



COMMITTEE ON WOMEN IN SCIENCE, ENGINEERING, AND MEDICINE
Policy and Global Affairs

THE NATIONAL
ACADEMIES

FROM SCIENCE TO BUSINESS: PREPARING FEMALE SCIENTISTS AND ENGINEERS FOR SUCCESSFUL TRANSITION INTO ENTREPRENEURSHIP

A WORKSHOP

**August 31 – September 1, 2009
The National Academies
The Beckman Center
100 Academy
Irvine, CA 92617**

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AGENDA

August 31: Framing Issues and Strategies -- Where We Stand

9:00 am **Welcome and Introductions**

Lilian Wu, Chair, Committee on Women in Science, Engineering, and Medicine and Program Executive, Global University Programs, IBM

9:05 am **Study: Entrepreneurial Careers of Women**

Chair: Susan Wessler, University of Georgia Foundation Chair, Biological Sciences, University of Georgia

Speaker: E. J. Reedy, Manager, Research and Policy, Kauffman Foundation

9:45 am **Panel I: From Bench to Business: Career Paths for PhDs**

Chair: Lydia Villa-Komaroff, Chief Scientific Officer, Cytonome/ST, LLC

Panelists: Laurel Smith-Doerr, Associate Professor of Sociology, Boston University and Lydia Villa-Komaroff, Chief Scientific Officer, Cytonome/ST, LLC

10:45 am **Break**

11:00 am **Keynote**

Chair: Vivian Pinn, Director, Office of Research on Women's Health, National Institutes of Health

Speaker: Susan Windham-Bannister, President and CEO, Massachusetts Life Science Center

12:00 pm **Lunch**

1:30 pm **Panel II: Aspects of Leadership in Biotechnology Careers**

Co-Chairs: Lydia Villa-Komaroff, Chief Scientific Officer, Cytonome/ST, LLC and Sheldon M. Schuster, President, Keck Graduate Institute of Applied Life Sciences

Panelists: Judy Heyboer, Human Resources Consultant, Former Senior Vice President, Genentech, Inc and Barbara Wallner, President and CEO, Chymic Therapeutics, Inc.

2:45 pm **Break**

3:00 pm **Panel III: Education to Prepare for Entrepreneurial Careers**

Chair: *Sheldon M. Schuster, President, Keck Graduate Institute of Applied Life Sciences*

Panelists: *Michael Teitelbaum, Program Director, Alfred P. Sloan Foundation; Gail Naughton, Dean, College of Business, San Diego State University and Founder, Advance Tissue Science, Inc.; and Jessica Townsend, Assistant Professor of Mechanical Engineering, Olin College*

4:30 pm **General Discussion and Wrap-Up**

Allan Fisher, Vice President, Product Strategy & Development, Laureate Higher Education Group

5:30 pm **Adjournment**

September 1: Moving Forward

9:00 am **Welcome and Summary of Day 1**

Florence Bonner, Senior Vice President for Research and Compliance, Howard University

9:15 am **Studies on Entrepreneurship**

Chair: *Pardis Sabeti, Assistant Professor, Systems Biology, Harvard University*

Speakers: *Caroline Simard, Director of Research and Executive Programs, Anita Borg Institute for Women and Technology and Manwai (Candy) Ku, Researcher, Stanford University*

- 10:00 am** **Panel IV: Alternative Forms of Entrepreneurships in Sustainable Technologies: Intrapreneurship in Corporations and Government, Social Entrepreneurship, and Traditional Entrepreneurship**
- Co-Chairs: Alice Agogino, Roscoe and Elizabeth Hughes Professor of Mechanical Engineering, University of California, Berkeley and Allan Fisher, Vice President, Product Strategy & Development, Laureate Higher Education Group*
- Panelists: Sharon Nunes, Vice President, IBM Innovations; Maxine L. Savitz, General Manager for Technology Partnerships, Honeywell Inc. (retired); Judith Giordan, Senior Advisor, National Collegiate Innovators and Inventors Alliance; and Lucinda Sanders, CEO and Co-founder, National Center for Women & Information Technology*
- 11:30 am** **Summary of the Conference: Findings and Themes**
- Lydia Villa-Komaroff, Chief Scientific Officer, Cytonome/ST, LLC*
- 12:00 pm** **Closing Luncheon**
- 1:00 pm** **Adjournment**

Committee on Women in Science, Engineering and Medicine Mandate and Current Members

The Committee on Women in Science, Engineering and Medicine (CWSEM) was established in 1990 as a standing committee of the National Research Council (NRC). CWSEM's mandate is to coordinate, monitor, and advocate action to increase the participation of women in science, engineering, and medicine. The committee collects and disseminates information on the education and employment of women scientists and engineers, and recommends ways to enhance women's advancement. CWSEM activities include an agenda of study projects; disseminating relevant data; serving as an information resource for the national media; and as a liaison to other national organizations. Since its inception, CWSEM has published several reports and convened national meetings on women in science and engineering academic programs; women scientists and engineers in industry; and minority women in science, engineering, and the healthcare professions.

