discussion. You must be present to win.

Conference cancellation policy

ASU will refund your registration fees, minus a \$25 processing fee, if your cancellation notice was submitted in writing and postmarked or faxed on or before April 15, 2010, or under extraordinary circumstances. In most cases, no refund will be granted if the cancellation notice did not arrive by fax by April 15, 2010, or did not bear a clear identifiable postmark of April 15, 2010, or earlier. Refunds will be processed by ASU following the conference. Do not expect to receive your refund before July 1, 2010.



Consortium for Science, Policy & Outcomes

at Arizona State University

Dear Colleague:

Welcome to ***The Rightful Place of Science?***, convened by the Consortium for Science, Policy and Outcomes at Arizona State University. In this conference – amid art, music, drama, media, and more – we will explore the place of science in society and how science and technology can most effectively contribute to an improved quality of life for all. The transformative potential of science and technology challenges our ability to understand and shape our common destiny. What inquiries, communities, networks, and institutions can improve our ability to effectively engage this challenge?

The Rightful Place of Science? will address the challenges facing a society that is at once utterly dependent on science and technology and yet equally unprepared to govern the implications of that dependence. In his inaugural address, President Obama promised to “restore science to its rightful place” in U.S. society, but that location is far from obvious. How can we understand this provocative formulation in the context of the complexity, uncertainty, and political, social and cultural diversity that mark our world? The conference goal is to build an expanded community of scholars, practitioners, and engaged citizens committed to enhancing linkages between scientific and technological research and beneficial societal outcomes – a well-constituted place for science, in the midst of an engaged society.

The Rightful Place of Science? is made possible by support from Arizona State University, National Science Foundation, V. Kann Rasmussen Foundation, and the Origins Project at Arizona State University.

The conference program includes a mix of:

- keynote speakers to catalyze our thinking
- “exemplars” of innovative approaches to managing the promises and complexities of science and technology,
- participant-led roundtables that will broaden our agenda
- the next generation of scholars, decision makers, and communicators who will take our ideas forward

Thank you for participating in and contributing to the success of the conference – and have a great time!

David Guston
Co-Director

Dan Sarewitz
Co-Director

Lori Hiding
Managing Director

Program

Sunday, May 16

- 9:00am – 5:00pm: Optional Field Trips (*depart from front of hotel*)
- 3:00 – 7:00pm: Registration Open (**Rooftop Terrace**)
- 5:00 – 6:30pm: **Welcome Reception (Rooftop Terrace)**

Monday, May 17

- 7:00 – 8:00am: Continental Breakfast (**Break Kiosk, Courtyard**)
- 8:00 – 9:00am: **Welcome and Announcement of CSPO Prize Winners (Abbey)**
Michael Crow, President of Arizona State University and CSPO Co-Founder
Introduced by: Lori Hiding, CSPO Managing Director
- 9:00 – 10:30am: **Exemplar Panel #1 (Abbey)**
Susan Fitzpatrick, Vice President, James S. McDonnell Foundation
Richard Jefferson, Chief Executive Officer, Cambia, Canberra, Australia
Neal Woodbury, Deputy Director, ASU's Biodesign Institute and Professor, Department of Chemistry and Biochemistry, ASU
Moderator: David Guston, CSPO Co-Director
- 10:30 – 11:00am: **Break (Abbey Patio and Break Kiosk, Courtyard)**
- 11:00am – 12:30pm: **Keynote Address (Abbey)**
Gina Kolata, science writer at *The New York Times*
Introduced by: Lee Gutkind, Professor, ASU's Hugh Downs School of Human Communication, and CSPO Distinguished Writer in Residence
Respondent: Jane Maienschein, Director, ASU's Center for Biology and Society
Respondent: Doug Campos-Outcalt, Associate Chair, Department of Family and Community Medicine, University of Arizona College of Medicine
- 12:30 – 2:00pm: **Lunch Break**
- 2:00 – 3:30pm: **Tabletop Salons #1 (Abbey)**
Discussion of topics chosen and led by attendees (see descriptions, page 20)
- T1 **Science and Social Justice: Broadening Participation in STEM Research Leadership**
Led by: Elba Serrano, New Mexico State University
- T2 **Public Value Mapping: A Method for Defining the Rightful Place of Science in Public Policy**
Led by: Catherine Slade and Derrick Anderson, CSPO, Arizona State University
- T3 **Geoengineering Experiments: Who Decides About Experiments with our Global Climate?**
Led by: Jason Blackstock, Centre for International Governance Innovation
- T4 **Objectivity in Science and Science Studies**
Led by: Theodore Brown, University of Illinois, Urbana-Champaign
- T5 **The Public Voice of Science and the Denial of Climate Change**
Led by: Prajwal Kulkarni
- T6 **University-Museum Partnerships for Engaging the Public in Science and Society**
Led by: Rae Ostman, Sciencenter
- T7 **The Problem with Statistical Modeling**
Led by: Samuel Western
- T8 **Science and Political-Social Perceptions**
Led by: Jeff Williams, Science and Public Policy Journal
- T9 **Putting Anticipatory Governance Into Practice**
Led by: Mark Philbrick, University of California, Berkeley

(Monday continued)

3:30 – 4:00pm: **Break (Abbey Patio and Break Kiosk, Courtyard)**

4:00 – 5:30pm: **Roundtables #1-4: Next Generation of Science and Technology Policy Leaders**

Presentations, followed by response and roundtable discussions (see abstracts, page 17)

#1 **Expertise and Participation: Dean Nieuwma**, Assistant Professor, Science & Technology Studies, Rensselaer Polytechnic Institute / *Respondents: Prasad Boradkar and Victoria Blake (Augustine)*

#2 **Towards a Global Bioethics or Just a Better Bioethics: Jennifer Liu**, Freeman Foundation Postdoctoral Fellow, Center for East Asian and Pacific Studies, University of Illinois / *Respondents: Jason Robert and Deborah Gardner (Capistrano)*

#3 **The Policies and Politics of Governing ‘System Innovation’: Florian Kern**, Research Fellow, SPRU - Science and Technology Policy Research, University of Sussex / *Respondents: Joe Herkert and Stephanie Harris (Ironstone)*

#4 **Thought and Action in Science and Technology Policy: Adam Briggie**, Assistant Professor, Philosophy and Religion Studies, University of North Texas / *Respondents: Mark Brown and Meera Lee Sethi (Jokake)*

5:30 – 6:00pm: **Day 1 Wrap-up (Abbey)**

10-Minute Plays, “The Dolphin Kick” and “Faithful Adaptation,” written to the theme of “the rightful place of science” by MFA Playwriting and MFA Theatre for Young Audiences candidates in professor Jeff McMahon’s Playwrights’ Workshop at ASU’s School of Theatre and Film. (See descriptions, page 23)

6:00 – 7:00pm: **Reception Sponsored by ASU’s Origins Project (Abbey Patio)**

Special Event Invitation: ASU’s Origins Project also invites conference attendees to its event “An Evening of Choreography and Conversation” at 8pm in ASU’s Dance Theater (room 132 in ASU’s Physical Education Building East, 611 E. Orange St.). It features world-renowned choreographer Liz Lerman and her company, who will probe a provocative mix of questions about how we see ourselves and the world we live in, aided by multimedia and abetted by Origins Director, Lawrence Krauss. It is free, open to the public, and with open seating. We have reserved 35 seats for conference attendees; show your badge at the door.

Tuesday, May 18

7:00 – 8:30am: Continental Breakfast (**Break Kiosk, Courtyard**)

8:30 – 10:00am: **Keynote Address: The Truth of Science for Justice and Peace (Abbey)**

Monsignor Marcelo Sánchez Sorondo, Chancellor, Pontifical Academy of Sciences, Rome

Introduced by: Daniel Sarewitz, CSPO Co-Director

Respondent: Carl Mitcham, Professor, Liberal Arts and International Studies, Colorado School of Mines

Respondent: Heather Douglas, Associate Professor, Philosophy, University of Tennessee

10:00 – 10:30am: **Break (Abbey Patio and Break Kiosk, Courtyard)**

10:30 – 12 Noon: **Exemplar Panel #2 (Abbey)**

Margaret Davidson, Director, NOAA Coastal Services Center

Shirley Laska, Professor Emerita of Sociology, Center for Hazards Assessment, Response & Technology, University of New Orleans

Ramesh Singh, Chief Executive, ActionAid International, Johannesburg, South Africa

Moderator: Daniel Sarewitz, CSPO Co-Director

12 Noon – 1:45pm: **Buffet Lunch & Tabletop Salons #2 (Buffet in Mission Grille; seating in Courtyard)**

Discussion of topics chosen and led by attendees (see descriptions, page 20)

T10 **Artists and Scientists: The Fundamental Exchange**

Led by: Liz Lerman, Liz Lerman Dance Exchange

T11 **Science in or Science and Democracy: How Should the Autonomy of Science be Construed?**

Led by: Heather Douglas, University of Tennessee

T12 **What Counts as Quality Work for Science and Technology Policy Research?**

Led by: Samuel Evans, Harvard University

(Tuesday continued)

- T13 **Incorporating Climate Science into Federal Agency Decision Making, Planning and Climate Change Adaptation**
Led by: Jeremy Littell, University of Washington Climate Impacts Group
- T14 **Managing for Environmental and Socioeconomic Resilience**
Led by: Nancy Dahl-Tacconi, Department of Environment, Water, Heritage and the Arts, Australia
- T15 **Beyond 700ppm**
Led by: Lewis Gilbert
- T16 **Science in Situ: Doing Science in Contexts Characterized by Political Complexity & Social Inequality**
Led by: Paul Hirsch and Helmut Hirsch, Syracuse University and University of Albany, SUNY
- T17 **New Work-Place Models: Changing How We Work Together to “Do” Science**
Led by: Kennan Salinero, Yámana Science and Technology
- T18 **Participatory Technology Assessment in the 21st Century: Including the Lay Public in Scientific Decision Making**
Led by: David Sittenfeld, Museum of Science, Boston

1:45 – 3:15pm: **Roundtables #5-8: Next Generation of Science and Technology Policy Leaders**

Presentations, followed by response and roundtable discussions (see abstracts, page 17)

- #5 **Creating the Market University—How University Science Became an Economic Engine: Elizabeth Popp Berman**, Assistant Professor, Department of Sociology and Department of Public Policy, University at Albany, SUNY / *Respondents: Ed Hackett and Sarah Whelchel (Augustine)*
- #6 **The Role of Intermediary Organizations and Knowledge Communities in Bridging Barriers: Mark Shafer**, Director of Climate Services, Oklahoma Climatological Survey, The University of Oklahoma / *Respondents: Dave White and Mary McGrath (Capistrano)*
- #7 **Social Media Policies for Disaster Response: Jeannette Sutton**, Disaster Sociologist, Institute of Behavioral Science, University of Colorado at Boulder, and Assistant Research Professor, Trauma, Health and Hazards Center, National Institute for Space, Science and Security Centers, University of Colorado at Colorado Springs / *Respondents: Merlyna Lim and Mason Inman (Ironstone)*
- #8 **Trading Safety for Security-International Nuclear Assistance Revisited: Sonja Schmid**, Assistant Professor, Department of Science & Technology in Society, Virginia Tech / *Respondents: Jameson Wetmore and Ross Carper (Jokake)*

3:15 – 3:45pm: **Break (Abbey Patio and Break Kiosk, Courtyard)**

3:45 – 5:15pm: **Tabletop Salons #3 (Abbey)**

All Salons (#1-18) are offered for a second time, where participants will designate items to be part of the developing research, education and outreach agenda under the theme of “the rightful place of science.”

5:15 – 5:50pm: **Day 2 Wrap-Up Plenary (Abbey)**

10-Minute Plays, “Happiness,” “Family Tree” and “Professionals,” written to the theme of “the rightful place of science” by MFA Playwriting and MFA Theatre for Young Audiences candidates in Professor Jeff McMahon’s Playwrights’ Workshop at ASU’s School of Theatre and Film. (See descriptions, page 23)

5:50 – 6:45pm: **Reception (Abbey Patio)**

Wednesday, May 19

7:00 – 8:00am: Continental Breakfast (**Break Kiosk, Courtyard**)

8:00 – 9:30am: **Roundtables #9-12: Next Generation of Science and Technology Policy Leaders**

Presentations, followed by response and roundtable discussions (see abstracts, page 17)

- #9 **A Common Disaster: Scientific Uncertainty and Institutional Barriers to Climate Change Adaptation in Managed and Protected Landscapes: Jeremy Littell**, Research Scientist, JISAO / CSES Climate Impacts Group, University of Washington / *Respondents: Netra Chhetri and J.D. Ho (Augustine)*

(Wednesday continued)

- #10 **Global Oceans, Global Knowledge-Examining Approaches for Successful Cross-Cultural Adoption of Marine Conservation Technologies:** **Lekelia “Kiki” Jenkins**, Postdoctoral Scholar and Research Associate, School of Marine Affairs, University of Washington / *Respondents: Clark Miller and Lauren Oakes (Capistrano)*
- #11 **Instruments for Environmentally Just Science:** **Gwen Ottinger**, Program Researcher, Center for Contemporary History and Policy, Chemical Heritage Foundation / *Respondents: Mary Jane Parmentier and Rachel Zurer (Ironstone)*
- #12 **Export Controls:** **Samuel Evans**, Postdoctoral Fellow, Program on Science, Technology, and Society and School of Engineering and Applied Sciences, Harvard University / *Respondents: Karin Ellison and Jason Bittel (Jokake)*

9:30 – 9:55am: **Break (Abbey Patio and Break Kiosk, Courtyard)**

9:55 – 11:30am: **Door Prizes announced at 9:55 (Abbey)**

Plenary Session: *What have we learned? Where do we go from here?* (Abbey)

Moderated panel with discussion

Kevin Finneran, Editor-in-Chief, *Issues in Science and Technology*

Laura Helmuth, Senior Editor, *Smithsonian*

Lawrence Krauss, Director of ASU’s Origins Project, theoretical physicist and cosmologist

Leslie Meredith, Vice President and Senior Editor, Free Press/Simon & Schuster

Elba Serrano, Director, Research Initiative for Scientific Enhancement, New Mexico State University

Jameson Wetmore, Assistant Professor, CSPO & ASU’s School of Human Evolution and Social Change

Moderator: David Guston, CSPO Co-Director

11:30am – 12 Noon: **Conference Wrap-Up, with summary of outcomes (Abbey)**

12 Noon **Conference adjourns / Optional Field Trips continue, 1:30-5pm (depart from front of hotel)**



The Science Policy Assessment and Research on Climate (SPARC) project announces the release of its publication ***Usable Science: A Handbook for Science Policy Decision Makers***. It is intended to be a resource for anyone involved in the process of designing, directing or implementing research – those who decide what research gets done and whose needs the research is intended to serve – including professionals in federal agencies, congressional staffers, scientists managing a lab or sitting on a panel at the National Research Council, or managers at a foundation with a science focus. The publication can be downloaded at http://sciencepolicy.colorado.edu/sparc/outreach/sparc_handbook/index.html.

