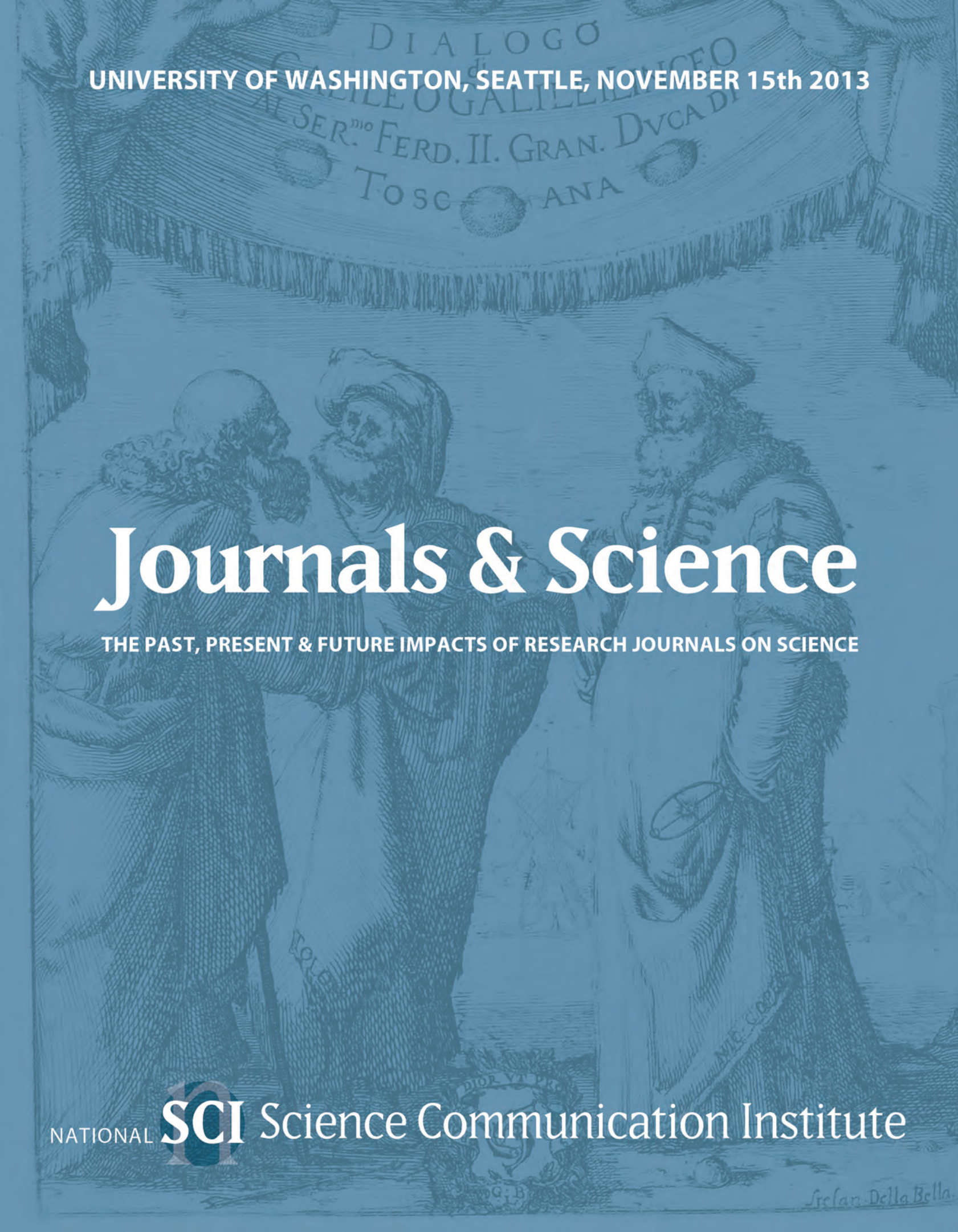
UNIVERSITY OF WASHINGTON, SEATTLE, NOVEMBER 15th 2013