The committee will increase the participation of women in the labor force by:

- 1) Serving as a resource for organizations and individuals seeking information and analysis about the status of women in science, engineering, and medical employment and education;
- 2) Formulating strategies to collect, analyze, and disseminate information on the needs and status of opportunities for women in science, engineering, and medical fields;
- 3) Reviewing relevant policies of agencies, universities, and industry designed to enhance the role of women;
- 4) Initiating and overseeing ad hoc committees to hold workshops and issue consensus reports with findings and recommendations for effective policies and programs to remove barriers to the participation of women in sciences, engineering and medicine; and
- 5) Serving as an institutional focal point in support of complementary activities across the National Academy of Sciences (NAS), the National Academy of Engineering (NAE), the Institute of Medicine (IOM) and the National Research Council (NRC).

Current Committee Members:

Lilian Wu, *Chair*, Program Executive, Global University Programs, IBM

Alice Agogino (NAE)*, Professor, Mechanical Engineering, University of California, Berkeley

Florence Bonner, Senior Vice President for Research & Compliance, Howard University

Allan Fisher, Vice President, Product Strategy & Development, Laureate Higher Education Group

Lydia Villa-Komaroff, Chief Scientific Officer, Cytonome/ST, LLC

June Osborn (IOM), President Emerita, Josiah Macy, Jr. Foundation

Vivian Pinn (IOM), Director, Office of Research on Women's Health, National Institutes of Health

Pardis Sabeti, Assistant Professor, Systems Biology, Harvard University

Warren Washington (NAE), Senior Scientist, Section Head, National Center for Atmospheric Research

Susan Wessler (NAS), University of Georgia Foundation Chair, University of Georgia

Staff:

Catherine Didion, Director

Jacqueline Martin, Senior Program Assistant

Carrie Brubaker, Christine Mirzayan Science & Technology Police Fellow

* Denotes membership in the National Academy of Sciences, the National Academy of Engineering, or the Institute of Medicine.

Committee on Women in Science, Engineering, and Medicine Biographies

Alice Agogino, Ph.D.

Alice Agogino is the Roscoe and Elizabeth Hughes Professor of Mechanical Engineering and an affiliated faculty at the University of California, Berkeley (UCB) Haas School of Business. She also directs the Berkeley Expert Systems Technology Laboratory and the Berkeley Instructional Technology Studio. She has served in a number of administrative positions at UCB including associate dean of engineering and faculty assistant to the executive vice chancellor and provost in educational development and technology. Dr. Agogino continues as principal investigator for the National Engineering Education Delivery System and the digital libraries of courseware in science, mathematics, engineering, and technology. Dr. Agogino received a BS in mechanical engineering from the University of New Mexico (1975), an MS in mechanical engineering (1978) from the UCB, and Ph.D. from the Department of Engineering-Economic Systems at Stanford University (1984). She is a member of the Association of Women in Science and was awarded the NSF Director's Award for Distinguished Teaching Scholars in 2004. She formally served as member of the COSEPUP Committee on Women in Academic Science and Engineering. Dr. Agogino is a member of the National Academy of Engineering.

Florence Bonner, Ph.D.

Florence B. Bonner was the former Associate Vice President for Research Compliance, before being appointed as the Acting Sr. Vice President for Research and Compliance as of July 2008. Dr. Bonner is a Professor of Behavioral Sciences and served as the Chair of the Department of Sociology and Anthropology from 1992-2007; Founder and Director of the African American Women's Institute and the Women Studies Program at Howard. She serves on the Academy of Sciences Committee on Women in Science, Engineering and Medicine (CWSEM). Dr. Bonner also served as Senior Fellow at the National Science Foundation. Before coming to Howard, she was the Executive Director, Center for Women in Government, State University of New York at Albany for four years. Dr. Bonner served as Co-Chair on the development of the Strategic Framework I (SFI) and Co-Coordinator for the social, behavioral and economic sciences in the development of SFII. Dr. Bonner has been an active researcher at Howard, being awarded ten grants from various agencies, NSF, NIH, and NIC. Currently, she has a grant from NIJ.