Presenters

Opening Remarks, Welcome & Presentation of CSPO Prize

Monday, May 17, 8am

Michael M. Crow, President of Arizona State University and CSPO Co-Founder

Michael Crow became the 16th president of Arizona State University in 2002. He is guiding the transformation of ASU into one of the nation's leading public metropolitan research universities, one that is directly engaged in the economic, social and cultural vitality of its region. Under his direction, the university pursues teaching, research and creative excellence focused on the major challenges and questions of our time, as well as those central to the building of a sustainable environment and economy for Arizona. He has committed the university to global engagement, and to setting a new standard for public service. Prior to joining ASU, he was executive vice provost of Columbia University and professor of science and technology policy in the School of International and Public Affairs. While at Columbia, he co-founded the Center for Science, Policy, and Outcomes (CSPO), which in 2004 was reestablished at ASU as the Consortium for Science, Policy and Outcomes. A fellow of the National Academy of Public Administration, he is the author of books and articles relating to the analysis of research organizations, technology transfer, science and technology policy, and the practice and theory of public policy.

Lori Hiding, CSPO Managing Director

Lori Hiding joined CSPO in July 2004. She oversees its operations and participates on the Science Policy Assessment and Research on Climate (SPARC) and Sustainability Project teams. Prior to joining CSPO, she was a program manager with the Ecological Society of America's Sustainable Biosphere Initiative Science Program's Office where she was responsible for managing a number of projects that sought to develop or define the science of ecology to inform management and policy decisions. Ms. Hiding is editor-in-chief of the Society for Range Management's membership journal *Rangelands*. She received her Master of Environmental Management in Resource Ecology from Duke University's Nicholas School of the Environment.

Keynote Speakers

Gina Kolata, Science Journalist, *The New York Times*

Monday, May 17, 11am

Gina Kolata is an award-winning writer. As a science and medicine reporter for *The New York Times*, she has written over 1,000 articles that have appeared in almost every section of the paper, including the front page. Ms. Kolata is the author of many books, including: *Rethinking Thin: The New Science of Weight Loss -- and the Myths and Realities of Dieting*; *Clone: The Road to Dolly and the Path Ahead*; *The Baby Doctors: Probing the Limits of Fetal Medicine*; *Sex in America*; and *Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus that Caused It*, which was a best-seller. She is the co-editor of *The Best American Science Writing 2007*. Ms. Kolata's career in journalism began when she joined *Science* magazine in 1971, where she selected reviewers for manuscripts. She eventually became a writer and then senior writer. She also wrote for a wide variety of newspapers and magazines, including *Science*, *Smithsonian*, *Ms.* and *GQ*. Ms. Kolata earned her bachelor's degree in microbiology and her master's degree in applied mathematics from the University of Maryland, and studied molecular biology as a graduate student at MIT.

Monsignor Marcelo Sánchez Sorondo, Chancellor, Pontifical Academy of Sciences, Vatican

Tuesday, May 18, 8:30am

Marcelo Sánchez Sorondo was born in Buenos Aires, Argentina, in 1942 and he was ordained a priest in the archdiocese of Buenos Aires in 1968. At the St. Thomas Aquinas University of Rome in 1974, he was awarded a Ph.D. in sacred theology – the highest level of Church postgraduate studies – with the maximum possible grade of *summa cum laude*. From 1976 to 1998, he was lecturer in the history of philosophy at the Lateran University in Rome where, from 1982 onward, he was full professor in the same discipline. Monsignor Sorondo was dean of the Faculty of Philosophy at the same university for three consecutive terms from 1987 to 1996. Since 1998, he has been full professor of the history of philosophy at the Libera Università Maria SS. Assunta in Rome. In the same year, he was appointed president of the degree course in education science. In November 1998, he was appointed chancellor of the Pontifical Academy of Sciences and of the Pontifical Academy of Social Sciences by Pope John Paul II. In March 1999, His Holiness also appointed him secretary prelate of the Pontifical Academy of St. Thomas Aquinas. On March 19, 2001, His Holiness John Paul II consecrated him titular Bishop of Vescovio. Monsignor Sorondo also was decorated as Cavaliere di gran croce of the Italian Republic in 1999, official of honour of the Légion d'Honneur by the Republic of France in 2000, Grão Mestre da Ordem de Rio Branco by the Republic of Brazil in 2004, official of the Republic of Austria in 2004, and knight of the Republic of Chile in 2006.

Exemplars

Margaret Davidson, Director, NOAA Coastal Services Center

Panel #2, Tuesday, May 18, 10:30am

Margaret Davidson has devoted her career to the goal of ensuring that public science serves public needs and values. Director of NOAA's Coastal Services Center since 1996, Ms. Davidson has maintained a singular focus on generating and providing useable

products and services for nongovernmental, local, state and national coastal managers facing a range of challenges from hazards to ecosystem protection to beach nourishment. The key to Ms. Davidson's approach, and the Center's success, has been her recognition that client needs must drive institutional priorities. Continual work with users at the local and regional levels has ensured that the Center stays in touch with user priorities as they evolve, and has made the Center a national model for linking science and technology to decision making. Before coming to NOAA, Ms. Davidson served as executive director of the South Carolina Sea Grant Consortium. She began her coastal career as an assistant attorney general and special counsel for the Louisiana Department of Justice. She holds a Master of Marine Affairs degree from the University of Rhode Island and a J.D. in natural resource law from Louisiana State University.

Susan Fitzpatrick, Vice President, James S. McDonnell Foundation

Panel #1, Monday, May 17, 9am

Susan Fitzpatrick is vice president of the James S. McDonnell Foundation, a philanthropy supporting research in the neurosciences. Fitzpatrick is renowned for her ability to rethink the obvious – not only to question the status quo, but to offer serious alternatives that significantly transform our capacity to think and act differently. Whether the topic is science funding broadly speaking, or biomedical research funding more specifically, Dr. Fitzpatrick has challenges for us. Why have we designed a federal science funding system that discourages innovation and ingenuity in favor of deeply entrenched safe bets? What is the relationship between science funding decisions and outcomes that matter to people? What is the relationship between promises made by scientists in the quest for funding, and the actual achievements of their research? These are some of the questions she brings to the fore, and through her funding initiatives, mentorship of colleagues (both junior and more senior), and service to the scientific research community, Dr. Fitzpatrick has devoted herself to cultivating science with impact. Her blog, *Scientific Philanthropy*, looks at issues at the intersection of science, society and philanthropy. She received her doctorate in biochemistry and neurology from Cornell University Medical College.

Richard Jefferson, Chief Executive Officer, Cambia, Canberra, Australia

Panel #1, Monday, May 17, 9am

Richard Jefferson has devoted his career to ensuring that technological innovation can be applied to the greatest areas of human need. A molecular biologist by training, he is the founder of CAMBIA, a non-profit organization whose mission is "to democratize innovation: to create a more equitable and inclusive capability to solve problems using science and technology." In particular, CAMBIA focuses on developing key enabling technologies in the area of agricultural biotechnology, and putting them in the public domain so that they cannot be privatized and controlled by parochial interests. Among many other CAMBIA initiatives, he founded BIOS, an open source movement for biological innovation, in "response to inequities in food security, nutrition, health, natural resource management and energy," and aimed at "enabling diverse solutions through decentralized innovation." His expertise in intellectual property matters and agriculture and biotechnology research strategy and policy worldwide have become widely recognized. In 2003, he was named by *Scientific American* as one of the world's 50 most influential technologists. In 2005, he received the American Society of Plant Biologists (ASPB) "Leadership in Science Public Service Award." He was chosen as an Outstanding Social Entrepreneur by the Schwab Foundation and is a regular participant and panelist at the World Economic Forum Annual Meeting at Davos. He also is an accomplished guitarist and mandolin player.

Shirley Laska, Professor Emerita of Sociology, Center for Hazards Assessment, Response & Technology, University of New Orleans

Panel #2, Tuesday, May 18, 10:30am

Shirley Laska has dedicated most of her life to protecting the people and landscape of southern Louisiana from natural disasters. As an environmental sociologist she works to find real world solutions to the problems of disaster preparedness, disaster response and environmental protection. Dr. Laska knows all too well that the decisions we make about how we structure our government, industry and built environment can protect us from such disasters or exacerbate the damage they cause. In the years leading up to Hurricane Katrina, she developed scenarios of what would happen if a significant storm hit New Orleans and presented them not simply to the academic community, but government decision-makers at the local and national level as well – careful to point out how the poorest communities would be underwater without transportation to make it to safety. Her predictions were tragically accurate. Undeterred she continues to fight to protect the people of the city and the small coastal communities that she loves. Dr. Laska established the Center for Hazards, Assessment, Response and Technology (CHART) at the University of New Orleans to conduct applied research to identify successful strategies to recover from both natural and technological disasters. She received the American Sociological Association's Environment and Technology Section achievement award in 2000 and its Public Understanding of Sociology Award in 2008.

Ramesh Singh, Chief Executive, ActionAid International, Johannesburg, South Africa

Panel #2, Tuesday, May 18, 10:30am

Trained as a seed technologist at the University of Edinburgh (UK), most of Ramesh Singh's work has revolved around poverty alleviation in developing countries. He has worked with ActionAid for over 20 years, initially in the Gambia, then as country director in Ethiopia, Nepal (where he was born) and Vietnam, as Asia regional director in Bangkok, as operations director in London and as ActionAid International's chief executive since December 2003. He successfully led ActionAid's process of internationalization and the delivery of the organization's strategic objectives of Rights to End Poverty. In recent years, Mr. Singh has been known for his work on changing the rules and regulations that exacerbate poverty in developing countries and confronting donors and recipients (developing countries) to find a way in which aid itself can contribute to the end of aid. He argues that donor communities must go beyond the rhetoric around 'country ownership' to find forms of international cooperation that support developing countries to achieve more self-sufficient financing of their own growth strategies, their own natural resources and their own public policies. Mr. Singh and his

colleagues from ActionAid are instrumental in developing projects in Africa, Asia and Latin America that enable people living in poverty to claim their rights – to, for example, education, food and drugs for treating HIV/AIDS.

Neal Woodbury, Deputy Director, The Biodesign Institute, and Professor, Department of Chemistry and Biochemistry, Arizona State University

Panel #1, Monday, May 17, 9am

Neal Woodbury is a chemist who is exceptional in his willingness to encourage his students to face the societal aspects of their own research. As director of the Center for BioOptical Nanotechnology at ASU's Biodesign Institute, and now more recently as deputy director and chief scientist of the Biodesign Institute, Dr. Woodbury has been a well-placed and articulate advocate for interdisciplinary science as a means of providing researchers with a broader vision to address real-world problems. This vision of interdisciplinarity has extended across the "two cultures" divide, as he has engaged in substantive research and training partnerships with the Consortium for Science, Policy and Outcomes and the Center for Nanotechnology in Society at ASU on the political, social and ethical aspects of research at the Biodesign Institute. In particular, as principal investigator on an Integrated Graduate Education, Research and Training (IGERT) award, Dr. Woodbury committed his trainees to an immersive experience, designed by CSPO, in Washington, DC, which helped several trainees to radically different career paths. Dr. Woodbury has taken initiative in integrating societal perspectives into undergraduate training through his role in designing and teaching a learning community on nanotechnology in society, and into graduate training through encouraging a societal component in the required curriculum of the new Biological Design doctoral program. He also has opened up his laboratory to social science and humanities collaborators and led efforts to include them as equal partners in major science and engineering research projects.

Plenary Panel

Wednesday, May 19, 10am

Kevin Finneran, Editor-in-Chief, *Issues in Science and Technology*

Prior to joining *Issues in Science and Technology* in 1991, Kevin Finneran was Washington editor of *High Technology* magazine, a correspondent for the *London Financial Times* energy newsletters, and a consultant on science and technology policy. His clients included the National Science Foundation, the Office of Technology Assessment, the U.S. Agency for International Development, and the Environmental Protection Agency. Prior to launching his career in science and technology policy, he taught literature and film studies at Rutgers University.

Laura Helmuth, Senior Editor, *Smithsonian*

At *Smithsonian* magazine, Laura Helmuth selects and edits most of the stories about science, nature and technology. Before that, she worked for *Science* magazine's news department for five years, first as a writer covering neuroscience and then as an editor for life sciences stories. She has written for *National Wildlife*, *California Wild* and *Science News*. She has a doctorate in cognitive neuroscience from the University of California, Berkeley.

Lawrence Krauss, Director, Origins Project; Foundation Professor, School of Earth & Space Exploration, Arizona State University

Lawrence Krauss is an internationally known theoretical physicist whose research covers science from the beginning of the universe to the end of the universe. His research interests include the interface between elementary particle physics and cosmology, the nature of dark matter, general relativity and neutrino astrophysics. He has investigated questions ranging from the nature of exploding stars to issues of the origin of all mass in the universe. Dr. Krauss is the author of many scientific publications, as well as several acclaimed popular books, including: *The Fifth Essence*; *Fear of Physics*; and *The Physics of Star Trek*. He holds a doctorate from MIT.