Journals & Science

THE PAST, PRESENT & FUTURE IMPACTS OF RESEARCH JOURNALS ON SCIENCE

NATIONAL SCI Science Communication Institute

AGENDA

SEGMENT	TIME	TOPIC	PRESENTER
INTRODUCTIONS	Breakfast (7:30-8:00 a.m.)		
	8:00	Welcome and conference outline	Glenn Hampson
	8:05	Keynote: Science research and journals	Ross Prentice
WHY JOURNALS?	8:30	The history & evolution of journal practices	Bruce Hevly
IMPACTS	8:55	Introduction to the issues	Glenn Hampson
	9:00	Information flow: research to press	Hsiao-Ching Chou
	9:30	Information flow: press to public	Bryn Nelson
	15 min break		
	10:15	Science in the public eye	Susanna Priest
	10:45	Journal pricing, libraries & access	Tim Jewell
	11:15	Information overload or underload?	Stewart Lyman
	11:45	Intellectual property	Robin Champieux
	Lunch break (12:15 -1:00 p.m.) and additional poster session and Q&A time		
	1:00	Journal publishing & tenure	Rob Wood
	1:30	The lingua franca of journals	Scott L. Montgomery
	2:00	Public policy	Cynthia-Lou Coleman
	15 min break		
THE FUTURE	2:45	Into the future	Richard Gayle
	3:00	Reaching the public	Leah Ceccarelli
	3:30	Reinventing journal impact	Jevin West
	4:00	Open Access	Michael Boock
	4:30	Open Data	Claudia Emerson
	5:00	Research collaboration networks	Stephen Friend
	5:30	Citizen science	Jessica Richman
	15 min break		
	Dinner break		
	6:15	Dinner address 1: The limits to rapid change	Maryann Martone
		Dinner address 2: A web of challenges	Tom Lang
WORKSHOP	6:45	What now?	Moderated by Ricardo Gomez
	8:00	Adjourn	

WELCOME

The National Science Communication Institute — a Seattle-based nonprofit dedicated to improving the communication that happens *inside* science — is pleased to present today's conference on science journals and their impacts. The world of journals has been changing rapidly and many science communication experts are beginning to question whether the current rules and traditions that direct science primarily into journals are optimal for collaboration, discovery, innovation, public policy, education, and more.

We are honored to welcome a distinguished group of speakers and guests to today's event. Thank you to our speakers as well as to the many volunteers and organizations that helped make this event possible — in particular nSCI board members and volunteers, WashingtonLifeScience.com, and the University of Washington Information School.

Sincerely,

Glenn Hampson
Executive Director
National Science Communication Institute
www.nationalscience.org
ghampson@nationalscience.org

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KEYNOTE: SCIENCE RESEARCH AND JOURNALS

Some reflections on forty years of interactions with scientific journals

Ross Prentice

A few observations will be provided on the role and impact of scientific journals in helping to communicate biomedical research findings to other researchers, to medical and public health practitioners, and to the general public. These observations arise from more than 40 years of publication of both investigator-driven research, and multidisciplinary collaborative research. A major collaborative research activity over the past 20 years has been the national Women's Health Initiative, which includes over 161,000 postmenopausal women seen at 40 clinical centers across the U.S. Execution of this large, NIH-funded chronic disease prevention program has involved interactions with a broad range of journals, particularly in relation to randomized controlled trials of postmenopausal hormone therapy. The substantial role played by major medical journals in helping determine data interpretation and in orchestrating media interactions will be described. Some change over time in journal interactions with authors will also be mentioned briefly.

Ross Prentice is Member and former Director of the Public Health Sciences Division at the Fred Hutchinson Cancer Research Center, and Professor of Biostatistics at the University of Washington. His research focuses on chronic disease population science and disease prevention, and in related methodology developments. His statistical research areas include failure time data analysis methods; cohort study design and analysis methods; the use of biomarkers to address measurement error issues, especially in diet and physical activity epidemiology; surrogate outcome methods and limitations; and genomic and proteomic methods. He served as PI of the Clinical Coordinating Center for the Women's Health Initiative from its inception in 1992 to 2011, and continues as co-PI. The WHI involves a multifaceted randomized controlled trial and cohort study among 161,808 postmenopausal US women, the results from which have markedly changed clinical practice in the use of postmenopausal hormones. Ross has received the COPSS Award and the Fisher Lecture Award from the 'Joint Statistical Societies'; the Research Excellence in Epidemiology and Prevention Award from the AACR and ACS; and he is a member (1990) of the Institute of Medicine.

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THE HISTORY & EVOLUTION OF JOURNALS PRACTICES

How are journals positioned in science and science communication today?

Bruce Hevly

Born in 1452, Leonardo da Vinci could have taken his work into print, but he did not. In da Vinci's world, knowledge was valuable only as long as one kept it secret. But in the early modern period, scholars determined to establish a claim to ideas changed tactics. They established a system of rewards for making knowledge public, with authorship as a property claim. As the natural sciences developed after 1500, national scientific societies and their disciplinary organizations became gatekeepers for publication, establishing and enforcing standards. Publication became the mark of professional status and science became a profession at which an expert could earn a living. Today, among other crises, arguably we are experiencing a crisis of expertise, one reflected in attitudes toward publication.

Bruce Hevly teaches the history of science and technology at the University of Washington. He specializes in the history of terrestrial physics, as practiced in Norway, Britain, and the U.S. since the early nineteenth century. Other research interests include nuclear history and conceptual relationships between physics and technology.