Allan Fisher, Ph.D.

Allan Fisher is Vice President for Product Strategy and Development at the Laureate Higher Education Group. He previously was co-founder, President and CEO of iCarnegie Inc., an online higher education subsidiary of Carnegie Mellon University, and before that served until 1999 as faculty member and Associate Dean for Undergraduate Education in the School of Computer Science at Carnegie Mellon University. During that time, he worked in high performance computing and networking research and also led the creation of Carnegie Mellon's B.S. program in Computer Science. In the late 1990s, he and Dr. Jane Margolis carried out a program of research and intervention that helped to increase the proportion of women entering the computer science program from 7% in 1995 to 42% in 2000. This work is described in their book, *Unlocking the Clubhouse: Women in Computing*, published in 2002 by MIT Press. Dr. Fisher received a bachelor's degree in chemistry from Princeton University, studied at the University of Cambridge, and received the Ph.D. in computer science from Carnegie Mellon University. He serves on a number of advisory committees for projects and organizations working toward diversity in technology fields, including the Anita Borg Institute and the National Research Council Committee on Women in Science, Engineering and Medicine.

Vivian W. Pinn, M.D.

Vivian W. Pinn is the first full-time Director of the Office of Research on Women's Health in the Office of the Director of NIH, an appointment she has held since 1991. She is also the NIH Associate Director for Research on Women's Health. Dr. Pinn came to NIH from Howard University College of Medicine in Washington, DC, where she had been Professor and Chair of the Department of Pathology, and she has previously held appointments at Tufts University School of Medicine and Harvard Medical School. One of her major efforts has been to raise the perception of the scientific community about the importance of sex and gender factors in basic science, clinical research, health care and public policy. She also is currently co-chair, along with the Director of NIH, of The NIH Working Group on Women in Biomedical Careers. Dr. Pinn earned her B.A. from Wellesley College and received her M.D. from the University of Virginia (UVA) School of Medicine in 1967, where she was the only woman and minority in her class. She returned to Massachusetts to complete her postgraduate training as a Research Fellow in pathology at Massachusetts General Hospital, during which time she also served as Teaching Fellow at Harvard Medical School. Dr. Pinn then joined the faculty of Tufts University School of Medicine and Tufts-New England Medical Center Hospital in 1970. In 1982, when she moved to Howard University, she became the third woman to chair an academic department of pathology in the United States. She is a member of many professional and scientific organizations, in which she held many positions of leadership. She also served as the 88th President (and second woman president) of the National Medical Association during 1989–1990. Dr. Pinn has received numerous honors, awards, and recognitions and has been granted ten honorary degrees of laws and science since 1992. She is a fellow of the American Academy of Arts and Sciences and was elected to the Institute of Medicine of the NAS in 1995.

Pardis Sabeti, M.D., Ph.D.

Pardis Sabeti is an Assistant Professor of Systems Biology at Harvard University. She currently serves as a co-investigator on a project studying the malaria genome. She and her team received a \$2 million Gates Foundation Grant for their work. Dr. Sabeti earned an M.D., Ph.D., and graduate degree from MIT, Oxford and Harvard where she studied human evolution. She is a Rhodes Scholar and was only the third woman ever to graduate Harvard Medical School with highest honors, *summa cum laude*. Her groundbreaking research on human evolution with advisor Eric Lander has been in the world's top journals, including *Nature* and *Science*. With already over 20 publications to her name, she is an expert in the study of recent human evolution and infectious disease. She has also received a Soros Fellowship, a L'Oreal for Women in Science Fellowship, a Burroughs Wellcome Career Award in Biomedical Sciences, a Damon Runyan Cancer Research Fellowship, and was named a *Science Spectrum Magazine* Trailblazer. She has also served on the MIT Board of Trustees and is a member of the Senior Common Room of Harvard University's Winthrop House.

Lydia Villa-Komaroff, Ph.D.

Lydia Villa-Komaroff is the Chief Scientific Officer at Cytonome/ST, LLC. During her 20 year research career, Dr. Villa-Komaroff held positions at MIT, Harvard University, University of Massachusetts Medical School and Harvard Medical School. As a science administrator, she has been VP for Research at Northwestern University in Illinois and the Vice President for Research and Chief Operating Officer of Whitehead Institute for Biomedical Research in Cambridge, MA. She also served as the non-executive Chair of the Board of Directors of Transkaryotic Therapies. She is a founding member of the Society for the Advancement of Chicanos and Native Americans in Science and has served as both a board member and vice president of the organization. Dr. Villa-Komaroff received her A.B. from Goucher College and her Ph.D. from MIT.

