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2021

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EQUITY, BEHAVIOR, AND ETHICS IN THE ADVANCING U.S. BIOECONOMY

DATE

December 16th

TIME

11 am - 12:30 pm

LOCATION

[Register](#)

SPEAKERS



Laurel Smith-Doerr, PhD



Jason Owen-Smith, PhD



J. Benjamin Hurlbut, PhD



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ABSTRACT

What are the organizational contexts that allow equitable collaboration among knowledge workers and thus innovative outcomes? Social science literature has had different predictions about the role of bureaucratic organizations and rules. In some settings it appears hierarchy and rules can provide a platform for equity (think racial integration in the U.S. Army), while in others, the structural secrecy and power differentials in tall hierarchies leads to stark inequalities (think sexual harassment in the film industry).

This presentation of research in bioeconomy contexts compares gender equity in more hierarchical settings (academia, large pharma) to less hierarchical, flatter organizations (biotech firms). Smith-Doerr's research found that the interorganizational collaboration in early biotech firms fostered greater equity. Women life scientists were nearly eight times more likely to be leading science units in biotech than in academia or large pharma. In addition, while men were much more likely to patent than women in the hierarchical settings, the gender gap in patenting disappeared in these biotech firms.

Smith-Doerr's research uncovered three reasons why these networked, flatter biotech firms seemed to foster gender equity: 1) they were more transparent in identifying who contributed to discoveries, collaboration between organizations led to more women being publicly credited for their innovations; 2) collective rewards to teams for achievements rather than 'winner take all' approaches typical of academic science leads to shared credit that includes more women; and finally 3) flexibility in project based work means women are able to steer clear of bad collaborators rather than being stuck under a boss in a hierarchy.

This short presentation will conclude with discussion of a) how these lessons for fostering equity might translate to larger organizations (even bureaucratic hierarchies like academia), and b) from Smith-Doerr's current work with the UMass ADVANCE team, how to sustain equity gains during times of crisis like the COVID-19 pandemic.

ABOUT DR. LAUREL SMITH-DOERR

**LAUREL
SMITH-DOERR, PHD**

**PROFESSOR
OF SOCIOLOGY**

**DIRECTOR,
INSTITUTE FOR SOCIAL
SCIENCE RESEARCH**

**UNIVERSITY OF
MASSACHUSETTS-
AMHERST**



Laurel Smith-Doerr earned her BA in Sociology at Pomona College, where she had her first taste of working on research for an independent thesis project. She received her MA and PhD in Sociology at University of Arizona and learned about working on collaborative research projects under the mentorship of Prof. Walter W. Powell. From there she was appointed as an Assistant Professor in the Sociology Department at Boston University, where she earned tenure as Associate Professor and had leaves in 2004-2005 for the John Monnet Fellowship at the European University Institute in Florence Italy, and in 2007-2009 to serve as Visiting Scientist and Program Director of Science, Technology and Society at the National Science Foundation. For work at NSF leading the Ethics Education in Science and Engineering program and serving on the committee implementing ethics education policies of Congress' America COMPETES Act, Smith-Doerr received the NSF Director's Award for Collaborative Integration. She was recruited as the inaugural Director of the Institute for Social Science Research, and full Professor of Sociology at University of Massachusetts Amherst in 2013. She currently serves as the PI of the \$3.1M UMass Amherst NSF ADVANCE-Institutional Transformation grant.

Smith-Doerr's research has developed an organizational level approach for understanding durable inequalities in the science and technology workforce, especially gendered processes. Her book *Women's Work: Gender Equity v. Hierarchy in the Life Sciences* examined the organizational conditions for gender equity in biotechnology firms in comparison to academic and large pharma contexts. Her recent article with coauthors in the *American Journal of Sociology* provides a new organizational level theory of the gender pay gap and won the 2020 Devah Pager award for best article from the Inequality, Poverty, and Mobility section of the American Sociological Association. All combined, her published works have been cited over 17,000 times. She has been elected to national and international leadership roles in the American Sociological Association and the Society for Social Studies of Science. She received a 2020 Fulbright Fellowship to Germany for a new comparative research project on equity in Artificial Intelligence knowledge production processes but had to defer the award due to the COVID-19 pandemic.

ABSTRACT

The bioeconomy, like other knowledge intensive sectors, is defined by a fast moving scientific and technical frontier where necessary information and skills are rarely housed in a single organization. Broadly dispersed and quickly changing knowledge coupled with costly and risky innovation pipelines require complicated collaborative styles of “network organization” that often span academia, large and small firms, non-profits, government agencies and, ultimately, health care providers.

Understanding, explaining, and improving the workings and outputs of the bioeconomy thus poses substantial challenges. Chief among them is the need for reliable, up to date data, supporting infrastructure to ensure its protection, accessibility, and use, and a broad community of researchers equipped to use both to conduct policy-relevant research. Transaction level administrative data linked to a variety of other sources of information offer one promising route to fulfill this need.