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INFORMATION FLOW: RESEARCH TO PRESS

I want my research featured in the New York Times — aka a reality check on information flow to the media and public

Hsiao-Ching Chou

For most scientists and scientific organizations, external communications is an afterthought. In this age of "instant" news and nonstop social media feeds, how can scientists break through the noise and broaden the appeal of their research to garner media attention and grow public understanding? Hsiao-Ching Chou, the Director of Communications at Institute for Systems Biology, shares some insight about how she was able to transform the communications program at ISB from zero to a bustling network of news – and on a nonprofit budget.

Hsiao-Ching Chou is the Director of Communications at Institute for Systems Biology, a nonprofit biomedical research organization in Seattle. She oversees internal and external communications, which involves multimedia content creation and management, social media, and community building. Prior to joining ISB, Hsiao-Ching was a partner at a boutique public relations firm for four and a half years, where her clients included top Seattle restaurants such as Canlis, Tilth and Matt's in the Market. Before becoming a public relations professional, she spent more than a decade as a newspaper columnist. Most notably, she was the food editor at the Seattle Post-Intelligencer from 2000-2007. She focused on stories about the people, issues and trends that helped shape Seattle's growing food scene. In addition to appearing weekly in the paper, she also served as a frequent guest on KUOW's "Weekday Show" and appeared on other television and radio programs such as "The Splendid Table," "Anthony Bourdain: No Reservations," and PBS's documentary "The Meaning of Food." Hsiao-Ching received her degree in journalism from the University of Missouri. Her husband is a producer at KING-TV and they have two young children.

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INFORMATION FLOW: PRESS TO PUBLIC

My Life as a Sausage Maker
Or how journal articles get ground into digestible news

Bryn Nelson

1. Story writing is a messy craft; deciphering a journal is an acquired skill but journalists don't always get it right.
2. Reporters have a love-hate relationship with journal embargoes and limits on when we can begin grinding away.
3. Newsrooms have precious little time to keep up with more than a half-dozen journals or so on a regular basis; inevitably, a few dominate news coverage (NEJM, JAMA, Lancet, Science, Nature, PNAS, Cell).
4. For freelance writers, it's the opposite: under-appreciated or specialty journals can provide a fresh source of news for readers, especially through the growth of online news outlets.
5. Instead of just producing raw material, journals are now becoming sources of finished news content as well, though for more targeted audiences.
6. A big unresolved question is who should oversee quality control for the stories that flow from journals, given these constraints and the realization by the online community that quantity and speed don't always equal quality (see point #1).

Bryn Nelson is a former microbiologist whose love of translating science into stories inspired him to become a journalist in 1999. As a Seattle-based freelance writer, Bryn has contributed features and stories to The New York Times, Scientific American, Science News for Kids, MSNBC.com, CNN.com, BBC Focus, ENSIA and other print and online publications. He also has written for a range of journals and trade publications such as Nature, Cancer Cytopathology, The Hospitalist and ENT Today. Nelson contributed a chapter to *The Science Writers' Handbook* and edited two chapters for the six-volume *Modernist Cuisine: The Art and Science of Cooking*. While a staff writer at Newsday in New York from 2000 to 2007, Bryn received a Publisher's Award for Feature Reporting for "Saving Bobby," a long-form narrative about a toddler with a traumatic brain injury, and shared a Publisher's Award for Team Enterprise Reporting for a yearlong ecology series about the natural world on Long Island. Nelson received a BA in biology from Concordia College in Moorhead, Minn., a PhD in microbiology from the University of Washington in Seattle and a graduate certificate in science writing from the University of California at Santa Cruz.

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SCIENCE IN THE PUBLIC EYE

Lay audiences for science: Why the public needs science information, how the public responds to it, and the skills needed to process it

Susanna Priest

The audiences for science are more varied than we might at first think. Journals are usually written for other scientists – in fact, they are written primarily for other scientists in the same field. Yet many other individuals are regular consumers of science: professional practitioners who use science in their work (doctors, teachers, journalists); people who are simply interested in science (across a range of educational levels); and people who work in science or must make decisions about it but are not themselves scientists (from laboratory technicians to public officials to investors). A very important audience is those who are not involved with science at all but confront a personal decision to which science is immediately relevant. Then there are "ordinary people" watching or reading the news. *All of these people have to evaluate scientific claims, yet most have do not have specialized training.* Even scientists do not usually have the skills to evaluate claims in fields outside their own. By itself, making journal content more available will not change this. I introduce the concept of "critical science literacy" to describe the kind of "caveat emptor" skills people need to make sense of such claims in a science-oriented society and economy.