Susan Wessler, Ph.D.

Susan Wessler received her bachelor's degree in biology, with honors, from the State University of New York at Stony Brook in 1974. She received her Ph.D. in Biochemistry from Cornell University in 1980 and was a postdoctoral fellow of the American Cancer Society at the Carnegie Institution from 1980-1982. She began her career at the University of Georgia in 1983 as an assistant professor of botany, rising through the ranks to full professor of botany and genetics in 1992. In 1994 she was awarded the title of Distinguished Research Professor which she held until 2004 when she was named a Regents Professor. In 2008 she was named the first University of Georgia Foundation Chair in the Biological Sciences. Her scientific interest focuses on the subject of plant transposable elements and the evolution of plant genomes. She is co-author of *The Mutants of Maize* (Cold Spring Harbor Press) and of over 120 research articles. She is one of the principal authors of *Introduction to Genetic Analysis*, a leading textbook used in introductory genetics courses in colleges and universities throughout the world. In addition, she is an Associate Editor of the Proceedings of the National Academy of Sciences and is on the Editorial Board of Current Opinions in Plant Biology. In 1998 she was elected to membership in the National Academy of Sciences and was elected in 2004 to the Council of the National Academy. In 2006 she was selected as a Howard Hughes Research Institute Professor. She is a fellow of the American Association for the Advancement of Science and the American Academy of Arts and Sciences.

Lilian Wu, Ph.D.

Lilian Wu is Program Executive, Global University Programs and Innovation, IBM Technology Strategy and Innovation and a research scientist. She chairs the National Academies of Science, Engineering, and Institute of Medicine's National Research Council Committee on Women in Science, Engineering, and Medicine and is a Councilor of the Association for Women in Science (AWIS). She is a member of the S&E Workforce Committee of the Government-University-Industry Research Roundtable of the National Research Council; and a member of NSF's Advisory Committee on International Science and Engineering and NSF's Corporate Alliance.

She received her PhD in Applied Mathematics from Cornell University. Her major research interests are analysis and modeling of technology enabled and people intensive complex systems, particularly in the services sector. She is also a member of the Board of trustees of the New School University, the President's Council of Olin College, and the Global Advisory Board of Fordham University School of Business.

She was a member of President Clinton's Committee of Advisors on Science and Technology (PCAST), NSF's Committee on Equal Opportunity in Science and Engineering and served on the Advisory Committee of NSF's Engineering Directorate. Among her other professional services, she served on AAAS's Committee on Public Understanding of Science and Technology and DOE's Secretary of Energy's Laboratory Operations Advisory Board.

Speaker Biographies

Judith Giordan, Ph.D.

Judith C. Giordan has held executive and leadership positions in R&D and operations spanning a 25+ year career. Currently, Judy is Managing Director of Steel City Re, LLC, an intangible asset services firm; Vice President of Visions in Education, Inc., a strategic and human capital services provider to universities, start-ups and non-profits; Senior Advisor to the National Collegiate Inventors and Innovators Alliance, a member of the Board of Directors of start-up companies, and Professor of Practice in the College of Science and Technology of the University of Southern Mississippi – from which she has just completed a detail to the National Science Foundation as Program Director for the IGERT Program.

Previous executive positions include Vice President and Global Corporate Director of Research and Development at International Flavors and Fragrances, Inc.; Vice-President Worldwide Research and Development for the Pepsi-Cola Company, the global beverage arm of PepsiCo, Inc.; Vice President Research and Development, Henkel Corporation, the North American operating unit of the Henkel Group, and co-founder and managing partner of 1EXECStreet a successful San Francisco based boutique executive search firm. She has also held management and technical contributor positions at Polaroid and ALCOA. Judy received her Bachelor's degree from Rutgers University, her PhD from the University of Maryland (Chemistry), and was an Alexander von Humboldt Post Doctoral Research Fellow at the University of Frankfurt in Germany.

In addition to her business and university responsibilities, Judy is active in academic, professional and industrial organizations. Current and previous positions include: Member of the Board of Directors of the American Chemical Society, the Industrial Research Institute, and the Educational Foundation of the Commercial Development and Marketing Association; Member of the Conference Board Advisory Board for Technology Conferences; Member of the Board on Chemical Sciences and Technology of the National Research Council; Member of the Math and Physical Sciences Advisory Board and Member and Chair of the Waterman Award Committee of the National Science Foundation; Chair of the Education and Outreach Committee of the Intangible Asset Finance Society.