Leslie Meredith, Vice President and Senior Editor, Free Press/Simon & Schuster

Leslie Meredith edits books on health, psychology, animal behavior and other popular sciences, as well as memoir, history, religion and narrative nonfiction. Formerly, she was an executive editor at Ballantine Books, editorial director at Harmony/Crown and executive editor at Bantam. She has worked with such authors as Stephen Jay Gould, Christiane Northrup, Andrew Newberg, Jean Twenge, Philip Zimbardo, Patricia McConnell, Stanley Coren, Sy Montgomery and Ayaan Hirsi Ali.

Elba Serrano, Director, Research Initiative for Scientific Enhancement; Regents Professor of Biology, New Mexico State University

Elba Serrano's specialties and interests blend laboratory science – neuroscience, sensory systems and biophysics – with the ethics and societal implications of science, and gender and ethnic equity in the STEM disciplines. Together with her students, she established the first modern neuroscience laboratory, now large and diverse, at New Mexico State University. Under Dr. Serrano's direction, the NMSU -RISE (Research Initiative for Scientific Enhancement) to Excellence Program – an NIH initiative that supports student scientific development activities in minority-serving institutions to build and diversify the nation's health sciences – unites talented and highly motivated undergraduate and predoctoral students with distinguished faculty scientists in shared research endeavors. Born in Puerto Rico, Dr. Serrano has lived in over ten countries and maintains a lifelong interest in international science. She holds a doctorate in biological sciences from Stanford University.

Jameson Wetmore, Assistant Director for Education, Center for Nanotechnology in Society; Assistant Professor, CSPO and School of Human Evolution and Social Change, Arizona State University

Jameson Wetmore's work combines the fields of science and technology studies, ethics, and public policy in order to better understand both the interconnected relationships between technology and society and the forces that change those relationships over time. For instance, Dr. Wetmore has studied how the Old Order Amish regulate the technologies they use in order to strengthen their communities, how religious thinkers seek to influence the future of nanoscale research and policy, and how ideas of responsibility get built into systems of automobile safety. He holds a doctorate from Cornell University and is co-editor of *Technology & Society: Building our Sociotechnical Future* (MIT Press 2009).

Moderators

David Guston, CSPO Co-Director

David Guston is professor of politics and global studies and is principal investigator and director of the NSF-funded Center for Nanotechnology in Society at ASU, which studies the societal implications of nanoscale science and engineering research. He is widely published and cited on research and development policy, technology assessment, public participation in science and technology, and the politics of science policy. His book, *Between Politics and Science: Assuring the Integrity and Productivity of Research*, was awarded the 2002 Don K. Price Prize by the American Political Science Association for best book in science and technology policy. Dr. Guston is the former North American editor of the peer-reviewed journal *Science and Public Policy* and has held visiting positions at Columbia University, the Copenhagen Business School, and the Kent School of Law. In 2002, he was elected a fellow of the American Association for the Advancement of Science. He co-chaired the 2008 Gordon Research Conference on Science and Technology Policy, "Governing Emerging Technologies." He holds a doctorate from MIT.

Lee Gutkind, Professor, ASU's Hugh Downs School of Human Communications and CSPO Distinguished Writer in Residence

As the distinguished writer in residence at CSPO, Lee Gutkind continues to engage writers and readers through creative nonfiction writing. Gutkind is the founder and editor of the popular journal, *Creative Nonfiction*, the first and largest literary journal to exclusively publish nonfiction, now celebrating its 15th year of publication. He has pioneered the teaching of creative nonfiction, chairing the writing program and founding the first in the world MFA in creative nonfiction at the University of Pittsburgh, directing the Mid-Atlantic Creative Nonfiction Writers' Conference at Goucher College for 11 years, and conducting workshops and presenting readings throughout the world. Dr. Gutkind has written and edited over 25 books. He has been featured on Comedy Central's "The Daily Show" with Jon Stewart, National Public Radio's "Talk of the Nation," the BBC "World," and Wired.com. Gutkind was appointed the inaugural Virginia G. Piper Distinguished Writer in Residence at Arizona State University in 2007. He frequently crosses genres as a writer, editor, reporter, novelist and filmmaker. In 2004, he was awarded an Honorary Doctorate of Letters from Chatham University.

Daniel Sarewitz, CSPO Co-Director

Daniel Sarewitz's work focuses on revealing the connections between science policy decisions, scientific research and social outcomes. How does the distribution of the social benefits of science relate to the way that we organize scientific inquiry? What accounts for the highly uneven advance of know-how related to solving human problems? How do the interactions between scientific uncertainty and human values influence decision making? How does technological innovation influence politics? And how can improved insight into such questions contribute to improved real-world practice? From 1989 to 1993, Dr. Sarewitz worked on R&D policy issues as a staff member in the U.S. House of Representatives, and principal speech writer for Committee Chairman George E. Brown, Jr. He received a doctorate in geological sciences from Cornell University in 1986. He now directs CSPO's office in Washington, D.C., and focuses his efforts on a range of activities to increase CSPO's impact on federal science and technology policy processes. Dr. Sarewitz also holds a professorship in ASU's School of Life Sciences and School of Sustainability.

Keynote Respondents

Doug Campos-Outcalt, Associate Chair, Department of Family and Community Medicine, University of Arizona College of Medicine

In addition to his position with the University of Arizona College of Medicine, Doug Campos-Outcalt is Board certified in both family practice and preventive medicine/public health, and is the interim health officer for the Maricopa County Department of Public Health. Dr. Campos-Outcalt received his medical degree from the University of Arizona and completed residencies at the University of California, Davis and the University of Arizona. He received a master's degree in public administration from Arizona State University. His public health practice experience has included being deputy director of the Arizona Department of Health Services, medical director of the Maricopa County Department of Public Health, medical consultant to the Cochise County Health Department, and a public health consultant for two years to the country of Papua New Guinea. He has returned to Papua New Guinea twice, once a consultant to the World Health Organization. He has also served as an advisor to several local and tribal health departments throughout Arizona. Dr. Campos-Outcalt is an active researcher and has published over 80 articles in scientific journals and has edited a textbook in preventive medicine. His current interests include applied public health practice methods, health workforce distribution, public health preparedness and the interface between public health and medicine.

Heather Douglas, Associate Professor, Philosophy, University of Tennessee

Heather Douglas was awarded a doctorate in the history and philosophy of science from the University of Pittsburgh in 1998. After teaching for six years at the University of Puget Sound, she joined the department at the University of Tennessee in 2004. Her research interests center on the use of science in policymaking. This includes not only how to conceptualize that process, but also what the involvement of science in policymaking means for our understanding of science, for the role of values in science, for the moral responsibilities of scientists, and for the nature of scientific objectivity. Dr. Douglas also is interested in how to best weigh complex sets of evidence from multiple disciplines in the policy process, and in the development of the philosophy of science in the 20th century, particularly in the crucible of the cold war.

Jane Maienschein, Professor, ASU's School of Life Sciences, and Director, Center for Biology and Society

Jane Maienschein specializes in the history and philosophy of biology and the way that biology, bioethics, and biopolicy play out in society. Focusing on research in embryology, genetics, and cytology, Dr. Maienschein combines detailed analysis of the epistemological standards, theories, laboratory practices and experimental approaches with study of the people, institutions, and changing social, political, and legal context in which science thrives. She loves teaching and is committed to public education about biology and its human dimensions. Dr. Maienschein has received numerous faculty and teaching awards, including the 2000 Parents Association Professor of the Year Chair, a Regents' Professorship in 2002, and a President's Professorship in 2007. She currently serves as president of the History of Science Society and on the national board for the Association for Women in Science. She holds a doctorate in history and philosophy of science from Indiana University.

Carl Mitcham, Professor, Liberal Arts and International Studies, Colorado School of Mines

Carl Mitcham has worked to promote ethical reflection on technology in positions at Brooklyn Polytechnic University (1982-1990), Pennsylvania State University (1989-1999), and Colorado School of Mines (1999-present). Among his recent publications is a four-volume *Encyclopedia of Science, Technology, and Ethics*, for which he served as editor-in-chief. Additionally, he is a faculty affiliate of the Center for Science and Technology Policy Research, University of Colorado, Boulder, a CSPO affiliated scholar, and adjunct professor, European Graduate School, Saas Fee, Switzerland. Dr. Mitcham "aspires to advance philosophical, ethical, and policy understanding within the relevant and overlapping professional communities in ways that may deepen democratic public intelligence." He holds a doctorate in philosophy from Fordham University.

Next Generation of Science & Technology Policy Leaders

Adam Briggie, Assistant Professor, Philosophy and Religion Studies, University of North Texas

Adam Briggie completed a bachelor's degree in biology from St. John's University in Minnesota and graduated from the University of Colorado at Boulder in 2006, with a doctorate in environmental studies, where his dissertation focused on the Kass Bioethics Council. He then accepted a position at the University of Twente in the Netherlands in the Philosophy Department, the only humanities department in what is otherwise an entrepreneurial and engineering institution. At the University of North Texas, Dr. Briggie teaches courses related to ethics of science and philosophy of science, and he is getting ready for the publication of his book, *A Rich Bioethics: Public Policy, Biotechnology, and the Kass Council*.

Samuel Evans, Postdoctoral Fellow, Program on Science, Technology and Society and School of Engineering and Applied Sciences, Harvard University

Samuel Evans received a master's degree in management research in 2004 and a doctorate in philosophy in 2009 from the University of Oxford under the New College & Institute for Science, Innovation and Society. He earned his bachelor's degree in philosophy and physics at St. Olaf College in 2002. His master's thesis, "The Governance of Technology at the World Trade Organization: a cultural theory framework," won the Dan Gowler Prize. During his time at Oxford, Dr. Evans was a research assistant in the Policy Foresight Programme, working on a series of workshops with Sir Crispin Tickell about science and technology, environment and society. In 2006-2007, he was a visiting researcher at Georgetown University as part of the Center for Peace and Security.

Lekelia "Kiki" Jenkins, Postdoctoral Scholar and Research Associate, School of Marine Affairs, University of Washington

Kiki Jenkins graduated with honors from the University of Maryland, Baltimore County with a bachelor's degree in biology. As a National Science Foundation Graduate Fellow, she received her doctorate in 2006 from Duke University by pioneering a new field of study into the invention and adoption of marine conservation technology. Dr. Jenkins worked as an environmental consultant for the Natural Resource Defense Council, helping to change regulatory measures on how fishing gear is used on the U.S. west coast. She spent two years as a AAAS Science and Technology Policy Fellow in the National Marine Fisheries Service's Office of International Affairs. Dr. Jenkins currently studies the process of conservation in order to distill conservation theory and codify best practices.

Florian Kern, Research Fellow, SPRU-Science and Technology Policy Research, University of Sussex

Florian Kern earned his doctorate in 2009 from SPRU at the University of Sussex, where he analyzed innovation policies in the UK and the Netherlands, explaining the ways in which both countries tackle this challenge and formulating policy recommendations to foster sustainable energy systems. He has a master's degree in socio-economic and technological planning from Roskilde University, Denmark, and studied political science at the Free University of Berlin. Dr. Kern's research looks at policy analysis in the fields of energy, technology, environment and innovation, specifically socio-technical transitions and shifts toward sustainable electricity systems.

Jeremy Littell, Research Scientist, JISAO/CSES Climate Impacts Group, University of Washington

Jeremy Littell's research focuses on climate change and variability in forest ecosystems. He earned his bachelor's degree in environmental science and terrestrial ecology from Western Washington University in 1998, followed by a master's degree in land resources and environmental science from Montana State University in 2002. Dr. Littell has worked as a general science adviser to the forest sector, as well as being part of the Washington Governor's Climate Action Team. He earned his doctorate in 2006 in forest ecosystem analysis from the University of Washington.

Jennifer Liu, Freeman Foundation Postdoctoral Fellow, Center for East Asian and Pacific Studies, University of Illinois

Jennifer Liu studies the intersection of medical anthropology and science and technology studies. She earned bachelor's degrees in zoology and French from the University of California, Berkeley, followed by a master's degree in anthropology from San Francisco State University. Her doctorate is from the UC Berkeley-UC San Francisco Joint Program in Medical Anthropology Program, where her dissertation was funded by fellowships including a Fulbright Fellowship and as the 2007-2008 social science and humanities California Institute of Regenerative Medicine (CIRM) Fellow. Much of Dr. Liu's research looks at how bioethics, science policy and the communication between the public and scientific communities interact.

Dean Nieusma, Assistant Professor, Science and Technology Studies, Rensselaer Polytechnic Institute

After completing undergraduate degrees in mechanical engineering and interdisciplinary social sciences, Dean Nieusma worked as an engineer in the auto industry. He received his doctorate from Rensselaer in 2004 in science and technology studies. Dr. Nieusma was an assistant professor at University of Virginia before returning to Rensselaer in 2006. His research is interdisciplinary, leading to much collaboration, and currently focuses on increasing public participation in decision making. He is interested in design and the social studies of design, the development of appropriate technologies, and the relationship between expertise and democracy.

Gwen Ottinger, Program Researcher, Center for Contemporary History and Policy, Chemical Heritage Foundation

Gwen Ottinger turned her research toward science and the community after being confronted with the question, "who decides?" She earned her dual bachelor's degrees in science, technology and culture and aerospace engineering from the Georgia Institute of Technology in 1997 before continuing on to graduate studies. Her 2005 doctorate from the University of California, Berkeley is in energy and resources. Her research focused on a community next to an oil refinery, and how they monitored air quality using bucket monitors. Dr. Ottinger continues to look at air quality monitoring and its effects on community health and justice. This fall, she will start a new position as assistant professor of science and technology studies in the Interdisciplinary Arts and Sciences Program at the University of Washington-Bothell.

Elizabeth Popp Berman, Assistant Professor, Department of Sociology and Department of Public Policy, University of Albany, SUNY

Elizabeth Popp Berman's research looks at why academic science has shifted toward the marketplace. She completed her bachelor's in sociology at the University of Pennsylvania in 1995, and earned both her master's (2000) and doctorate (2007) in sociology at the University of California, Berkeley. Her dissertation was funded by the Spencer Foundation Dissertation Fellowship for Research Related to Education, the Social Science Research Council Dissertation Fellowship for the Corporation as a Social Institution Program and an National Science Foundation Graduate Research Fellowship. Her forthcoming book is *Creating the Market University: How Academic Science Became an Economic Engine*.