Susanna Priest is a science communication specialist who has taught as a tenured faculty member at Texas A&M University, the University of South Carolina, and the University of Nevada. She developed graduate programs of study specifically in science communication at Texas A&M and also at George Mason University in Virginia. At South Carolina, she served as director of research for the College of Mass Communication and Information Studies. This year she is a Visiting Scholar at the University of Washington. She edits the journal Science Communication: Linking Theory and Practice and is a former associate editor of Public Understanding of Science. Her research on public attitudes toward science and technology, supported by a number of grants from the National Science Foundation and other sources, has been published in dozens of refereed journal articles and book chapters, and she has written books on public reactions to biotechnology, on nanotechnology and society, and on mass communication research methods. She also edited a two-volume Encyclopedia of Science and Technology Communication, available in many academic libraries.

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JOURNAL PRICING, LIBRARIES & ACCESS

How do journal prices and publisher licensing practices affect access to the journal literature for academic libraries and the scientists, students and members of the general public they serve?

Tim Jewell

Twenty five years ago the Association of Research Libraries began calling attention to the "serials crisis" – an alarming upward pricing trend that has continued through the large-scale, revolutionary introduction of electronic journals in the 1990's and subsequent development of "big deal" journal bundling practices by a small number of dominant commercial publishing companies. This presentation will review some of the positive and negative features of these developments and provide a current perspective on what they mean for access to the journal literature.

Tim Jewell is Director of Information Resources and Scholarly Communication for the University of Washington Libraries in Seattle – where he has primary responsibility for its collection development program and budget, licensing activities, and publisher relations. Tim was selected as UW's Distinguished Librarian in 2012, and in 2008 was inaugural recipient of the Ingram Coutts Award for Innovation in Electronic Resources Management sponsored by the American Library Association's Association for Library Collections & Technical Services.

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INFORMATION OVERLOAD OR UNDERLOAD?

Do scientists in many smaller research institutions suffer from information underload?

Stewart Lyman

All scientists suffer to some extent from information overload, but many scientists within small biotechnology companies suffer from the opposite problem: information underload. A limited budget does not afford them access to a wide spectrum of journals and pay-as-you-go articles. This problem threatens to seriously impact their research programs. There are some limited workarounds, but each of them has their own problems. One possible solution (referred to as iPubSci) would be the development of a new way of finding and purchasing individual research articles based on a marriage of PubMed with an iTunes-like interface. Details of how iPubSci might work and a detailed rationale for its creation will be presented.

Stewart Lyman, Ph.D, has over 35 years' experience in research and biotechnology. In 2004 he started Lyman BioPharma Consulting LLC to share his expertise and advice on setting up and running successful collaborations with outside investigators. Dr. Lyman began his career in 1988 when he joined Immunex Corporation as a molecular biologist. Over the next decade he cloned a number of important human growth factors including flt3 ligand, which he helped lead into the clinic for stem cell mobilization and cancer immunotherapy trials. In 1998, Dr. Lyman was appointed the Director of Extramural Research at Immunex, and in the next four years he ran the largest extramural research program in the United States. His group managed more than 2500 research collaborations, shipping over 1000 distinct reagents to more than 1000 academic and industrial groups at institutions worldwide. As a biopharma consultant he reviews preclinical data for clients and helps them with strategic planning of their research programs. Dr. Lyman holds 25 US patents and has authored or co-authored 129 scientific publications as well as numerous articles on collaboration management. He is also a frequent Op-Ed contributor for the Xconomy website on various topics in biotechnology.

INTELLECTUAL PROPERTY

How do issues like journal copyright impact science research?

Robin Champieux

This presentation will discuss the traditional relationships between intellectual property and journal publication, and the impact of these relationships on scientific communication and innovation. It will also examine new, more open IP models, their benefits, and the connection to several policies and policy proposals on public access to federally funded research.

Robin Champieux is the Scholarly Communication Librarian at Oregon Health & Science University and the founder of ARCS: Advancing Research Communication and Scholarship, a new conference focused on the evolving and increasingly complex scholarly communication network. Robin is part of OHSU Library's Ontology Development Group and is interested in how libraries and librarians can positively affect scientific communication across the research cycle. Before joining OHSU, Robin was Vice President of Business Development at Ebook Library and North American Sales Director at Blackwell.

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JOURNAL PUBLISHING & TENURE

How does publishing affect tenure? How is this relationship changing?

Rob Wood

In this presentation, I will discuss the relationship between publishing and tenure from the perspective of the American Association of University Professors (AAUP), the primary organization advocating for faculty interests in the United States. I will review tenure evaluation practices, discuss how publications of different flavors are considered in the evaluation of tenure applications, and comment on the extent to which the pressure to publish is changing how tenure is evaluated in research-intensive universities. I will provide an overview of some of the recommendations that the AAUP has established to ensure that relationships between faculty and publishers remain beneficial to the overall mission of academia and science.