Judy has held Visiting and Adjunct professorships at North Carolina State University, Rutgers University and Dartmouth College and has served as a Member of the Board of Advisors of the University of Maryland College Of Life Sciences and the Institute for Strategic Business Markets at Penn State's Smeal Business School. Her research interests and grants focus on two main areas: mechanisms to support and foster women and diversity in science, technology, engineering and math (STEM) and in facilitating STEM intensive entrepreneurship, business and economic development. She is and has been a lead investigator on several National Science Foundation grants in these areas.

Judy is the author of over 200 articles, presentations, and seminars in the areas of entrepreneurship, career development and leadership, intellectual property monetization, market and operational strategy development and implementation, diversity, polymer chemistry, flavor and fragrance technology, and electron spectroscopy. She contributes articles and editorials to magazines and journals including Research and Technology Management, e-Plant, Chemical Specialties and numerous international technical journals and web sites. In addition, aspects of Judy's work and activities have been featured in publications including Working Woman, Chemical Week, Chemical Specialties, and Chemical and Engineering News. She has also been included in numerous internationally and nationally based Who's Who Publications, as well as books, studies and articles on topics including women and diversity, technology and career development.

Judy Heyboer

Judy Heyboer has spent the last twenty-seven years in Human Resources, retiring from full-time corporate life in 2000 as Senior Vice President at Genentech, Inc. in South San Francisco, CA. At Genentech, Judy revamped and re-energized the Human Resources function, and managed the introduction of the entire span of new programs following the company's public offering in 1999. During her tenure, Genentech achieved its initial recognition by Fortune Magazine as one of America's "100 Best Places to Work."

Prior to Genentech, Judy spent thirteen years at Acuson Corporation, which she joined in the startup phase to create the HR function and develop the culture and "feel" of the company. She began her human resources career at Spectra-Physics, Inc. where she spent in-depth time in each of the classic HR functions.

In addition to her consulting work in human resources, Judy devotes a substantial portion of her time and energy to writing, mentoring, advisory work, and making a difference in the community. She continues to be actively engaged in the human resource community, serving as consultant, mentor, speaker, and executive coach.

Judy has an MBA from Santa Clara University, and BA and MA degrees from the University of Michigan.

In 2007, Judy's accomplishments were recognized by induction into the San Mateo County Women's Hall of Fame. She currently serves as a trustee of the Keck Graduate Institute, a graduate school providing advanced degrees in Applied Life Sciences. She also serves on the boards of The Health Trust, Friends for Youth, Resource Area for Teaching, and the Advisory Board of Facing History and Ourselves. She is a Senior Fellow of the American Leadership Forum.

Manwai (Candy) Ku

Manwai C. Ku is a Ph.D. candidate in the Department of Sociology at Stanford University. Her work has focused primarily on gender in traditionally male-dominated settings, such as entrepreneurship, medicine, and law. Her doctoral dissertation examines gender segregation within the medical, legal, and teaching professions, specifically asking when gender differences emerge over the course of careers. Other research interests include women in professional education, and the identification of multiracial people and its impact on life outcomes. She has worked with the Clayman Institute for Gender Research and the Stanford Center for the Study of Poverty and Inequality.

Gail Naughton, Ph.D.

Gail K. Naughton, Ph.D., has been the Dean of the College of Business Administration at San Diego State University since August 2002. Prior to that she spent more than 15 years at Advanced Tissue Sciences, where she was the company's co-founder and co-inventor of its core technology. While at SDSU, Dr. Naughton has spearheaded a number of unique MBA programs in partnership with industry, has played an instrumental role in the industry committee of AACSB and is a member of the Board of Directors of AACSB International. She has spent more than 15 years extensively researching the tissue engineering process, holds more than 90 U.S. and foreign patents and has been extensively published in the field.

In 2000, Dr. Naughton received the 27th Annual National Inventor of the Year award by the Intellectual Property Owners Association in honor of her pioneering work in the field of tissue engineering. Dr. Naughton sits on the Board of Directors of Celera (NASDAQ:CRA) and CR Bard (NYSE: BCR).

Sharon Nunes, Ph.D.

Sharon Nunes is Vice President of Strategic Growth Initiatives for Big Green Innovations at IBM Systems & Technology Group, where she directs the development of carbon- and water-management solutions as well as technology innovations for IBM's Smarter Planet initiative. In 2009 she was a Women's History Month Honoree for being one of the "Women Taking the Lead to Save Our Planet" and in June 2009 she was inducted into the WITI (Women in Technology International) Hall of Fame. Nunes received two awards for her mentoring of technical women: IBM's 2004 Fran Allen Mentoring Award and NAFE's 2006 Women of Excellence national award. She was a National Academy of Engineering Frontiers of Engineering fellow in 2000 and a member of the National Academy of Engineering "Engineer of 2020" advisory board. Nunes received her Ph.D. in materials science from the University of Connecticut.