Sonja Schmid, Assistant Professor, Department of Science and Technology in Society, Virginia Tech

Sonja Schmid received her doctorate in science and technology studies from Cornell University. In 2007-08, she was a postdoctoral fellow at the James Martin Center for Nonproliferation Studies in the Monterey Institute for International Studies. Previously, she was a social science research associate at Stanford University, a science fellow at Stanford's Center for International Security and Cooperation, and a lecturer in the Program in Science, Technology and Society at Stanford. Her research focuses on understanding complex decision-making processes at the interface between science, technology and the state in the Cold War Soviet context. She currently is working on a book about reactor design choices and the development of the civilian nuclear industry in the Soviet Union.

Mark Shafer, Director of Climate Services, Oklahoma Climatological Survey, University of Oklahoma

At the Oklahoma Climatological Survey, the state climate office for Oklahoma, Mark Shafer manages a group that provides high-quality weather and climate information tailored to meet the needs of individual citizens and decision-makers in Oklahoma. He is a principal investigator for the Southern Climate Impacts Planning Program, one of the NOAA Regional Integrated Sciences and Assessments programs, is a member of the National Integrated Drought Information System (NIDIS) Program Implementation Team, and has contributed to the development of Oklahoma's drought monitoring decision-support system. Dr. Shafer serves on the American Meteorological Society's Board on Societal Impacts and has co-chaired the annual Symposium on Policy and Socio-Economic Research for the past three years. He blends physical and social sciences, holding a master's degree in meteorology and a doctorate in political science. His research interests focus on communication between the scientific community and policymakers, particularly in managing societal response to extreme events, institutional factors governing selection of information, and the influence of scientific and technical information on the policy process.

Jeannette Sutton, Disaster Sociologist, Institute of Behavioral Science, University of Colorado at Boulder and Assistant Research Professor, Trauma, Health, and Hazards Center, National Institute for Space, Science, and Security Centers, University of Colorado at Colorado Springs

Jeannette Sutton received her doctorate in sociology from the University of Colorado at Boulder, specializing in environmental sociology with an emphasis in hazards and disasters. Her dissertation examined collective behavior and the construction of social problems during the response to the September 11th World Trade Center attacks. She was then a postdoctoral researcher at the Natural Hazards Center, where she conducted research on the barriers to adopting new technologies within public sector agencies, earthquake early warning systems, and the uses of information and communication technology for communication in disaster events. Dr. Sutton has worked as a research faculty member at the Natural Hazards Center on community preparedness, regional collaboration and the Urban Areas Security Initiative, warning systems for extreme events, and most recently, the uses of social media during disasters and crisis events.

Next Generation of Science Communicators

Jason Bittel

Jason Bittel is an Acme, Pennsylvania native currently completing an MFA in creative nonfiction at the University of Pittsburgh. Prior to graduate school, he volunteered two terms with the Student Conservation Association. His writing interests include black bears, Eurasian wild boars, salamanders, poison ivy, bioluminescent fungi and, well, everything.

Victoria Blake

Victoria Blake is the founding publisher of Underland Press, located in Portland, Oregon. She has worked as an editor for Dark Horse Comics, as an art critic for *The Oregonian*, and as a pen-for-hire at home and abroad. Her work has been published in *Conjunctions* online and *Glimmer Train*, among others. Her publishing company, distributed by PGW, has distinguished itself with award-winning works of science fiction, fantasy and dark fantasy.

Ross Carper

Ross Carper is a writer at the U.S. Department of Energy's Pacific Northwest National Laboratory, where his work focuses on science, technology and policy aimed at addressing energy and environmental challenges. He holds an MFA in creative writing from Eastern Washington University, and has published fiction, poetry and journalism.

Deborah Gardner

Deborah (Debs) Gardner is working on an MFA in fiction and an MPH in maternal and child health at the University of Washington. She writes the blog Seattle Local Food (www.seattlelocalfood.com). Inspired by the intersection of art and science, she is authoring a story collection about land, sea and sky.

Stephanie Harris

Stephanie Harris is a marketing editor for an engineering and architectural firm in Chicago and is pursuing a Master's degree in writing and publishing from DePaul University. She has held editorial positions with *Roads & Bridges* and *Water Quality Products* magazines. Ms. Harris received a bachelor's in English from DePaul in 2006.

J.D. Ho

J.D. Ho recently completed an MFA in writing at the University of Texas in Austin. Her writing has appeared in several literary journals, and she was nominated for a 2010 Pushcart Prize. Her collaborative projects include short films and work with both sculptors and illustrators.

Mason Inman

Mason Inman is a freelance journalist currently based in Karachi, Pakistan, who focuses on climate, energy and development. A graduate of the science writing program at the University of California, Santa Cruz, he has lived in and reported from half a dozen countries so far. He blogs about building resilience at failinggracefully.com.

Mary McGrath

Mary McGrath is a master's student at the Yale School of Forestry & Environmental Studies. Her work focuses on political identity as it relates to environmental choice and behavior. She is interested in learning how science communication can better promote productive public dialogue around environmental challenges.

Lauren Oakes

Lauren Oakes is pursuing her doctoral degree at Stanford University's Emmett Interdisciplinary Program in Environment and Resources. She is interested in land use changes and freshwater management, and previously worked in fisheries conservation in Alaska. Lauren has produced documentary films and plans to incorporate narrative story and science writing with research.

Meera Lee Sethi

Meera Lee Sethi is an inquisitive nonfiction writer and part-time bird taxidermist. She brings insight from a background in comparative literature and education to her current work: reporting and reflecting on science in the pages of national publications, for the online magazine *Inkling*, and at her Web site, ScienceEssayist.com.

Sarah Whelchel

Sarah Whelchel is originally from Atlanta, Georgia. She majored in the history of science at Princeton University. She currently is employed as a pharmaceutical advertising copywriter in New York. She is particularly interested in neuroscience, health care and the pharmaceutical industry, and plans to continue writing about science in one way or another wherever life takes her.

Rachel Zurer

Rachel Zurer is a freelance writer and radio producer in Berkeley, California. Her reporting on science and the environment has appeared on Pacifica Radio and in *Terrain* magazine. This summer, she will receive her Master of Fine Arts degree in creative nonfiction from Goucher College. Her hobbies include backpacking, pottery and vegan cooking.

CSPO Hosts for Next Generation of Science & Technology Policy Leaders Roundtables**Prasad Boradkar, Associate Professor, Program Director of Industrial Design, Director of Innovation Space, ASU's Herberger Institute for Design and the Arts**

Prasad Boradkar is the director of InnovationSpace, a transdisciplinary laboratory at ASU where students and faculty partner with researchers and businesses to explore human-centered product design concepts that improve society and the environment. He currently is working on a book titled *Designing Things: A Critical Introduction to the Culture of Objects*. He has held positions at the Delft University of Technology in the Netherlands, as well as ITT Technical Institute in California. The central objective of his research activities is to perform critical cultural analyses of objects, thereby expanding their accepted meanings in industrial design discourse. He holds master's degrees in industrial design from both Industrial Design Centre, Bombay, India, and Ohio State University. He is a CSPO affiliated scholar.

Netra Chhetri, Assistant Professor, CSPO and ASU's School of Geographical Sciences and Urban Planning

Netra Chhetri returned to academics after more than a decade of working for governmental and non-governmental organizations in developing countries. In addition to his joint appointment in the School of Geographical Sciences and Urban Planning and at CSPO, he is a faculty associate for the doctoral programs in environmental social science and Human and Social Dimensions of Science and Technology, as well as an Honors Disciplinary Faculty with the Barrett Honors College at ASU. Rooted broadly in the nature-society realm of geographic inquiry, Dr. Chhetri's research advances scholarship on human dimensions of climate change through the understanding of how a society's adaptive capacity to climate variability and change is shaped by the geographical region's social, political, institutional and biophysical contexts. Dr. Chhetri was involved in the review and synthesis of literature in the Third Assessment Report of the International Panel on Climate Change and is a contributing author for IPCC's Fourth Assessment Report. He holds a doctorate from Pennsylvania State University.

Karin Ellison, Executive Director, ASU's Center for Biology in Society

Karin Ellison works in the areas of research ethics, graduate program development, and history of technology. She teaches, conducts research and contributes to ASU's research integrity initiatives. Her current research is a collaboration with CSPO colleagues to develop curriculum and assess ethics education for science and engineering graduate students. Dr. Ellison is a member of ASU's Intellectual Property and Institutional Review Committee, Dean's Faculty Fellow in the College of Letters and Sciences, and a CSPO affiliated scholar. As the executive director for the Biology and Society graduate programs and a founding member of ASU's interdisciplinary doctoral degree program in Human and Social Dimensions of Science and Technology, she coordinates development of unit-level processes and requirements for the programs. By training a historian of technology, Dr. Ellison's areas of interest are the institutional history of American science and technology as well as the history of engineers and engineering in the United States. She received her doctorate from MIT.

Ed Hackett, Professor, ASU's School of Human Evolution and Social Change

Ed Hackett studies the social organization and dynamics of scientific research, asking how patterns of interaction, leadership, interdisciplinary collaboration, and other factors influence the production of knowledge. He has written on many other aspects of science, technology and society, including research misconduct, the scientific career, science and law, university-industry research relations and environmental justice and is co-editor of *The New Handbook of Science and Technology Studies*. From 2006-2008, Dr. Hackett directed the Division of Social and Economic Sciences at the National Science Foundation. He previously served as an NSF program officer in the Science and Technology Studies Program. Dr. Hackett is a CSPO affiliated scholar, and holds a doctorate in sociology from Cornell University.

Joseph Herkert, Lincoln Associate Professor of Ethics and Technology, Associate Professor, CSPO and ASU's School of Letters and Sciences

Joe Herkert works primarily in the field of engineering ethics, with particular focus on macroethical problems and issues. He is editor of *Social, Ethical and Policy Implications of Engineering: Selected Readings* and has published numerous articles on engineering ethics and societal implications of technology in engineering, law, social science and applied ethics journals. Dr. Herkert is a past-president of the Society on Social Implications of Technology of the Institute of Electrical and Electronics Engineers (IEEE). He is a senior member of IEEE and currently serves on the IEEE Ethics and Member Conduct Committee. He is a member of the National Institute for Engineering Ethics Executive Board and an associate editor of the new journal *Engineering Studies*. In 2005, Dr. Herkert received the Sterling Olmsted Award, the highest honor bestowed by the Liberal Education Division of the American Society for Engineering

Education. He holds a doctorate in engineering and policy from Washington University. He is a registered professional engineer with more than five years experience as a consultant in the electric power industry.

Merlyna Lim, Assistant Professor, CSPO and ASU's School of Social Transformation

Merlyna Lim's current teaching and research interests revolve around the political shaping and societal construction of technology, focusing on new media, information and communication technology, and cities/urban spaces, in relation to issues of globalization, identity politics, democratization and equality. She has published numerous articles on socio-political dimensions of the Internet and cyberactivism, as well as on globalization and civil society in Asian cities. Dr. Lim is a leader in CSPO's Alternative Imaginations research cluster. In 2009, she received a grant from the Ford Foundation in the field of Media and the Public Interest to undertake applied research, training and pilot projects on emerging patterns of digital and converged media production and consumption in Indonesia. She also was named one of "Our Common Future Fellows" by the Volkswagen Foundation for 2010. She also received a grant in 2010 from U.S. Office of Naval Research for a project on analyzing social media for cultural modeling. She holds a doctorate in science and technology studies from the University of Twente, Enschede - The Netherlands.

Clark Miller, CSPO Associate Director, Associate Professor, ASU's School of Politics and Global Studies

Clark Miller chairs the doctoral program in Human and Social Dimensions of Science and Technology at Arizona State University. His research and teaching focuses on the governance of large-scale socio-technological systems change and the global politics of knowledge and reasoning. He is the editor of *Changing the Atmosphere: Expert Knowledge and Environmental Governance* and has written extensively in the fields of globalization, science and technology studies, and science and technology policy. Before joining ASU, Dr. Miller was a professor of science studies and public affairs at the University of Wisconsin and of political science at Iowa State University. He received his doctorate from Cornell in electrical engineering and has held postdoctoral positions at the Department of Science & Technology Studies at Cornell and the John F. Kennedy School of Government at Harvard.

Mary Jane Parmentier, Lecturer, CSPO and ASU's School of Letters and Sciences

Mary Jane Parmentier's research activities are in developing countries and the role of technology in economic, social and political development. Recently, she has examined the role of science and engineering in development in Latin America, and information technology in international integration and development in the region. Her research has been published in book chapters and journals, including *Review of Policy Research* and *Information Technologies and International Development*. She continues her research on Islam and politics in North Africa, and is interested in Islamism as a social movement, as well as the factor of information technology in Islamism in Morocco. Dr. Parmentier teaches courses in Latin American and Middle Eastern politics and development, international politics, and international development. She received her doctorate in international studies from the Graduate School of International Studies at the University of Denver. In the 1980s, she served as a Peace Corps volunteer in Morocco.

Jason Robert, Franca Orefice Dean's Distinguished Professor in the Life Sciences, Lincoln Associate Professor of Ethics in Biotechnology and Medicine, ASU's School of Life Sciences and CSPO

Jason Scott Robert is the Franca Orefice Dean's Distinguished Professor in the Life Sciences and the Lincoln Associate Professor of Ethics in Biotechnology and Medicine at Arizona State University. He directs the Bioethics, Policy, and Law Program, part of the Center for Biology and Society, and serves as Associate Professor of Basic Medical Sciences at the University of Arizona College of Medicine - Phoenix in partnership with Arizona State University. In 2008, ASU President Crow selected him as one of a handful of Promotion and Tenure "Exemplars" who exhibit the characteristics of excellent scholarship, teaching, and service that represent the New American University. Dr. Robert has published extensively on ethical, conceptual, and methodological issues in developmental biology and evolution. His research interests are bioethics, philosophy of biology, philosophy of medicine, philosophy of science, science policy, public health policy, health public policy, and how scientists try to justify controversial research. He holds a doctorate in philosophy from McMaster University.