This talk introduces a new data infrastructure, the Institute for Research on Innovation & Science (IRIS), that integrates data from more than 50 restricted and open access sources to support research and reporting on the dynamics, outputs, social and economic impact of research. In addition to providing a number of concrete examples of analyses that can shed new light on the bioeconomy, Owen-Smith proposes potential extensions to better address its particular needs.

ABOUT DR. JASON OWEN-SMITH

**JASON
OWEN-SMITH, PHD**

**PROFESSOR
DEPARTMENT OF
SOCIOLOGY**

**UNIVERSITY OF
MICHIGAN**



Jason Owen-Smith is co-founder and Executive Director of the Institute for Research on Innovation and Science (IRIS). He is also Professor of Sociology, Research Professor in the Institute for Social Research (ISR) and Executive Director of the Research Analysis and Data Integration Office at the University of Michigan.

His research uses data and computationally intensive methods to examine how complex networks among people and organizations shape knowledge-work and innovation. He is author of most recently of the 2018 book *Research Universities and the Public Good: Discovery for an Uncertain Future*.

ABSTRACT

The last half century has seen extraordinary advances in engineering life. A decade ago, the Obama administration saw in them the seeds of “a vibrant bioeconomy with vast societal benefit.” If this vision is to be realized, innovation agendas cannot simply presume to know what counts as beneficial. Instead, they must be calibrated to public judgments about what serves the collective good. Since the 1970s, ethics has become a catch-all category for questions about how to make these judgments, generating new forms of professional expertise and institutional processes to address them. However, caught between scientific autonomy on the one hand, and plural public values on the other, bioethics tends to mediate between science and society by focusing narrowly on the potential social impacts and consequences of the products of emerging science and technology. But science and technology are not limited to the outputs they produce. They are social enterprises that powerfully shape ideas of progress and public good. The bioeconomy will enshrine visions of societal problems, solutions, and benefits—visions of what makes for good lives and societies—in the technologies it generates. To be a source of societal benefit, bioeconomy innovation must be guided by expansive modes of ethical deliberation that ensure that those visions are democratically grounded. This talk will explore some challenges and possibilities for building capacity for a more expansive ethics.

ABOUT DR. J. BENJAMIN HURLBUT

J. BENJAMIN HURLBUT, PHD

ASSOCIATE
PROFESSOR
SCHOOL OF LIFE
SCIENCES

ARIZONA STATE
UNIVERSITY



J. Benjamin Hurlbut, PhD is Associate Professor in the School of Life Sciences at Arizona State University. He is trained in science and technology studies (STS) with a focus on the history of the modern biomedical and life sciences. His research lies at the intersection of intersection of STS, bioethics and political theory. He studies the changing relationships between science, politics and law in the governance of biomedical research and innovation, examining the interplay of science and technology with democracy, religious and moral pluralism, and public reason. He is the author of *Experiments in Democracy: Human Embryo Research and the Politics of Bioethics* (Columbia University Press, 2017) and co-editor of *Perfecting Human Futures: Transhuman Visions and Technological Imaginations*, (Dordrecht: Springer, 2016), as well as numerous articles and book chapters. He holds an A.B. from Stanford University and a Ph.D. in the History of Science from Harvard University. He was a postdoctoral fellow in the program on Science, Technology and Society at the Harvard Kennedy School.

UPCOMING LECTURES | 2022

NSF Bioeconomy Coordinating Committee Distinguished Lecture Series

NSF invests in fundamental research to support biotechnology and advance the U.S. bioeconomy across all fields of science and engineering. Presented by NSF's Bioeconomy Coordinating Committee and NSF Directorates, this distinguished lecture series will bring in individual speakers and panels representing the science and technology funded by a Directorate every month. Speakers will present on research and broader impacts in areas associated with biotechnology and the bioeconomy that are of interest broadly across the foundation.

All sessions will be conducted virtually.

THURSDAY, JANUARY 13, 2022

11:00 a.m. – 12:30 p.m.

PANEL PRESENTATION:

MEL USTAD, PHD

South Dakota EPSCoR

RAMUNAS STEPANAUSKAS, PHD

Bigelow Laboratories for Ocean Sciences

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THURSDAY, FEBRUARY 3, 2022

11:00 a.m. – 1:00 p.m.

PANEL PRESENTATION:

WILL DELOACHE, PHD

Novome Biotechnologies

CHRISTINE SANTOS, PHD

Manus Bio

DAN WIDMAIER, PHD

Bolt Threads

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For more information, refer to the NSF Bioeconomy Distinguished Lecture Series **[website](#)** or contact **Jared Dashoff** at **jdashoff@nsf.gov**.

WEBSITE

www.nsf.gov

TELEPHONE

TEL: (703) 292-5111

FIRS: (800) 877-8339

TDD: (800) 281-8749

ADDRESS

2415 Eisenhower Avenue

Alexandria, Virginia 22314, USA



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