E. J. Reddy

As a manager in Research and Policy, E.J. Reddy oversees grants and conducts academic and policy research for the Ewing Marion Kauffman Foundation in the field of entrepreneurship. He has been significantly involved in the coordination of the Kauffman Foundation's entrepreneurship and innovation data-related initiatives, including the Kauffman Firm Survey and the Foundation's multi-year series of symposiums on data, as well as many web-related projects and initiatives. Reddy joined the Kauffman Foundation in 2003. Prior to joining the Kauffman Foundation, Reddy was a senior analyst at the Federal Reserve Bank of Kansas City and had extensive experience in non-profit management. Previously, he was financial director and executive co-director of the Center for Community Outreach at the University of Kansas in Lawrence.

Reddy is active in several civic initiatives, and has been the recipient of the Founders' Award from the Lesbian and Gay Community Center of Greater Kansas City. Reddy earned his bachelor's degree, Phi Beta Kappa, in economics, mathematics, and American studies from the University of Kansas.

Lucinda Sanders

Lucy Sanders is CEO and Co-founder of the National Center for Women & Information Technology and also serves as Executive-in-Residence for the ATLAS Institute at the University of Colorado at Boulder.

She has an extensive industry background, having worked in R&D and executive positions at AT&T Bell Labs, Lucent Bell Labs, and Avaya Labs for over 20 years, where she specialized in systems-level software and solutions (multi-media communication and customer relationship management.) In 1996, Lucy was awarded the Bell Labs Fellow Award, the highest technical accomplishment bestowed at the company, and she has six patents in the communications technology area.

Lucy serves on several boards, including the Mathematical Sciences Research Institute (MSRI) Board of Trustees at the University of California at Berkeley; the Engineering Advisory Council at the University of Colorado at Boulder; the Denver Public Schools Computer Magnet Advisory Board; the Advisory Board for the Women's College Applied Computing Program at the University of Denver; and several corporate boards.

In 2004 Lucy was awarded the Distinguished Alumni Award from the Department of Engineering at CU and in 2007 she was inducted into the Women in Technology International (WITI) Hall of Fame. Lucy has served as Conference Chair and Program Chair for the Grace Hopper Celebration of Women in Computing. She currently is serving on the Information Technology Research and Development

Ecosystem Commission for the National Academies. Lucy received her B.S. and M.S. in Computer Science from Louisiana State University and the University of Colorado at Boulder, respectively.

Maxine Savitz, Ph.D.

Dr. Savitz recently retired as the General Manager for Technology Partnerships at Honeywell, Inc. During her career at Honeywell, she oversaw the development and manufacturing of innovative materials for the aerospace, transportation and industrial sectors. She served in the capacity of Deputy Assistant Secretary for Conservation at DOE from 1979 – 1983. She is currently a member of Advisory Boards at Sandia and Pacific Northwest National Laboratories. She is a member of the board of directors at the Charles Stark Draper Laboratories and ACEEE. She is on the National Academies' America's Energy Future committee and vice chair of the panel of Energy Efficiency Technologies. She was also a member of the study committee for the American Physical Society's 2008 study: Energy Future: Think Efficiency. Dr. Savitz is vice president of the National Academy of Engineering and a Fellow of the California Council on Science and Technology. She was recently appointed to the President's Council of Advisors for Science and Technology. She holds a Ph.D. in chemistry from the Massachusetts Institute of Technology and a B.A. degree in chemistry from Bryn Mawr College.

Sheldon Schuster, Ph.D.

Sheldon M. Schuster, Ph.D., is currently the President of Keck Graduate Institute of Applied Life Sciences (KGI) in Claremont, CA. A member of the Claremont College Consortium, KGI features a professional graduate program (Master of Bioscience) designed to educate scientists and engineers to be the bioscience business leaders of the 21st Century. One of the first professional science masters degrees in the United States, the MBS emphasizes interdisciplinary and team-based active learning, and has become the premier degree for those wishing to enter and lead the biotechnology, medical device, pharmaceutical development and modern agricultural industries. Dr. Schuster has also expanded the program to include new centers focused on bioprocessing, rare diseases, and biomarkers in order to expand education and research in these critical areas affecting not only industry but the entire health care system.