Robert Wood is an associate professor in the Department of Atmospheric Sciences at the University of Washington, where he teaches and conducts research work focusing upon understanding processes controlling clouds in the Earth's atmosphere and the role that clouds play in determining climate variability and change. In addition, Wood is a strong advocate for faculty being at the forefront of all academic decisions of the University through meaningful shared governance and currently serves as president of the UW chapter of the American Association of University Professors. He is committed to improving working conditions for all faculty at the UW.

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THE LINGUA FRANCA OF JOURNALS

A global voice for nature?: English and the scientific journal

Scott L. Montgomery

In a globalizing world, language is power. The greater the number of human beings and institutions with which one can communicate, the more access to data and research one may possibly have. Such is powerfully demonstrated by the extent to which English now dominates scientific discourse around the world, above all in the domain of scientific journals aimed at a international readership. By any measure, English has become the global voice of science. Indeed, the globalization of science has been umbilical to the globalization of English. This state of affairs is not entirely without precedent: previous lingua franca of science, such as Arabic, Chinese, and Latin, ruled major portions of the globe where scientific knowledge was at a peak of advancement. Discussion about the advantages and disadvantages of global scientific English, which have been acrimonious at times, can be informed by history. There are other crucial issues, however, which this talk will take up: what has happened to the English in scientific journals as a result of the above and what might its future be? Can we—the world—hope for a scientific English more accessible to the educated, lay reader?

Scott L. Montgomery is an author and affiliate faculty member in the Jackson School of International Studies at the University of Washington, where he teaches courses related to language and politics, energy, and intellectual history. His research interests include scientific language and communication, history of science, ideas of the Enlightenment, and energy-related science and policy. For 25 years he was a consulting geologist in the U.S. energy industry and is widely known for his many technical papers and monographs on oil and gas, energy-related issues, and energy geopolitics. In addition to teaching and lecturing, his current work includes consulting with corporate and research organizations to improve their level of scientific communication. He is the author of 12 books, most recently *Does Science Need a Global Language? English and the Future of Research* (University of Chicago), which appeared in May. His previous work, Powers that Be: Global Energy for the 21st Century (Chicago, 2010) was a Choice outstanding academic title for 2010. Other recent titles include *The Chicago Guide to Communicating Science* (2003; Second Edition forthcoming 2015) and *A History of Science in World Cultures* (Routledge, forthcoming 2014). He has lectured widely on the basis of these works in the US, Canada, and Europe. He currently lives in Seattle with his wife and two sons.

PUBLIC POLICY

What are the current dynamics and challenges in creating science-based public policies?
What are the cultural and political barriers to change?
Is public policy more about politics than science (and does science realize this)?

Cynthia-Lou Coleman

Although political and cultural beliefs are woven throughout scientific practice, public and mediated discourse of issues—from climate change to euthanasia—frequently aligns along narrow streams of debate. Issues suffer from characterizations of "pro-science" and "anti-science" with scant attention paid to the biopolitical underpinnings of conflicts. At a recent scholarly meeting, for example, one specialist was described as "instrumental in advocating for the right of scientists" to study artifacts that "without his intervention…would more than likely have been lost to science." As a result policy decisions seem—at times—to favor the so-called scientific position but I argue that such judgments are inherently political. Moreover, scientific conflicts that unfold on mediated agendas lack depth and context, thus serving publics poorly.

Cynthia-Lou Coleman examines biopolitical features of message framing and public opinion on topics in the health, science, environment and risk arenas of discourse, particularly issues that impact indigenous communities. Coleman teaches mass media and social science theory and methods at Portland State University where she is a professor of communication. In addition to serving as an associate editor for the journal Science Communication, Coleman has held fellowships with the Smithsonian National Museum of the American Indian and the Centers for Disease Control and Prevention.

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INTO THE FUTURE

Improving science communication requires a greater understanding of how human communities are organized to transmit information

Richard Gayle

The Scientific Revolution was kick-started 400 years ago when the principles of openness and transparency moved us away from alchemy. Our abilities to disseminate scientific results further and faster have almost exactly paralleled the accelerating course of our scientific endeavors. But now we are generating data and information at an exponential rate. Important facts are simply not being dispersed effectively. We need to leverage something that is uniquely human — our very deep social networks. Human social networks look almost exactly the same as the networks of computers that form the Internet. Both networks are very efficient at moving around large amounts of information rapidly. We know how to construct a computer network so it scales properly and can deal with exponentially increasing information flow. Now we have to learn how to do the same thing with our own social networks. Modern tools allow us to visualize human networks, leveraging their effectiveness for moving information. Openness, transparency and inclusiveness will continue to be important aspects for processes to enhance the spread of knowledge. New processes for enhancing rapid and bulk amounts of information promulgation in widespread social settings will be critical for solving the complex problems facing us.