Jameson Wetmore (see page 11)

Dave White, Associate Professor, ASU's School of Community Resources and Development

The overarching goal of Dave White's research is to create knowledge that advances scientific understanding of how people relate to the natural environment and that empowers individuals, communities and institutions to make better decisions about natural resources. His research has developed and studied processes, outcomes and institutional forms of boundary organizations for the co-production of knowledge and decisions; identified divergent perspectives between stakeholder groups at the science-policy nexus; and tested competing methods for gathering information on sensitive topics from decision makers. Dr. White is affiliate faculty with the Decision Center for a Desert City and ASU's Global Institute of Sustainability, on the graduate faculty for ASU's doctoral program in environmental social sciences, and a CSPO affiliated scholar. He holds a doctorate in forestry from Virginia Tech, a master's degree in resource recreation and tourism from University of Idaho, and a bachelor's degree in history from George Mason University.

Session Descriptions

Exemplar Panels

Six “exemplars” of innovative approaches to managing the promises and complexities of science and technology have been chosen to share their knowledge and perspectives during panel discussions on Monday and Tuesday. Following a moderated panel discussion each day, there will be 30 minutes of moderated discussion with the audience.

Roundtables: Next Generation of Science & Technology Policy Leaders

Concurrent with *The Rightful Place of Science?*, CSPO is conducting an NSF-funded Workshop for the Next Generation of Science and Technology Policy Leaders, which aims to build a community of science policy scholars who can span the terrains of intellectual inquiry and real-world practice. Twelve workshop participants were chosen from a strong pool of international applicants. Four participants will present at concurrent roundtable sessions on each of the three days of conference, sharing their work within CSPO’s program areas: Responsible Innovation; Sustainability and Adaptability; Science, Technology and Global Affairs; Technological Systems and Infrastructures; Healthy and Just Societies; and Securing Our Common Future. After their 20-minute presentation, there will be short reactions from two respondents and a 50-minute moderated discussion with the audience. CSPO also is conducting a second NSF-funded workshop for the Next Generation of Science Communicators, “To Think, To Write, To Publish.” Each of these 12 participants will be paired with a participant in the Next Generation of Science & Technology Policy Leaders workshop to develop publication ideas to pitch to editors and agents. Additionally the communicator in each pair will serve as a respondent in their partner’s roundtable.

#1 Expertise and Participation

Dean Nieuwsma, Assistant Professor, Science & Technology Studies, Rensselaer Polytechnic Institute / *Respondents: Prasad Boradkar and Victoria Blake (Monday, 4:00-5:30pm, Augustine)*

Dr. Nieuwsma’s work focuses on increasing public participation in technology decision making using progressive engineering design. He examines the relationship between experts and non-experts in policy making, as well as the relationship of experts to other experts. His paper investigates politically progressive engineers and their work redirecting engineering activity toward the needs of marginalized social groups. It draws on two case studies: one of engineers in Sri Lanka seeking to electrify remote rural villages and one of a small group of engineering activists seeking to bring social justice concerns more centrally into the engineering profession. The paper asks what these engineers do and how they think about their work in an effort to glean lessons for the democratization of science and technology policy more generally. By looking at the grounded practices and the conceptual frameworks of progressive engineers, he hopes to highlight areas within policymaking scholarship that deserve more systematic attention or otherwise further consideration. In this roundtable, Dr. Nieuwsma will try to provide a perspective that looks from grounded practice up toward policy rather than the more usual approach of devising policies and anticipating ground-level responses.

#2 Towards a Global Bioethics or Just a Better Bioethics

Jennifer Liu, Freeman Foundation Postdoctoral Fellow, Center for East Asian and Pacific Studies, University of Illinois / *Respondents: Jason Robert and Deborah Gardner (Monday, 4:00-5:30pm, Capistrano)*

Looking at the cultural and historical differences that create challenges for global bioethics, Dr. Liu’s research examines Taiwanese practices in policymaking and research. Her research is based on ethnographic work done in Taiwan over a 14-month period and includes Buddhist and Confucianist ethical perspectives on human embryonic stem cell research. She looks at stem cell research and bioethics as anthropological objects, examining them in relation to projects of nation-building and modernity. Stem cell research provides new international competition and collaboration, as well as new ethical concerns. Dr. Liu uses a comparative example of Taiwanese policy and California’s stem cell initiative to show how public deliberation processes advance controversial practices of science and how there are emerging relationships between science and its publics. In this roundtable, she starts by examining the question of what bioethics is and suggests that we can gain greater insight by reframing the question as one of what bioethics does, rather than what it is or how it should be. She also suggests that bioethics increasingly serves to facilitate and legitimate research and to mitigate risk, and that as such it can, indeed, serve as a site of transnational and international cooperation and agreement, despite provocative rhetoric of difference.

#3 The Policies and Politics of Governing ‘System Innovation’

Florian Kern, Research Fellow, SPRU - Science and Technology Policy Research, University of Sussex / *Respondents: Joe Herkert and Stephanie Harris (Monday, 4:00-5:30pm, Ironstone)*

Over the last few years a fast growing literature developed around the notion of socio-technical systems and the possibilities for governing ‘system innovations’ toward sustainability. Government policies are assumed to play an important role in such processes. In this roundtable, Dr. Kern focuses on two specific policy initiatives (one in the UK and one in the Netherlands). The main question is why the two governments engage with the same challenge in such different ways? By answering this question, he sheds light on the policies and politics of governing ‘system innovations’. He highlights the importance of discourses, interests and institutional contexts in shaping policy initiatives to promote ‘system innovations’ and comments on their outcomes so far. Looking at the field of policy-relevant research, Dr. Kern examines what direction of technological change is desirable. His conclusions discuss the potential for policy learning across countries.

#4 Thought and Action in Science and Technology Policy

Adam Briggie, Assistant Professor, Philosophy and Religion Studies, University of North Texas / *Respondents: Mark Brown and Meera Lee Sethi (Monday, 4:00-5:30pm, Jokake)*

Dr. Briggie's work looks at the President's Council on Bioethics under the chairmanship of Leon Kass and its implications for biomedical science and technology policymaking. He analyzes the issue of framing and looks at the Kass Council from four different perspectives: public bioethics, "rich" public bioethics, politicized, and humanities policy. In this roundtable, he will argue that much of biomedical science and technology policy necessarily has philosophical dimensions and that "fundamental inquiry into the human and moral significance of biomedical science and technology" is recognition that in an age of transformative biotechnology, policy decisions are philosophic decisions about the meaning of being human and living well. How we think about ourselves and the moral language we bring to bear in our decisions are simultaneously philosophic and pragmatic issues. There simply is no way to divorce the two: any attempt to focus solely on the practical side will succeed not in eliminating fundamental questions (say, by cordoning them off to the private sphere) but in answering them surreptitiously with assumptions.

#5 Creating the Market University—How University Science Became an Economic Engine

Elizabeth Popp Berman, Assistant Professor, Department of Sociology and Department of Public Policy, University at Albany, SUNY / *Respondents: Ed Hackett and Sarah Whelchel (Tuesday, 1:45-3:15pm, Augustine)*

This roundtable is based on Dr. Popp Berman's research for her upcoming book of the same name. The conventional wisdom about why universities became more involved in the market emphasizes two factors. First, the move is seen as a natural result of universities' constant search for new resources. A second argument focuses on the role of industry in pulling universities toward the market when cash-strapped firms cut back on doing research—particularly basic research and looked to universities to replace it. Dr. Popp Berman argues that while there are elements of truth to each of these arguments, the main reason academic science moved toward the market was not a search for new resources or the changing needs of industry. Instead, she makes two central claims about why universities' behavior changed. The first is that it was government that encouraged universities to treat academic science as an economically valuable product—though not by reducing resources so that universities were forced to try to make money off of their research. The second is that the spread of a new idea, that scientific and technological innovation serve as engines of economic growth, was critical to this process, transforming first the policy environment and eventually universities' own understanding of their mission.

#6 The Role of Intermediary Organizations and Knowledge Communities in Bridging Barriers

Mark Shafer, Director of Climate Services, Oklahoma Climatological Survey, The University of Oklahoma / *Respondents: Dave White and Mary McGrath (Tuesday, 1:45-3:15pm, Capistrano)*

Does a cultural divide separate scientists from the broader community in which they live? Dr. Shafer's work addresses this cultural divide in the context of drought policy to examine whether such a cultural divide exists and, if so, what mechanisms facilitate interaction across this divide. He conducted a study between the summer of 2004 and spring of 2005 in which more than 50 individuals, representing both the scientific and state-level policy communities, were interviewed. Questions focused on how scientists conduct and communicate their research, and information sources upon which policymakers draw for advice on creating state drought plans. Dr. Shafer examined communication processes between the two communities, including preferred forms of communication. The "two cultures" barrier did not seem to be a significant factor in this process even though there was little direct communication between scientists and top policymakers. Communication at lower levels of state organizations and through intermediary organizations helped ensure drought and climate information was communicated.

#7 Social Media Policies for Disaster Response

Jeannette Sutton, Disaster Sociologist, Institute of Behavioral Science, University of Colorado at Boulder, and Assistant Research Professor, Trauma, Health and Hazards Center, National Institute for Space, Science and Security Centers, University of Colorado at Colorado Springs / *Respondents: Merlyna Lim and Mason Inman (Tuesday, 1:45-3:15pm, Ironstone)*

Social media technologies have quickly become important mechanisms to communicate warning and risk information in periods of crisis and disaster. The explosive growth of networked communications, both the emergence of new technologies as well as their rate of adoption, has required government officials and public safety organizations to consider how they might tap into their power as a means to disseminate information to populations at risk, as well as obtain crowd-sourced information for situational awareness. Dr. Sutton's research addresses the policies designed to manage communications using networked social media among public officials. It focuses on social media access and uses among emergency managers and public safety personnel who are tasked with mitigating the impacts, preparing for, responding to, and recovering from disasters and hazardous events. In this roundtable, she examines two general kinds of policies for social media within local government: those that detail the official use of social media among departmental personnel and those that govern inbound communication and comments from members of the public.

#8 Trading Safety for Security-International Nuclear Assistance Revisited

Sonja Schmid, assistant professor, Department of Science & Technology in Society, Virginia Tech / *Respondents: Jameson Wetmore and Ross Carper (Tuesday, 1:45-3:15pm, Jokake)*

Dr. Schmid's roundtable further develops her ongoing research on energy systems (especially nuclear energy) in the post-socialist societies of Central and Eastern Europe. In the context of current proposals about a global expansion of nuclear energy, the Soviet model of nuclear assistance to its bloc allies is sometimes referenced as exemplary for preventing the proliferation of nuclear weapons know-how, while furthering the development of local civilian nuclear industries. Ultimately, Dr. Schmid hopes to understand what happened to nuclear reactors that had been created with one set of standards, norms, and design decisions once they were abruptly transferred to a

completely changed institutional, economic and political environment after the disintegration of the Soviet Bloc. She addresses the general dilemma of technology transfer (do we transfer merely technical artifacts, or expertise and “culture” as well?), the challenges of integrating technological systems into fundamentally changed political structures, and what effects the newly emerging forms of international cooperation in Central and Eastern Europe, which has emphasized nuclear *security*, may have for the *safety* of their Soviet-designed nuclear power plants.

#9 A Common Disaster: Scientific Uncertainty and Institutional Barriers to Climate Change Adaptation in Managed and Protected Landscapes

Jeremy S. Littell, Research Scientist, JISAO / CSES Climate Impacts Group, University of Washington / *Respondents: Netra Chhetri and J.D. Ho (Wednesday, 8:00-9:30am, Augustine)*

In the last few years, adaptation to climate change has emerged as a first priority for agencies (local, state, federal, and private) charged with sustainably managing water, ecosystems, and threatened species. As scientific understanding of likely climate impacts on terrestrial ecosystems has grown, the scientific basis for adaptation strategies has become far more tangible. However, the institutional barriers that hinder development and execution of current and future adaptation strategies have received less attention. In this roundtable, Dr. Littell looks at climate change adaptation and the differences and challenges with managed and protected landscapes. Scientific uncertainty and institutional barriers both can hinder development. He investigates ways to address both simultaneously, developing methods to incorporate climate science into decision making. There is a push for more science-management partnerships to have conscious adaptation instead of just crisis driven, as well as other ways to consider local climate in climate change models. Dr. Littell uses work in climate services across the US Pacific Northwest conducted with regional water managers, the United States Forest Service, and the United States National Parks Service. Examining the differences in the different management systems, he looks at how local institutions can work with science to help foster climate adaptation in decision making.

#10 Global Oceans, Global Knowledge-Examining Approaches for Successful Cross-Cultural Adoption of Marine Conservation Technologies

Lekelia “Kiki” Jenkins, Postdoctoral Scholar and Research Associate, School of Marine Affairs, University of Washington / *Respondents: Clark Miller and Lauren Oakes (Wednesday, 8:00-9:30am, Capistrano)*

Dr. Jenkins’ research focuses on determining the key factors for successful international promotion and adoption of marine conservation technologies, looking specifically at two case studies in marine conservation issues working to inform current technology policy about problems with adaptability. The case studies both focus on using newer technologies to lower sea turtle mortality—using turtle excluder devices in shrimp trawls and promoting the use of circle hooks to reduce incidental capture of sea turtles in longline fishing gear. Her study answers the overarching research question: What are the key factors for successful international promotion and adoption of marine conservation technologies? The findings include a disconnect in how more traditional technologies are adopted compared to green technologies, and the intrinsic categorical differences that change efficacy of those green policies. Underlying assumptions from policymakers and change agents may inhibit widespread adoption of policies and result in policies incompatible culturally with those affected by the policies. In this roundtable, Dr. Jenkins explores where green technologies fail at wide-spread and long-term adoption, examining the failures of international technology transfer and promoting ways to aid better cross-cultural adaptation of marine conservation technologies.