Prior to joining KGI, Dr. Schuster was the Interim Assistant Vice President for Research, Director of The Biotechnology Program and Professor of Biochemistry and Molecular Biology at the University of Florida. His research focused on the mechanism of tumor drug resistance and the rational design of potential anti-tumor therapies based on studies of specific enzyme structures. In addition, he initiated a research program attempting to use novel gene analysis tools to determine the microbial etiology of numerous chronic human diseases. His research work has been funded by the National Cancer Institute and the American Cancer Society and has resulted in over 140 peer-reviewed publications and ten patents.

Dr. Schuster is a graduate of the University of California at Davis and earned his Ph.D. from the University of Arizona. He has worked at the Institute for Enzyme Research at the University of Wisconsin and was on the faculty at the University of Nebraska as Professor of Chemistry and Biological Sciences. Dr. Schuster joined the faculty of the University of Florida in 1989 and moved to KGI in 2003. He is active in the development of start-up companies from KGI and the technologies from other universities. Dr. Schuster was one of the founders of Restoragen, Inc. (formerly BioNebraska Inc.), a biotechnology company that produced recombinant peptide therapeutics for the cure of Diabetes and Osteoporosis, and AquaGene, a company developing technologies to produce biopharmaceuticals using fish as the bioreactor.

Dr. Schuster has had a long-standing interest in Biotechnology education and is active nationally and

locally promoting development of the workforce necessary to sustain a viable Biotechnology sector. He has been active in leadership roles in BIO and the Council for Biotechnology Centers and is presently Associate Editor for Biotechnology of the journal *Biochemistry and Molecular Biology Education* (BAMBED). He has been exploring the best methods to bridge the gap from basic research ongoing in universities to the applied technologies required for commercial development.

Dr. Schuster serves as a member of the accrediting commission for Senior Colleges and Universities of the Western Association of Schools and Colleges (WASC), an accrediting agency for California, Hawaii and several US territories. Additionally, he has recently been elected as a Fellow of the American Association for the Advancement of Science (AAAS).

Caroline Simard, Ph.D.

Dr. Caroline Simard directs the Anita Borg Institute's (ABI) research initiatives. She has led the design, data collection and analysis, writing, and dissemination of the Institute's major research initiative: "Climbing the Technical Ladder: Obstacles and Solutions for Mid-Level Women in Technology," which has received national media attention. At ABI, she is spearheading executive engagement programs directed at supporting organizational change for greater retention and advancement of technical women. She is a frequent speaker on organizational and individual strategies for talent management and co-authors a blog on Fast Company on the issues facing women in technology. Simard is passionate about social science research and its role in creating practical solutions to social problems. Prior to ABI, Simard was a Researcher at the Center for Social Innovation of the Stanford Graduate School of Business. Caroline holds a PhD in communication studies from Stanford University, with a focus on organizational theory, high-technology industries, and social networks. She holds a Bachelor's Degree from Université de Montréal and a Masters Degree in Communication and Information Studies from Rutgers University. Simard's publications have focused on gender and technical human capital, the barriers to the diffusion of best practices, managing open innovation, regional clusters of innovation, and social networks. Simard serves on the Leadership Team of the National Center for Women and Information Technology and is a former member of the editorial committee at the *Stanford Social Innovation Review*.

Laurel Smith-Doerr, Ph.D.

Laurel Smith-Doerr is Associate Professor of Sociology at Boston University. Her book *Women's Work: Gender Equality vs. Hierarchy in the Life Sciences* (2004, Boulder, CO: Lynne Rienner Publishers) explains how network forms of organization are more conducive to gender equity than are more rule-bound hierarchical settings. Smith-Doerr has published in the areas of organizational and economic sociology, science and society, and gender and work. Her published research has appeared in a variety of journals and edited volumes including *Administrative Science Quarterly*, *Gender & Society*, *Handbook of Economic Sociology*, *Handbook of Science and Technology Studies*, *Journal of Technology Transfer*, *Minerva*, *Regional Studies*, and *Sociological Forum*. Smith-Doerr's research has examined tensions in the institutionalization of science, including examination of: networks in the biotechnology industry, commercialization in the university, contributions of immigrant entrepreneurs, gendered organizations, and scientists' responses to ethics education requirements. From 2007-09 she was Program Director of Science, Technology & Society at the National Science Foundation. She received the NSF Director's Award for Collaborative Integration for her work as Chair of Cross-NSF program in Ethics Education in Science and Engineering, and on the America COMPETES Act policy committee.

Michael Teitelbaum, Ph.D.