Richard Gayle formed SpreadingScience to empower scientific communities that are trying to enhance their information flow, allowing the dissemination of innovation to be increased. As a Senior Staff Researcher at a premier biotechnology company (Immunex Corporation) he saw firsthand the effectiveness of a fast and lean organization possessing potent social networks. As Vice President of Research at a biotechnology startup (Etubics Corporation) he used these principles to translate the company's technology platform from an academic lab into human clinical trials with no more than three research employees, including himself. He continues as a Director on the Board. He created and managed the intranets at these two companies, gaining direct experience of the effectiveness of informational and social networking tools on scientific innovation. He worked on business development with the Washington Biotechnology and Biomedical Association. He collaborated with the Washington Global Health Alliance on several convening events as well as with the Global Health Nexus project. He is a Founder of the Sustainable Path Foundation – using scientific understanding and systems thinking to promote and health in our region – where he remains on the Board. He is currently working on creating a Public Academy of Science.

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REACHING THE PUBLIC

Taking science directly to the public through books, op-eds, and public appearances

Leah Ceccarelli

Scholarship on the rhetoric of science applies concepts developed in the humanities to the persuasive efforts of scientists. In this talk, I will introduce some rhetorical scholarship on the communication of scientists who speak directly to the public in the form of popular books, essays, and speeches. Relating the take-home message from a number of case studies, I will offer advice about what scientists should and should not do when engaging the public directly about their research. The case studies that I will discuss as negative examples include the use of hedges in the Wakefield autism controversy, the unfortunate use of hyperbole in the Ida controversy, and the counterproductive use of the frontier of science metaphor by E. O. Wilson in his arguments for biodiversity research and by Francis Collins in his promotion of genomics research. Case studies that I will offer up as exemplary include the use of litotes by climate scientists to manage critique of their work in the wake of a scientifically inaccurate but emotionally charged science fiction movie, and burden of proof and stasis shifts used by climate scientists to effectively counter the public manufacture of scientific controversy by climate skeptics.

Leah Ceccarelli (PhD Northwestern University) is a Professor and Associate Chair in the Department of Communication at the University of Washington, Seattle. She is a rhetorical critic and theorist whose research focuses on public discourse about science. She has received several awards for her research, including the Rhetoric Society of America's Book Award (for *Shaping Science with Rhetoric*) and the American Forensics Association's Outstanding Research Award (for "Manufactured Scientific Controversy: Science, Rhetoric and Public Debate"). Her most recent book is *On the Frontier of Science: An American Rhetoric of Exploration and Exploitation* (Michigan State University Press, 2013). She teaches undergraduate and graduate courses in American Public Address, Public Debate, Rhetorical Criticism, Classical Rhetoric, and Rhetoric of Science. At the University of Washington, she helps coordinate the Science Studies Network and serves on the Executive Committee of the Faculty Senate. She is on the editorial boards of Rhetoric & Public Affairs and Philosophy & Rhetoric, is Vice Chair-Elect of the Public Address Division of the National Communication Association, serves on the Publications Committee of the Western States Communication Association, and is Co-Editor of the new book series, *Transdisciplinary Rhetoric*, sponsored by the Rhetoric Society of America and Penn State University Press.

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REINVENTING JOURNAL IMPACT

Are impact factors measuring the right things, and how can we do better?

Jevin West

Science is a massively parallel human endeavor to explain and predict the nature of the physical world. In science, knowledge is acquired cumulatively and collaboratively — and the principal mode for sharing this knowledge is the institution of scholarly publishing. In science, ideas are built upon ideas, models upon models, verifications upon prior verifications. This cumulative process of construction leaves behind it a latticework of citations, from which we can reconstruct the geography of scientific thought and retrace the paths along which intellectual activity has proceeded. Eigenfactor.org® is an academic research project co-founded by Jevin West and Carl Bergstrom and sponsored by the Bergstrom Lab in the Department of Biology at the University of Washington. We aim to use recent advances in network analysis and information theory to develop novel methods for evaluating the influence of scholarly periodicals and for mapping the structure of academic research. We are committed to broadly disseminating our research findings and technological developments, while respecting the confidentiality of the data sources we use. Several aspects of the Eigenfactor Project can be found at Eigenfactor.org (beta version).

Jevin is a theoretical biologist, an assistant professor at the University of Washington's Information School and co-inventor of the eigenfactor, the industry and library-standard system for measuring journal influence. He is also an internationally-recognized expert in big data. Prior to joining the iSchool, he worked as a big data researcher at the UW's Center for Commercialization and at IceLab in Sweden.

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OPEN ACCESS

What is OA? How prevalent is it and how is it expected to grow?