#11 Instruments for Environmentally Just Science

Gwen Ottinger, Program Researcher, Center for Contemporary History and Policy, Chemical Heritage Foundation / *Respondents: Mary Jane Parmentier and Rachel Zurer (Wednesday, 8:00-9:30am, Ironstone)*

Dr. Ottinger’s research informs emerging standards of air quality monitoring to improve health in environmental justice communities. Focusing specifically on two types of air monitors, she looks at green technologies and suggests criteria for determining if a policy is actually environmentally just or just green. The evaluation of the two air monitors demonstrates how practicality in design decisions can change inequities and can be designed to promote health and justice. Air monitors are significant as ways to increase communities’ participation in decision making and political power, as well as helping decision makers’ understandings of environmental threats to community health. In this roundtable, Dr. Ottinger will look at how infrastructures for producing scientific knowledge about environmental health and quality—including standard protocols for data collection, regulatory frameworks for interpreting data, and tools making data available to the public—can, depending on their specific design, help or hinder procedural justice. She will suggest how policymakers might help institute knowledge production infrastructures more compatible with procedural justice, in particular, and environmental justice more generally.

#12 Export Controls

Samuel Evans, Postdoctoral Fellow, Program on Science, Technology, and Society and School of Engineering and Applied Sciences, Harvard University / *Respondents: Karin Ellison and Jason Bittel (Wednesday, 8:00-9:30am, Jokake)*

The export control system of the United States, designed to control the flow of militarily significant technology out of the country, currently is being reformed. This is an opportune time to look at the assumptions, especially about technology, which underlie export controls, and to analyze whether those assumptions are still valid. In this roundtable, Dr. Evans looks at the export control system, the boundaries between military and non-military technology, and the viability of the current system. The export control system and current policy around it rest on three basic assumptions: direct-ability of who the research is kept from, controllability of the flow of research, and the ability to define “militarily significant” research. The last assumption has problems with the line between military and non-military technologies. Dr. Evans explores the problems with “dual-use” technology and levels of technology, especially with the realm of emerging technologies. He argues that it is no longer a tenable construct due to changes in administration of export controls and changes in the effort to bring new technologies from the lab bench to full deployment.

Tabletop Salons

These roundtables are where the primary work of the conference will take place, generating items to be part of the developing research, education and outreach agenda to enhance linkages between scientific and technological research and beneficial societal outcomes. Conference attendees submitted discussion topics and abstracts when they registered, and 18 Tabletop Salons will be offered: #1-#9 concurrently on Monday and #10-#18 at lunch on Tuesday. Conference attendees are free to choose the Salons in which they want to participate. During these two sessions the focus of the discussion should be on the state of the topic and brainstorming ideas to contribute to a research, education and outreach agenda. On Tuesday afternoon, all 18 will reconvene to draft agenda items; each Salon should submit a one-page description of its agenda item to cspo@asu.edu or in person by the end of Wednesday. Here are the descriptions, provided by the leaders, for the 18 Tabletop Salons:

T1 Science and Social Justice: Broadening Participation in STEM Research Leadership

Led by: Elba Serrano, New Mexico State University

Well over 50 years after the civil rights movement integrated American schools, the ethnic demographics of STEM research leadership remains virtually unaltered. This session is for anyone interested in asking whether the rightful place of science can ever be justly determined if large segments of the population are disenfranchised from leadership of the research teams of the present and future.

T2 Public Value Mapping: A Method for Defining the Rightful Place of Science in Public Policy

Led by: Catherine Slade and Derrick Anderson, CSPO, Arizona State University

The key assumption of the public-failure model and the fundamental notion of the Public Value Mapping method is that policy that focuses on market success alone could be ignoring public values, or the common values prized within a culture and expected to be provided to all of its citizens. The notion that government policy and investment is required to further science as a public good is not a new one. Public value theory contends that failure occurs when neither the market nor public sector provide adequate goods and services required to achieve common good. During this Tabletop Salon we will explore methods for identifying public values in policy statements and continued development of more rigorous methods for analyzing underlying value structures and change in values for science policy over time.

T3 Geoengineering Experiments: Who Decides About Experiments with our Global Climate?

Led by: Jason Blackstock, Centre for International Governance Innovation

Increasing concerns about the climate have led many scientists to ask whether schemes to intentionally 'engineer' the global climate system (specifically through reflecting solar radiation away from the earth or removing GHGs from the atmosphere) might be able to moderate at least some of the worst negative impacts of GHG-induced climate change. In principle, such geoengineering technologies might be of great utility for insuring global public welfare against worst-case climate scenarios. But the risks associated with developing and field-testing such technologies are significant, global in nature, and have embedded distributional inequities. Under these circumstances, what is the rightful place of the scientific process and community within the emerging societal discourse regarding geoengineering? This Tabletop Salon will begin with short introductory remarks sketching out the current scientific and social discourses on geoengineering, followed by an extended discussion exploring the issues of ethics, politics, public engagement, democratic processes and practical governance as they relate to emerging geoengineering research.

T4 Objectivity in Science and Science Studies

Led by: Theodore Brown, University of Illinois, Urbana-Champaign

Objectivity is considered to be one of the hallmarks of a scientific approach to study of the natural world. But what do we mean by this term? To what extent does the notion of objectivity bear upon society's acceptance of scientific authority? Is objectivity in the pursuit of science at the most basic level distinguishable from objectivity in the applications of science? Is it possible to establish criteria for evaluating objectivity? Questions of objectivity may arise in science policy debates, in evaluations of scientific results that bear in important ways on societal affairs, such as work on climate change or toxicological studies. How are questions regarding objectivity addressed? Finally, how do we evaluate the objectivity of those conducting science studies?

T5 The Public Voice of Science and the Denial of Climate Change

Led by: Prajwal Kulkarni

Evidence from numerous scientific disciplines has painted what should be a convincing picture of anthropogenic climate change (ACC). Yet, well-funded and organized campaigns have managed to undermine public confidence. This table top salon discusses how contrarians are often given false credibility on ACC because science communication rarely addresses the methodological diversity that exists in science. The public instead hears scientists speak of "the" scientific method and "the" way that science works. This misconception of science as homogeneous creates a situation where scientists are considered an authority on almost any scientific topic. Rather than portraying a single approach to science, emphasizing its methodological diversity might better communicate the key idea that scientists are not knowledgeable about all of science. The public might be more inclined to believe in ACC if they only listened to scientists from the field that do the day to day work and understand the complexities.

T6 University-Museum Partnerships for Engaging the Public in Science and Society

Led by: Rae Ostman, Sciencenter

In this Salon, we'll explore the potential for partnerships between universities and museums to engage the public in issues related to science and society. As trusted sources of information and entertainment, museums are well-positioned to work with universities to introduce the public to local and global problems, as well as the potential solutions found in current scientific research. As a group, we'll

critique and brainstorm exhibits, programs, and media, and that engage the public in societal issues. We'll focus on creating experiences that respond to public interest and questions about issues such as energy and the environment, and that support a deeper inquiry into questions related to science funding, regulation, equity, and ethics. The outcome of our discussion will be a proposed model for a collaborative, cross-disciplinary approach that emphasizes both public concerns and current research.

T7 The Problem with Statistical Modeling

Led by: Samuel Western

Computer modeling has played a critical role in American policy since the Manhattan Project. The concept quickly leapt from military to scientific and economic projects. *Limits to Growth*, published in 1972, used computer modeling. Yet scientists discovered a problem with *Limits*: the models it employed were written by humans and prey to subjective interpretations. Since publication of the *Limits of Growth*, the world's population has nearly doubled. We will rely on computer modeling to make sure the economies of scarcity don't become too real. Yet we hear of snafus with industry or policy makers who either rely too heavily on models or ignore them.

1996: "I believe nicotine is not addictive." (R.J. Reynolds had used computer modeling to show additives could make nicotine even more addictive)

2008: Arjun Murti of Goldman Sachs, with access to superior computer modeling, predicts that oil would soon hit \$200 a barrel. Within eight months it drops to \$39.43.

2009: In a nutshell, theoretical models cannot explain what we observe in the geological record. There appears to be something fundamentally wrong with the way temperature and carbon are linked in climate models. Gerald Dickens, Rice University.

2009. Basic finance, Mr. Greenspan? "The current crisis has demonstrated that neither bank regulators, nor anyone else, can consistently and accurately forecast...if the financial system as a whole will seize up."

Is computer modeling getting more or less accurate? Is it gaining in importance? Will errors carry increasingly greater consequences? Or are we facing an old problem merely in need of adjusting? Moi? I'm a writer specializing in economic history. I'm particularly interested in big economic trends and behavioral economics. As scientific solutions become, by necessity, increasingly a part of our social milieu, I'm curious how ideas succeed or fail in influencing public policy.

T8 Science and Political-Social Perceptions

Led by: Jeff Williams, Science and Public Policy Journal

How does US society and how does the US political system view science? Is it a monolithic entity or seen as moldable or variable, and responsive to change across a range of subject areas? Does science need to represent itself in these interactions, or should it serve only as a neutral source of knowledge?

T9 Putting Anticipatory Governance Into Practice

Led by: Mark Philbrick, University of California, Berkeley

The idea of anticipatory governance implies an experimental and adaptive approach to policy and strategy. How can we begin putting it into practice with respect to emerging technologies? Specifically, what kinds of steps could the National Nanotechnology Initiative (NNI) take now to improve its capacities for foresight and engagement, and to feed the insights gained thereby into its research strategies, and participating agency policies? Further, are there other points of constructive intervention beyond the NNI? For example, does the newly funded ARPA-E program within the Department of Energy constitute a similar opportunity? If so, what steps or measures might we take, and how should implementation proceed?

T10 Artists and Scientists: The Fundamental Exchange

Led by: Liz Lerman and Elizabeth Johnson, Liz Lerman Dance Exchange

The last few years have witnessed a renaissance of interest in the longstanding connections that exist between science and art. Join a conversation about the roles that scientists and artists can play in one another's work and the potential for innovation that exists in collaboration. Expect a spirited exchange touching on shared process and methods, the nature of discovery, analysis and intuition, and how we prepare the public for the future. Hosting the Tabletop Salon will be Liz Lerman and Elizabeth Johnson of Liz Lerman Dance Exchange, whose recent ventures at the intersection of science and art have taken them to labs, classrooms, science museums, medical centers, the contemporary dance stage, the Space Telescope Science Institute, and the Large Hadron Collider at CERN.

T11 Science in or Science and Democracy: How Should the Autonomy of Science be Construed?

Led by: Heather Douglas, University of Tennessee

Depending on how one conceptualizes the rightful place of science, different understandings of the nature of the autonomy and authority of science emerge. If science is in a democracy, then science is part of a democratic society, and thus should be understood as committed to the furtherance of democratic aims and as supporting fundamental democratic principles. Science's autonomy (limited in these ways) is then defended by the democratic system in which it is embedded, and its authority derives from its usefulness for democratic governance. On the other hand, if science is seen as autonomous from the democratic society (science AND democracy), then science may or may not be committed to democratic principles, depending on the interests of the independent and conceptually autonomous scientific community at any given time or place. What can be seen in the tensions between these alternative descriptions? Is one clearly preferable to the other, and if so, why?

T12 What Counts as Quality Work for Science and Technology Policy Research?

Led by: Samuel Evans, Harvard University

There is much talk about how scientists and engineers need to be more aware of the various publics that are impacted by their work (and which also impact their work). There are traditional methods for determining what constitutes good science or good engineering,

and those metrics still seem to stand, though such things as ethics and stakeholder awareness may now be added on top of them. But what about the researchers who look at science and technology policy? What process do we go through to determine what counts as quality work in our field? It is not necessarily the standard number of academic articles in top journals, nor the prestigious post at a top university. And yet, these are the traditional measures of success for posts in the academic community. As young researchers and practitioners, do we hurt our chances of ever being established in the academy by our desire to focus our efforts more on policy engagement?

T13 Incorporating Climate Science into Federal Agency Decision Making, Planning and Climate Change Adaptation

Led by: Jeremy Littell, University of Washington Climate Impacts Group

In many federal agencies tasked with managing public lands and resources, climate change is likely to fundamentally change the decision environment, both in terms of its impacts on natural resources AND in terms of the way uncertainty in the decision environment is approached. The interface between physical science, natural resource science, and social science is therefore the information nexus required to inform such a decision environment, yet the best available science agencies are supposed to act on is rarely synthesized with this in mind. What partnerships between academia, federal science, and agency decision making could facilitate the development of this nexus with an eye toward better decision making? Would such partnerships even help? How do we train the next generation of scientists to function better in this environment, and how do we raise the scientific awareness and capacity of agencies? Or are there other questions we should be communicating to our federal partners?

T14 Managing for Environmental and Socioeconomic Resilience

Led by: Nancy Dahl-Tacconi, Department of Environment, Water, Heritage and the Arts, Australia

How do we define environmental and socioeconomic resilience and where do we find the information base to support it?

T15 Beyond 700ppm

Led by: Lewis Gilbert

While climate science continues to founder on a lee shore, the question remains: How can we achieve the best possible future for humans on Earth? In Herbert Simon's natural / artificial framework, this question is unambiguously artificial and hence elements of human intention are inextricably entwined in both its formulation and the in the processes of its answers. Following further, it seems likely that the artificial sciences (disciplines?) — e.g. social science, engineering, and I would expand to the humanities as well — will become more relevant as time passes. This Salon will focus on that evolution:

- How can the artificial disciplines avoid the pitfalls that have bedeviled climate science in recent decades?
- How can variances in culture and geography be accounted for as we strive to govern ourselves on local, regional and global scales toward a better future?

T16 Science in Situ: Doing Science in Contexts Characterized by Political Complexity & Social Inequality

Led by: Paul Hirsch, Syracuse University, and Helmut Hirsch, University of Albany, SUNY

Research often takes place in social settings characterized by political complexity and social inequality, and scientists – consciously or unconsciously – become players in a larger set of dynamics that are not captured within the bounds of their research questions and methodologies. Even scientists wishing to be more reflective of the social implications of their work find themselves leaving the terrain in which they are comfortable, to enter realms within which they have no particular qualifications beyond that of an ordinary citizen. What is a responsible scientist to do? This Salon will be led by a policy scientist who has written about the ways in which scientific research in socially complex settings can go awry – specifically research on lead paint and its abatement – and a biologist identifying lead-dependent genetic changes in fruit flies, who just re-entered the domain of human research. After elucidating examples of the quandaries of scientists contemplating the relationship between research and its socio-political context, we will draw on the experiences and insights of participants to develop a suite of strategies (both at the individual and the institutional level) that can support an appropriate place for science in the world.