Michael S. Teitelbaum is Program Director at the Alfred P. Sloan Foundation in New York, where he is responsible for the Sloan Research Fellowships, Science and Engineering Workforce, Professional Science Masters, Federal Statistics, and the Sloan Public Service Awards. His research interests include the causes and consequences of very low fertility rates; the processes and implications of international migration; and patterns and trends in science and engineering labor markets in the U.S. and elsewhere. He is the author or editor of 10 books and a large number of articles on these subjects. Previously he was a faculty member at Princeton and Oxford Universities, and served as Vice Chair and Acting Chair of the U.S. Commission on International Migration. He was educated at Reed College and at Oxford University, where he was a Rhodes Scholar.

Jessica Townsend, Ph.D.

Jessica Townsend is an Assistant Professor of Mechanical Engineering at the Franklin W. Olin College of Engineering in Needham, MA. Olin College is a new undergraduate engineering institution with a focus on design and entrepreneurship. Dr. Townsend teaches several of the mechanical engineering core courses at and also advises student design teams in Olin's Senior Capstone program. Her current research interests include development and characterization of engineered fluids (nanofluids) for electronics cooling applications. Dr. Townsend received her Ph.D. in aeronautics and astronautics from the Massachusetts Institute of Technology where she developed evaporatively cooled turbine blades for advanced aircraft engines. Prior to returning to school for her doctorate, Dr. Townsend spent three years in industry as an aerospace performance engineer at Hamilton Sundstrand Power Systems.

She received her M.S. from the Mechanical and Aeronautical Engineering Department at the University of California at Davis. She earned her B.S. at the University of Massachusetts at Amherst in mechanical engineering and credits her mentors at UMass for their early influence in pointing her towards a career in engineering education.

She was also the recipient of the AIAA Foundation Wilbur and Orville Wright Graduate Research Award, the AIAA Foundation Gordon C. Oates Air Breathing Propulsion Graduate Award and the American Association of University Women Engineering Dissertation Fellowship.

Barbara Wallner, Ph.D.

Dr. Wallner is currently Founder, President & Chief Executive Officer of Chymic Therapeutics, Inc. a start-up company that is developing therapeutics for cancer, autoimmune and infectious diseases. She also holds the position of Senior Vice President for Technology Operations and Chief Technology Officer at ZIOPHARM Oncology, Inc, a publically traded company that is developing cancer therapeutics.

Before joining ZIOPHARM Oncology Dr. Wallner was Senior Vice President for Research and Chief Scientific Officer at BioTransplant, Inc. Previous to that she was a founder, Senior Vice President for Research and Chief Scientific Officer of Point Therapeutics (now DARA BioSciences); Vice President for Research at ImmuLogic, Inc. and held several management positions at Biogen (now Biogen Idec) where she invented Amevive® now marketed for psoriasis by Astellas Pharma. During her 27 years of industry experience, Dr. Wallner has published 62 scientific papers and authored 30 issued US patents. She has served on several Scientific Advisory Boards.

Susan Windham-Bannister, Ph.D.

On May 28, 2008, Dr. Susan Windham-Bannister was appointed by the Massachusetts Life Sciences Center Board of Directors to be the Center's first President and CEO. She officially assumed that position in July, 2008.

Dr. Windham-Bannister is former Managing Vice President of the Commercial Strategy Group for Abt Bio-Pharma Solutions Inc. In that capacity, she managed a research-based consulting business that provides consulting services to firms in the life sciences -- health care delivery, pharmaceuticals, biotech, diagnostics, devices and healthcare information technology.

Dr. Windham-Bannister was a member of Abt Bio-Pharma Solutions' corporate management team, and a founding member of the company.

Dr. Windham-Bannister has 35 years of consulting experience in life sciences and has worked with companies that represent all major industry sectors. A partial list of her clients includes Siemens Diagnostics, Roche, Pfizer, Genzyme, Eyetech, Sopherion, Sanofi, Novartis, Massachusetts General Hospital, Brigham and Women's Hospital, Tufts Medical Center, GE Healthcare, The American Cancer Society and The W.K. Kellogg Foundation. Within her client organizations, Dr. Windham-Bannister most often works with executive level management and/or Boards of Directors on assessment of market opportunities and commercialization strategy.

Dr. Windham-Bannister has co-authored two books: *Competitive Strategy for Health Care Organizations* and *Medicaid and Other Experiments in State Health Policy*. She also has written several articles on competition in today's health care marketplace.

Dr. Windham-Bannister holds a B.A. from Wellesley College, a doctorate in health policy and management from the Heller School at Brandeis University, and was a post-doctoral fellow at Harvard University's John F. Kennedy School. She completed her doctoral work under a fellowship from the Ford Foundation.

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