Michael Boock

This presentation provides a brief definition of open access, describes where we are at now in terms of open access prevalence and where we might expect to be in the near future. The author differentiates between gold and green open access, describes the growth or diminution of those two forms of OA around the world, provides examples of each form, and describes existing and emerging gold open access funding models. The author also touches on the emergence of federal, state and institutional open access policies with a focus on institutional policies, what they entail and their potential impact. Potential implementation scenarios for the White House Office of Science and Technology open access policy memorandum and the FASTR legislation are also reviewed.

Michael Boock, associate professor and head of the Center for Digital Scholarship and Services at Oregon State University Libraries & Press, has over 17 years experience building a variety of digital library services, particularly in the areas of digital repositories and digital collections. Over the last three years, as Head of the Center for Digital Scholarship and Services at Oregon State University, he has been at the forefront of growing and creating new and emerging services that support the visibility, management and preservation of the university's scholarly output. He was a key member of the faculty group that advocated for and developed OSU's open access policy in June 2013. Boock has authored articles about organizational models for transitioning library technical services units to digital library services and several articles about digital access, digital library workflows and open access. The Center for Digital Scholarship at Oregon State University Libraries & Press supports the visibility, management and preservation of the research and scholarship conducted by the university. Services include open access journal and conference proceedings publishing, open access repository services, open access policy promotion and implementation, data management, digital collection creation and copyright support.

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OPEN DATA

What are the practical and ethical challenges of creating a more open data environment?

Claudia Emerson

The momentum of the Open Access movement over the last two decades has played a significant role in increasing access to the results of health research, visible in commitments to sharing in large-scale international initiatives (e.g. the Human Genome Project), and the proliferation of open access journals. However, despite repeated calls for 'open data' from various stakeholders, and requirements from research funders and open access publishers to make datasets available to the broader research community, the sharing of health data remains a challenge. In part, this is attributable to both practical and ethical challenges. On the practical side, there may be lack of resources, capacity and infrastructure to curate and store data to enable access, a challenge which is magnified in low and middle income settings. On the normative side, there may be concerns about the privacy of data subjects, the loss of data ownership and control, worries about the misuse or misrepresentation of data, and background conditions of distrust related to historical inequities in data sharing. This presentation will examine some of these challenges, and propose ethical principles that can serve as a starting point for improving an open data environment.

Dr. Claudia Emerson is Senior Scientist at the Sandra Rotman Centre, University Health Network & University of Toronto, and is appointed Adjunct Assistant Professor of Philosophy at McMaster University, Canada. Claudia specializes in ethics and policy of research involving human subjects. She is core investigator on the Ethical, Social, and Cultural (ESC) Program for Global Health funded by the Bill & Melinda Gates Foundation since 2006, where she provides ethics consultation across the various programs at the Foundation. Within the ESC program, Claudia leads the Data Access research portfolio with a focus on developing governance models to facilitate data sharing in global health, and led the development of the Gates Foundation Data Access policy. Recent projects include overcoming barriers to polio data access to enable modeling of risk and strategies to complete eradication. Claudia serves in several advisory capacities related to public health activities, including the National Ethics Committee for the Canadian Institutes of Health Research (CIHR) Longitudinal Study on Aging, and the International Taskforce for the Eradication Investment Cases of Onchocerciasis, Lymphatic Filariasis, and Human African Trypanosomiasis. She is a member of the Scientific Committee of the International Council of Science (ICSU) World Data System. Claudia holds a B.Sc. in Biochemistry and an M.A. and Ph.D. in Philosophy, specializing in Bioethics.

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RESEARCH COLLABORATION NETWORKS

How Sage Bionetworks is redefining biomedical research through open systems, incentives and norms

Stephen Friend

At Sage Bionetworks, we work to redefine how complex biological data is gathered, shared and used. We challenge the traditional roles of individuals and groups, patients and researchers. Our work includes the building of platforms and services and undertaking research developing predictors relating to health. Arising in 2009 from a donation by Rosetta Inpharmatics (Merck Inc), we are a non-profit research organization based in Seattle, US and collaborate with a worldwide network. We create technology platforms that facilitate collaboration on data, governance platforms that enable data sharing and reuse, run challenges to solve complex biomedical problems, and perform our own cutting-edge computational biology and research.

Dr. Friend is the president, co-founder and director of Sage Bionetworks. He has also served as a senior vice-president at Merck, co-founded Rosetta Inpharmatics with Lee Hartwell and Leroy Hood, and held faculty positions at Harvard Medical School and at Massachusetts General Hospital. In June of this year, the White House honored Dr. Friend as one of thirteen Champions of Change who are promoting and using open scientific data and publications to accelerate progress and improve our world.

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CITIZEN SCIENCE

The promise and early lessons of experience from UBiome

Jessica Richman

Citizen science is scientific research conducted by nonprofessional scientists, often by crowdsourcing. Traditionally, citizen scientists contributed to scientific endeavors by collecting and analyzing data. uBiome takes citizen science to the next level by providing access to cutting edge research tools that directly address the latest questions in biomedical research. In addition, citizen science projects encourage engagement in scientific research and public understanding of science.