T17 New Work-Place Models: Changing How We Work Together to “Do” Science

Led by: Kennan Salinero, Yámana Science and Technology

A creative mind following the track of an intriguing question is the stalwart basis of scientific discovery from ages past...Newton with the apple falling on his head, Einstein riding a light beam, Fleming discovering bread mold killing his bacterial stocks. However, the complex problems facing the world today have outpaced the independent-investigator approach that requires problems be limited in scope to that for which a single investigator can gain expertise. Environmental work, creation of new energy sources, multi-faceted treatments of disease require a level of cooperation, synergy, and collaboration not seen before in the scientific world. This new era is calling us forward to develop and explore more sophisticated ways of working together – more meta-level coordination and less direct competition for the spoils of sole ownership of discovery. This will be an opportunity to discuss the many emerging conversations and tools that can usher in the next era of scientific discovery.

T18 Participatory Technology Assessment in the 21st Century: Including the Lay Public in Scientific Decision Making

Led by: David Sittenfeld, Museum of Science, Boston

Scientists, policymakers, and laypeople all have crucial roles and different perspectives in making decisions around issues in science and technology that have broad societal impacts. Although we all make decisions on technology every day as part of our daily lives, efforts are increasing on a number of fronts to give laypeople a formalized voice in policy discussions in the United States. This Tabletop Salon will describe a number of existing international and domestic models to engage the public in substantive policy-based

conversations around emerging topics in science and technology, and consider what their potential impacts might be if they were employed broadly in the US. A new network that unites universities, science centers, and nonpartisan governmental institutions in developing these programs on a national and global scale will be outlined. Participants will discuss how the field can contribute to and improve these efforts.

10-Minute Plays

Master of Fine Arts candidates in Playwriting and in Theatre for Young Audiences have written five 10-minute plays inspired by the question "the rightful place of science?" for presentation during the daily wrap-up sessions on Monday and Tuesday. The students are part of professor Jeff McMahon's Playwrights' Workshop at ASU's School of Theatre and Film. The plays, playwrights and actors are:

Faithful Adaptation by Anne Negri, featuring Courtenay Cholovich, Lee Hanson and Hanna Leister

As Anne pondered the title of this conference, *The Rightful Place of Science?*, she immediately thought of people in our society who are overlooked in debates and legislation concerning science issues. The subject of evolution in public schools is an old story, dating back to the 1920s Scopes Trial. Although creationism may be out-of-vogue, intelligent design has been making waves with the 2005 *Kitzmiller v. Dover* trial in Pennsylvania and with even more recent legislation in Alberta, Canada giving parents the right to have their children opt-out of science class when evolution is taught. Amidst the fights between parents, teachers, school boards and administrators, Anne wonders about the 14-year old biology students and their rights. She wrote this play with these questions in mind: Who are the real "losers" in this polarized debate? And if we listen to young people, what can we learn from them about a personal reconciliation between faith and science? Anne Negri is an MFA Theatre for Youth student who is passionate about theatre for young audiences and supporting new stories for the stage. **Monday, 5:30pm**

Family Tree by José Zárate, featuring Will Hightower and Drew Ignatowski

José's play revolves around the ethics of cloning. It is not about whether or not cloning is ethically right, but about the situations that lead families to pursue cloning as a viable option. At what point does a scientist go from helping a patient to using a patient's circumstances to further his or her own research? José Zárate is a first year MFA student in Dramatic Writing. **Tuesday, 5:15pm**

Happiness by Dan Frey, featuring Will Hightower, Lee Hanson and Drew Ignatowski

Happiness is about depression. The play explores the place of this issue amidst the complex relationship among therapists, patients and the pharmaceutical industry. Inspired by books such as *Stumbling on Happiness* (by Daniel Gilbert) and *Shyness: How Normal Behavior Becomes a Sickness* (by Christopher Lane), the play explores a range of questions: What is happiness? How does "depression" function as a diagnostic category? How does evolving scientific knowledge about depression and other personality disorders relate to individuals and the choices they make? Are the psychiatric profession and the pharmaceutical industry effectively commodifying happiness? Does the treatment of depression prevent us from accepting sadness as a natural part of life? These questions have both practical and ethical dimensions, and there are no clear answers. Instead, there is a messy tangle of political, philosophical, scientific, and economic interests and considerations, which overlap and often conflict. Dan Frey just graduated from ASU with his MFA in Playwriting, and plans to move to Los Angeles to pursue a career as a playwright and screenwriter. His plays *Don Coyote*, about human-smuggling in Arizona, and *AM:I*, about artificial intelligence, were performed at ASU's Lyceum Theatre. He's a pretty happy person. **Tuesday, 5:15pm**

Professionals by Christian Krauspe, featuring Will Hightower and Drew Ignatowski

Presentation seems to be everything. The forum. The professionalism. Every day we see things to reinforce these archetypes, which are created by some sort of conditioning force. The outsider looking in. We have developed this idea of how certain things or people are supposed to "work" and "act." As we consider the "rightful place of science," is it also our duty to consider how that "rightful place" is presented? Christian Krauspe is a second year playwriting MFA student at ASU and recently the recipient of the Ken Ludwig award for playwriting by the American Collage Theatre Festival. **Tuesday, 5:15pm**

The Dolphin Kick by Asher Wyndham, featuring Will Hightower, Courtenay Cholovich, Lee Hanson and Hanna Leister

Recently, the controversy surrounding the South African runner Caster Semenya has dominated the news. The debate surrounding female athlete sex verification testing has confused and divided people. Does the science behind the testing – which incorporates gynecologic, psychiatric and genetic and hormonal examinations – ignore the well-being of the female athlete and her freedom to decide her gender and sex? Should science have the last say on female sexual identity? This play about a champion swimmer explores those questions with choreography and a chorus. Asher Wyndham is a third year MFA candidate in Playwriting at ASU. Recently, his one-act *Cassius Sargent's Chicken Bones* was awarded the John Cauble Award at the American College Theatre Festival at the John F. Kennedy Center. **Monday, 5:30pm**

Field Trips

- **Registration:** Sunday field trips required advance registration at the time you registered for the conference; registrations for the Wednesday field trips will be accepted at the registration desk until 5pm on Tuesday.
- **Trip cancellation:** If a trip's minimum enrollment is not met by Friday, April 30, it will be canceled and registrants will be notified and fees refunded.
- **Cancelling field trip registration:** If your field trip cancellation notice was submitted to CSPO in writing and postmarked or faxed on or before April 15, 2010, ASU will refund your full field trip registration fee. This does not apply if you cancelled your entire conference registration. No refund will be granted if the cancellation notice was not received by CSPO by April 15, 2010.
- **Departure:** Trips will depart on time from the front of the hotel. Trip registrants may check in, in front of the hotel, 30 minutes before departure time.

Sunday, May 16

The Frontline of the Cold War (FT-1) — CANCELLED

Sunday, May 16; Departs at 6am and returns at 5pm

Led by **Mary Jane Parmentier**, Lecturer, ASU's School of Letters and Sciences and CSPO, and **Gary Grossman**, Associate Professor, ASU's School of Letters and Sciences and CSPO

You will spend the day east of Tucson, visiting the Titan Missile Museum and other historical sites, including ICBM missile silos deactivated and destroyed in 1987 as a result of treaties with the Soviet Union. It was agreed that the United States could leave one intact, with the silo top open for satellite verification; this is the intact ICBM silo we will visit, but we also will hike into the desert with a guide to visit several destroyed silo sites. The Titan Missile Museum describes the ICBM program as a "history of keeping peace." Can we assume that 'mutually assured destruction' kept the Cold War cold? Can this past assumption guide present and future nuclear proliferation strategies? This trip will give participants a fascinating context for considering nuclear technology and international politics, as well as an opportunity to enjoy a beautiful day in the Sonoran Desert. On the way home, we will stop at the San Xavier del Bac Mission built in 1797, allowing us to travel back in time, long before the Cold War, when southern Arizona belonged to Spain. NOTE: This tour requires the ability to hike for about 1 hour in the desert on somewhat rough terrain. Bring walking/hiking shoes, hats, sunscreen and additional water. *Fee includes admission to museum and tours, transportation, light breakfast snack, box lunch and bottled water.*

Water in the Desert? (FT-2)

Sunday, May 16; departs at 9am and returns at 4:30pm

Led by **Gregg Elliot**, Salt River Project, **Nancy Dallett**, ASU's School of History, Philosophy and Religious Studies, **Mark Neff**, CSPO Postdoctoral Research Scholar and Faculty Associate, ASU's School of Sustainability, and **Derrick Anderson**, CSPO Management Intern and Graduate Student, ASU's School of Public Programs

How does a large metropolis develop in the desert? Manipulate water. The Hohokam Indians, who inhabited the Salt River Valley from AD 300 to 1450, built a canal system that traversed nearly 500 miles and may have served as many as 50,000 people at a time. The pioneers of the 1860s built canals from the Salt River to irrigate their crops. Following the 1902 Newlands Reclamation Act, water storage and hydroelectric dams were built on Arizona's Salt and Verde Rivers. This field trip will visit two of these dams and travel along the Arizona Canal with a stop at the Canal for a closer look. We will drive the Apache Trail through the scenic Tonto National Forest and stop at Stewart Mountain Dam, which forms Saguaro Lake – a favorite recreation spot and home to a 13,000-kilowatt hydroelectric generating unit. We will travel to Granite Reef Diversion Dam, built to divert the river water from into the canals north and south of the river for delivery to millions of consumers across the valley. We will then travel along the canal system to take a look at the Arizona Canal. We will end the tour on the controversial Tempe Town Lake. Bring walking/hiking shoes, hats, sunscreen and additional water. *Fee includes transportation, box lunch and bottled water.*

Urban Utopias (FT-3)

Sunday, May 16; departs at 9am and returns at 4:30pm

Led by **Cynthia Selin**, CSPO Assistant Research Professor, and **Gretchen Gano**, CNS Outreach and Education Coordinator

With 1.3 million people moving each week into cities worldwide, the design and governance of urban spaces is more critical than ever. Sustainability challenges ranging from environmental degradation to violence to community fitness are usually aggravated in cities. How sustainability principles are either retrofitted into existing cities or designed into freshly developed cities is complex and full of trade-offs. New technologies often are heralded as offering solutions to urban problems – there is no shortage of histories of richly imagined, highly technologized cities. In this field trip, we will explore how future cities are imagined and visualized and what such imagination means for the governance of urban spaces. We will travel to Arcosanti, an urban laboratory focused on pursuing lean alternatives to urban sprawl through innovative design with accountability in mind. This visit to a richly imagined, heavily philosophized place where utopia and reality meet will provide us an opportunity to think through and critique urban imaginations. To temper our futuristic analysis with a deep appreciation of

history, we will conclude the tour with a walk along the cliff dwellings of Montezuma Castle. Bring walking/hiking shoes, hats, sunscreen, and additional water. *Fee includes entry fees, lunch at Arcosanti, bottled water and transportation.*

Immunosignature Diagnostics: A Pointed Look at Research in the Biodesign Institute at ASU (FT-4)

Sunday, May 16; departs at 1pm and returns 4pm

Led by **David Guston**, CSPO Co-Director and CNS Director, **Stephen Johnston**, Director, Center for Innovations in Medicine, ASU Biodesign Institute, and **Neal Woodbury**, Deputy Director, ASU Biodesign Institute

The Biodesign Institute at ASU is one of the nation's premier research facilities. Designated as "Lab of the Year" by *R&D Magazine* in 2006, the LEED certified complex currently contains 350,000 square feet for research in emerging technologies – such as synthetic biology and nanotechnologies – for applications in vaccines, energy and other major societal priorities. In addition to an intimate tour of the Biodesign Institute and its Center for Innovations in Medicine, led by the Center's director and top researcher Stephen Johnston, participants will experience the research in Johnston's lab in a different way: through the eyes of research subjects. Participants will contribute to the immunosignature diagnostics project by donating a drop of blood to be assayed for the distribution of IgG antibodies. *Participants also will receive a Biodesign Institute guest bag full of signature goodies.*

Wednesday, May 19

Sustainability and Adaptability as a Human Decision Challenge (FT-5)

Wednesday, May 19; departs at 1:30pm and returns at 5pm

Led by **Dave White**, Associate Professor, School of Community Resources and Development, **Katja Brundiers**, Community-University Liaison, ASU's Global Institute of Sustainability, and **George Basile**, Executive Director, Decision Theater

We invite you to travel with us to the many possible futures of Phoenix! You will visit a space where insights and new knowledge emerge from dialogue, joint exploration and collaboration between science and society. Researchers from ASU's Decision Center for a Desert City and its partner organization, Decision Theater, will take you to a state-of-the-art research and decision lab where you will be introduced to WaterSim, an interactive simulation model to create "what if?!" scenarios. Using WaterSim, you and other participants will create future scenarios and alter policies related to water supply and demand for the Phoenix metropolitan area. This is a unique opportunity to interact with a 280-degree model viewing environment as you think about the role of visualization, models and science-society collaboration related to sustainability challenges. We also will use these alternate futures to compare the different approaches to scenario planning and their potential influence on collaborative problem solving, governance, strategy building and policy implementation. *Participants will receive a souvenir.*

Can We Live Forever through Cryogenics (FT-6)

Wednesday, May 19; departs at 1:30pm and returns at 5pm

Led by **Jason Robert**, Director, ASU's Bioethics, Policy and Law program, and **Derrick Anderson**, CSPO Management Intern and Graduate Student, ASU's College of Public Programs

Alcor Life Extension Foundation is the world leader in cryonics, cryonics research and cryonics technology. Cryonics is a speculative life support technology that seeks to preserve human life in a state that will be viable and treatable by future medicine. It is expected that future medicine will include the ability to heal at the cellular and molecular levels. We will tour the Alcor facility and discuss technical aspects of cryonics, as well as its social and ethical implications. *Fee includes transportation.*

Going Solar: APS STAR Center's Efforts for the Future (FT-7)

Wednesday, May 19; departs at 1:30pm and returns at 5pm

Led by **Cyndy Schwartz**, Graduate Student, ASU Human and Social Dimensions of Science and Technology