Jessica Richman is the founder and CEO of uBiome. As the leader of the largest successful citizen science initiative in history, Richman is encountering not only the boundaries of citizen science, but the perils as well, including working through the issues of how citizen science will maintain scientific rigor and patient protections.

DINNER ADDRESS 1: THE LIMITS TO RAPID CHANGE

Where will the road to change take us?

Maryann Martone

1. **The promise of new modes of communication rests on the duality of modern scholarship:** need for both human understanding and machine-actionability. Those who think about human requirements don't always understand machine requirements; those who understand machine requirements, don't always understand human requirements
2. **Barriers to change:** culture of science is conservative and based on micro-communitites. As long as we can communicate with our peers, we are rewarded and see no impetus to change. Reputation is everything; exposing things openly may challenge reputation
3. **Barriers to change:** the reward system in science stifles innovation in publishing; journal submission systems stifle innovation
4. **Data:** We've never had to deal with it before; it was always viewed as disposable. Many issues about data and other potentially reusable scholarly artifacts. What is necessary to make them re-usable? Neither publishers or researchers quite know what to do with data and neither are willing or able to foot the bill.

Maryann Martone received her BA from Wellesley College in biological psychology and Ancient Greek, and her Ph. D. in neuroscience in 1990 from the University of California, San Diego, where she is currently a Professor in the Department of Neuroscience. An anatomist by training, she now focuses on ways to make neuroscience data sharable and re-usable. She is the-principal investigator of the Neuroinformatics Framework project, a national project to establish a uniform resource description framework for neuroscience. Her recent work has focused on building ontologies for neuroscience for data integration. She just completed her tenure as the US scientific representative to the International Neuroinformatics Coordinating Facility (INCF), where she still heads to program on ontologies. Dr. Martone recently joined FORCE11, an organization dedicated to advancing scholarly communication and e-scholarship, as Executive Director. She is also Co-Editor in Chief of Brain and Behavior, an open-access journal published by Wiley.

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DINNER ADDRESS 2: A WEB OF CHALLENGES

Keeping the litter out of the literature: Improving the quality of scientific communication

Tom Lang

Science, to be science, must be recorded and documented by researchers; evaluated and reproduced by their peers; be made systematic and cumulative through archiving and indexing; and then be made easily and widely accessible worldwide through publications and conferences. Problems anywhere in this sequence can affect the quality of the literature and therefore the decisions that it supports. In particular, authors are not necessarily trained in how to conduct, describe, document, publish, or evaluate research and so are often unaware of important sources of error, confounding, and bias. Peer review, despite being the mainstay of scientific publishing, remains fraught with problems: peer reviewers don't know any more than do authors. Several standards organizations are working to improve the quality of scientific communication from within the community, but contributions from observers outside the community with a different perspective may have a needed and substantial impact.

Tom Lang, MA, is an international consultant and educator in medical writing and scientific publications. A former Manager of Medical Editing Services at the Cleveland Clinic, he has also taught on the University of Chicago's Medical Writing Program since its inception in 1999. His first book, *How to Report Statistics in Medicine*, is a standard reference in evidenced-based medicine and medical writing. His second, *How to Write, Publish, and Present in the Health Sciences*, was selected by the Society for Technical Communication as "One of the top 100 books on technical writing, 1991-2010." He received the 1994 Golden Apple Award for Outstanding Workshop Leader from the American Medical Writers Association, the 2002 Excellence in Continuing Education Award from the American Statistical Association, and the First Excellence in Teaching Award from the Graham School of General Studies, University of Chicago, in 2005. He is a Past President of the Council of Science Editors, the current Treasurer of the World Association of Medical Editors, a Fellow of the American Medical Writers Association, and the recipient of the Association's 2002 Harold Swanberg Distinguished Service Award for outstanding contributions to medical communications, and the 2011 Eric Martin Award for excellence in medical writing. His master's degree is in Communications management, from the Annenberg School for Communications at the University of Southern California.

WORKSHOP

Where do we go from here?

Ricardo Gomez

Where do we go from here? This open-ended workshop will go where the crowd wants it to go, from brainstorming specific solutions to proposing projects, priorities, stakeholder alliances and additional meetings. The objective is to follow up on the ideas and energy from today and continue to move forward.

Ricardo is assistant professor and chair of the Information & Society Center at University of Washington's Information School. He specializes in the social impacts of communication technologies, especially in community development settings. He has worked with private, public and non-profit sectors around the world, with a particular focus on Latin America and the Caribbean. Before joining the University of Washington he worked with Microsoft Community Affairs, and with the International Development Research Center in Canada.

ADDITIONAL NOTES