At Arizona Public Service's Solar Test And Research (STAR) Center, we will observe how utility engineers evaluate the latest solar technologies from around the world. We will learn how the center performs small scale performance testing to confirm which products have the best economic potential and discuss the transformative potential of solar energy solutions. Adoption of these new technologies requires changes to institutions and regulations that influence community lifestyles. To what extent will embrace of distributed solar technologies improve the quality of life for all? *Fee includes transportation and afternoon snack.*

DIY Biodiesel at the Dynamite Cooperative (FT-8)

Wednesday, May 19; departs at 1:30pm and returns at 5pm

Led by **David Conz**, Lecturer, ASU School of Letters and Sciences, and Assistant Research Professor, Center for Nanotechnology in Society at ASU

How can we address our energy future now? Imagine liberating yourself and your community from our insatiable petroleum addiction while still driving your old car or truck. In this MacGyver-meets-McDonalds adventure, you'll meet the people and equipment behind a fully-operational biodiesel processing plant. Jay and Gene began as small-scale biodiesel homebrewers, collecting waste vegetable oil from local restaurants. Fabricating all their own equipment from discarded scrap metal and old swimming pool pumps, they formed the Dynamite BioFuels Co-Op and scaled up to their current facility that is capable of producing several hundred gallons of biodiesel per day. Join us for a field trip and discussion of the technical, legal and social challenges and rewards of DIY biodiesel. *Field trip fee includes entry to the cooperative and transportation.*

Conference Location

The Tempe Mission Palms Hotel

All conference events will be held at the Tempe Mission Palms Hotel. Located in downtown Tempe, it is adjacent to the Arizona State University campus and is ten minutes from Phoenix Sky Harbor International Airport. The hotel offers a rooftop outdoor heated swimming pool, rooftop tennis court and basketball hoop, two Jacuzzi spas, elegant garden courtyards, top-rated Mission Grille restaurant, Harry's Place indoor/outdoor lounge, business center and concierge, Phoenix Sky Harbor Airport transportation, high speed wireless internet, and valet service for your vehicle. Rooms are decorated with Southwestern décor and include coffee and tea service, two-line telephones with voice mail and data ports, local and 1-800 telephone calls, receipt of faxes through the hotel's front desk, weekday delivery of *USA Today*, hairdryer, iron with ironing board, and access to the fully equipped fitness center. Non-smoking and wheelchair access rooms are also available. The number for the Tempe Mission Palms Hotel is (480) 894-1400.



Tempe, Arizona

Tempe is the seventh largest city in Arizona and located in the heart of the Valley of the Sun. The downtown area is bounded by Arizona State University to the south and Tempe Town Lake to the north, with the vibrant Mill Avenue district in the middle. The city of Tempe formed in 1879 as a combination of the two settlements of Hayden's Ferry and San Pablo and named from the Vale of Tempe in Ancient Greece. The influences of Native American culture, Hispanic culture, and entrepreneurial settlers, with the unique blend of historic and modern, are still seen today in Tempe.

Things to Do at ASU

Arboretum at ASU: All of Tempe Campus, (480) 965-8137

ASU's Arboretum is Arizona's largest public urban arboretum. Walking through the Tempe campus, one can view collections of palms, deciduous trees, fruit-bearing trees, conifers, evergreen trees, desert trees, cacti, succulents and specialty garden displays.

(1) **Art Museum/Ceramics Research Center:** Nelson Fine Arts Center, 10th Street and Myrtle Ave., (480) 965-2787

Cited in *Art in America* as "the single most impressive venue for contemporary art in Arizona," the ASU Art Museum explores art and its impact on individuals and society. It houses permanent collections of 19th and 20th century American paintings and sculptures, Latin American art, and it has an emphasis on contemporary art including new media. It is home to the Ceramics Research Center, a collection of more than 4,000 pieces. Admission is free. Open 11am-5 pm, Tuesday-Saturday.

(2) **Center for Meteorite Studies:** Bateman Physical Sciences Center C-139, Palm Walk and University Drive, (480) 965-6511

The Center houses the world's largest university-based meteorite collection, with specimens from over 1,500 separate fall events. Open 9am-5pm, Monday-Friday.

(3) **Gammage Auditorium:**

Gammage Parkway and Forest Avenue, (480) 965-3434

ASU Gammage is among the largest university-based venues for performing arts in the world. Performances include nationally touring Broadway hits, celebrity acts and multicultural programs. This historic hall was designed by Frank Lloyd Wright.

(4) **Life Sciences Center Living Collection:**

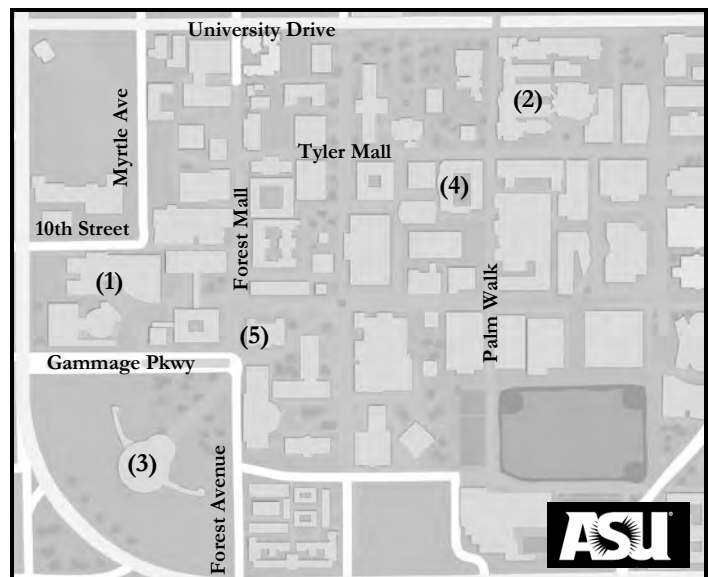
LSA Building, Tyler Mall and Palm Walk, (480) 965-3571

This collection is a unique reptile display with the only complete living collection of all 18 sub-species of native Arizona rattlesnakes. Open 8am-5pm, Monday-Friday.

(5) **Mars Space Flight Facility:** Moeur Building, Room 131,

Forest Mall and Gammage Parkway, (480) 965-1790

The facility supports the Thermal Emission Imaging System experiment that was sent aboard the Mars Odyssey spacecraft. The Mars facility has a visitor area with displays about Mars and a television tuned to NASA TV. Open 9am-5pm, Monday-Friday.



Things to Do in Tempe & Valley of the Sun

Arizona Historical Society Museum at Papago Park

1300 N. College Ave.
Tempe, AZ 85281
Phone: (480) 929-0292

Contemporary history introduces visitors to the dramatic development of the Valley. It features interactive exhibits, guided tours and a research library. Open 10am-4pm, Tuesday-Saturday; 12 Noon-4pm, Sunday.

Desert Botanical Garden

1201 N. Galvin Pkwy.
Phoenix, AZ 85008
Phone: (480) 941-1225

This living museum features 50,000 desert plants from around the world. Enjoy tours, concerts, seasonal exhibits, special events and family activities. Open 7am-8pm daily.

Hayden Butte ("A" Mountain)

100 S. Mill Ave.

Giving a gorgeous view over Tempe, Tempe Town Lake and the surrounding area, the trails of "A" Mountain provide hiking in the heart of the city. Part of the Hayden Butte Preserve, it is also home to petroglyphs from the Hohokam people who inhabited the area from ~500 AD – 1450AD.

Heard Museum

2301 N. Central Avenue
Phoenix, Arizona 85004
Phone: (602) 252-8848

This renowned museum is aimed at educating about the culture and heritage of Native peoples, focusing mostly on the Southwest. It features ancient and ancestral artifacts and contemporary art, and is easily accessible by light rail. Open 9:30am-5pm, Monday-Saturday; 11am-5pm, Sunday.

Mill Avenue District

Mill Avenue through heart of downtown Tempe
Mill Avenue District is the original walkable urban downtown district with more than 100+ restaurants, retailers and bars.

Papago Park

1000 N. College Ave.
Tempe, AZ 85281
Phone: (480) 350-5200

Enjoy this 296-acre Tempe park with softball fields, lagoon, picnic ramadas, hiking and biking trails, archeological site, natural desert areas, and trail rides.

Petersen House Museum

1414 W. Southern Ave.
Tempe, AZ 85282
Phone: (480) 350-5151

Experience a restored Queen Anne Victorian home built in 1892 by one of Tempe's earliest settlers. Open 10am-2pm Tuesday, Wednesday, Thursday, and Saturday. Free admission; donations accepted.

Phoenix Art Museum

1625 N. Central Avenue (McDowell Road & Central Avenue)
Phoenix, AZ 85004
Phone: (602) 257-1222

Houses a collection of more than 18,000 works of American, Asian, European, Latin American, Western American, modern and contemporary art, and fashion design. Open 10am-5pm, Thursday-Saturday; 12 Noon-5pm Sunday; 10am-9pm, Wednesday; closed Monday and Tuesday.

Phoenix Zoo

455 N. Galvin Pkwy.
Phoenix, AZ 85008
Phone: (602) 273-1341

The Phoenix Zoo is one of the nation's leading non-profit zoological parks and home to more than 1,200 animals. Open 9am-5pm daily, with 2.5 miles of bike-friendly paths.

Pueblo Grande Museum and Archeological Park

4619 E. Washington St.
Phoenix, AZ 85034
Phone: (877) 706-4408

Experience a prehistoric Hohokam ruin and full-size replicated dwellings. Fascinating exhibits feature the ancient Hohokam. Museum Store with authentic Indian arts. Located by the 44th Street Light Rail station.

Rawhide Western Town & Steakhouse

5700 W. North Loop Rd.
Chandler, AZ 85226
Phone: (800) 527-1880

Rawhide, winner of Arizona's Best Western Experience, offers guests renowned dining, unique shops, a variety of attractions and memorable meeting spaces. It is a replica of a western town, complete with stagecoach rides and live stunt shows.

Tempe Marketplace

2000 E. Rio Salado Pkwy.
Tempe, AZ 85281
Phone: (602) 553-2663

With 1.3 million square feet of retail space, featuring dramatic light and laser elements, outdoor fireplaces and unique water features, Tempe Marketplace delivers an interactive shopping, dining and entertainment experience in a vibrant, high-energy outdoor setting.

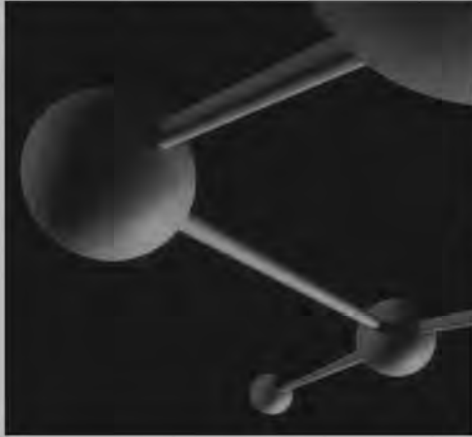
Tempe Town Lake and Tempe Beach Park

80 W. Rio Salado Pkwy.
Tempe, AZ 85281
Phone: (480) 350-8625

Tempe Town Lake, located adjacent to the Mill Avenue District, provides a two-mile recreational haven for kayaking, sailing, rowing, jogging, skating or picnicking. The heart of Tempe Town Lake is historic Tempe Beach Park. The park provides five miles of pathways, with bike and segway rental available.

arizona state university graduate college

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- Consortium for Science, Policy & Outcomes
- Center for Nanotechnology in Society
- Center for the Study of Law, Science & Technology
- Lincoln Center for Applied Ethics

Please visit us online and consider joining our energetic group of faculty, postdocs and graduate students in this exciting adventure.

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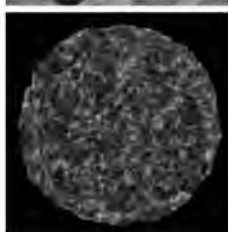
Applications
are due
December 15,
annually.



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Consortium for Science, Policy & Outcomes
at Arizona State University



Professional Science Master's Degree in Science & Technology Policy

- **What is it?**

A one-year degree program, the Professional Science Master's in Science and Technology Policy provides professional education for students seeking advanced public or private sector careers in science and technology policy and related fields in the United States or abroad. Offered jointly by the ASU Graduate College and College of Liberal Arts & Sciences, and administered by the Consortium for Science, Policy and Outcomes (CSPO), the program will provide students with essential skills, knowledge and methods for analyzing innovation, expertise and large-scale technological systems, with particular emphasis on the political and societal impacts of science and technology.

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This professional degree gives you the edge.

- **Why CSPO at ASU?**

ASU is transforming the university into a powerful force for public good. As global leaders in interdisciplinary research and education, ASU faculty and students are taking on and solving the most complex problems facing 21st century societies. CSPO faculty and students are internationally regarded for their unique and innovative approaches to addressing a wide array of societal challenges: sustainability and global environmental change, human health, regulating new and emerging technologies, managing large-scale technological systems, and designing effective linkages between science and public policy.

For more information and to apply, visit online at:

www.cspo.org

and click "Education & Outreach"

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- Origins Project at Arizona State University

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EcoTote and Evolve® Infinity Going Green Tumblers by

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Fortune Cookies by K & B Bakery

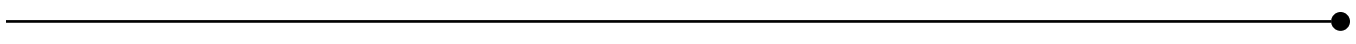
Red & Blue M&Ms from Mars, Incorporated

Field Trip transportation by The Wagon of Arizona



Notes:

Notes:





The science of ambience...

CSPO thanks the artists who have created a special environment for the conference:

Audrey Riley's art became the iconography of the conference, and her work "Conversation" is on the cover of this program and just about all other materials. Rileyco.com

Teresa Miró's textiles are where science meets wearable art. tmiromar@asu.edu

Michael Thomas and **Ryan Lamfers** have populated our environment with stunning and provoking sculpture. www.michaelthomassculpture.com / www.lamfersart.com

The Coitus mesmerize with their experimental music and circuit bending. myspace.com/thecoitus

