2008 ADVANCE Conference Investigators

Gilda A. Barabino, Ph.D., Principal Investigator

Professor, The Wallace Coulter Department of Biomedical Engineering
Georgia Institute of Technology/Emory University
Atlanta, GA 30332-0535

Ph.D., Rice University, 1986
B.S., Xavier University of LA 1978

Gilda Barabino is a Professor in the Department of Biomedical Engineering at Georgia Institute of Technology and Emory University. She previously rose to the rank of Professor of Chemical Engineering and served as Vice Provost for Undergraduate Education at Northeastern University. She received her B.S. degree in Chemistry from Xavier University of Louisiana and her Ph.D. in Chemical Engineering from Rice University. She has held Visiting Professor appointments at the Massachusetts Institute of Technology, Georgia Institute of Technology and Rice University. Her research interests are in the areas of sickle cell adhesion, cellular and tissue engineering and diversity in science and engineering. Dr. Barabino has been the recipient of a number of grants and awards including the ASEE Dow Outstanding Faculty Award. She is a fellow of the American Institute for Medical and Biological Engineering.

Dr. Barabino has an extensive record of leadership and service in the engineering and medical communities. She is a member of the NIH National Advisory Dental and Craniofacial Research Council, Treasurer and member of the Board of Directors of the Biomedical Engineering Society and member of the Advisory Board of the Committee on the Advancement of Women Chemists. She recently served as a member of the congressionally appointed NIH Sickle Cell Disease Advisory Committee. Dr. Barabino has led numerous educational projects and initiatives designed to enhance faculty development and student success and to increase opportunities in science and engineering for members of underrepresented groups. She currently serves as the Principal Investigator on the NSF ADVANCE Leadership Award, "Cross-Disciplinary Initiative for Minority Women Faculty," an initiative designed to enhance the socialization of tenure-track minority women into academic careers in engineering.

Cheryl Leggon, Ph.D., Co-Principal Investigator

Associate Professor, School of Public Policy
Georgia Institute of Technology
Atlanta, GA 30332-0345

Ph.D., University of Chicago
M.A., University of Chicago
B.A., Barnard College, Columbia University

Dr. Cheryl B. Leggon, Co-PI on the Cross-Disciplinary Initiative for Minority Women Faculty grant, is a sociologist whose research on under participating groups in the science and engineering workforces developed during her nine years as a Staff Officer in the Office of Scientific and Engineering Personnel of the National Research Council. Before coming to Georgia Tech in 2002, she was Director of Women's Studies and Associate Professor of Sociology at Wake Forest University. In 2006, she was elected to membership in Sigma Xi; and in 2007, she was named a Hesburgh Award Teaching Fellow representing the Ivan Allen College at Georgia Tech. Dr. Leggon earned the BA in Sociology from Barnard College (Columbia University), and the PhD in Sociology from the University of Chicago. In 2007, Dr. Leggon was elected as a Fellow to the American Association for the Advancement of Science (AAAS) for her work on the intersection of race, ethnicity and gender, and academic career pathways in science and engineering.

Her most recent publications include: "Women in science: racial and ethnic differences and the differences they make," *Journal of Technology Transfer*, 32 (2006); "Gender, race/ethnicity and the digital divide," in **Women, Gender and Technology**, edited by Mary Frank Fox, Deborah G. Johnson, and Sue V. Rosser, Urbana and Chicago: University of Illinois Press, 2006; and with Willie Pearson, Jr., "Assessing programs to improve minority participation in STEM: what we know and what we need to know," in **Doctoral Education and Faculty of the Future**, edited by Ronald Ehrenberg, Ithaca, NY: Cornell University Press (in press).

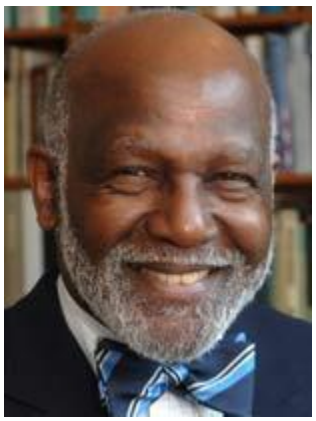
2008 ADVANCE Conference Advisory Committee

Norman L. Fortenberry, Sc.D.

Director, Center for the Advancement of Scholarship on Engineering Education
The National Academy of Engineering
Washington, DC 20001

Sc.D, S.M., and S.B, Mechanical Engineering, Massachusetts Institute of Technology

Dr. Norman L. Fortenberry is the founding Director of the Center for the Advancement of Scholarship on Engineering Education (CASEE) at the National Academy of Engineering (NAE). CASEE facilitates research on and deployment of, innovative policies, practices, and tools designed to enhance the effectiveness and efficiency of systems for the formal, informal, and lifelong education of engineers. Prior to joining NAE in October, 2002, Dr. Fortenberry held managerial positions within the National Science Foundation's (NSF's) Directorate for Education and Human Resources (EHR) including Senior Advisor and Division Director. Dr. Fortenberry's programmatic responsibilities included undergraduate education as well as broadening access and participation in science and engineering at all levels by underrepresented populations and institutions. Before joining the NSF as Division Director in November 1996, Dr. Fortenberry served as Executive Director of the National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (The GEM Consortium) after serving as Associate Program Director, Program Director, and Staff Associate at the NSF from 1992 to 1995. Prior to that time, Dr. Fortenberry was Assistant Professor of Mechanical Engineering and Associate Director of Minority Engineering Programs at Florida A&M University/Florida State University College of Engineering in Tallahassee, Florida.



Wesley Harris, Ph.D.

Charles Stark Draper Professor of Aeronautics and Astronautics
Department of Aeronautics and Astronautics
Massachusetts Institute of Technology
Cambridge, MA 02139

Ph.D., Princeton University 1968
M.S., Princeton University 1966
B.S., University of Virginia 1964

Dr. Harris is the Charles Stark Draper Professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology. Formerly head of the Department of Aeronautics

and Astronautics, he has recently been appointed Associate Provost for Faculty Equity at MIT. In this role, Harris will focus on faculty diversity and gender issues across the Institute, including the recruitment, retention, promotion and career development of minority and women faculty. In addition to his duties as department head in Aeronautics and Astronautics, he directed the Lean Sustainment Initiative within the MIT Center for Technology, Policy, and Industrial Development. His principal areas of research include unsteady aerodynamics, rotorcraft acoustics, structure and propagation of strong shock waves in gas mixtures, and sickle cell pathology. Dr. Harris formerly served as the director of MIT's Office of Minority Education and held an appointment as a Martin Luther King, Jr. Visiting Professor at MIT. A member of the National Academy of Engineering, a fellow of the American Institute of Aeronautics and Astronautics, and former trustee of Princeton University, Harris has spent much of his academic career building joint university-industry-government research and development programs.

Theresa A. Maldonado, Ph.D., P.E.

Deputy Director, Texas Engineering Experiment Station, Texas A&M University System
Associate Dean for Research, Dwight Look College of Engineering
Professor, Department of Electrical and Computer Engineering, Texas A&M University

Ph.D. (EE), Georgia Institute of Technology, 1990
M.S.E.E., Georgia Institute of Technology, 1982
B.E.E. with Highest Honors, Georgia Institute of Technology, 1981
A.S. (Mathematics), Macon Jr. College, 1979

Prior to joining Texas A&M in 2003, Dr. Maldonado served as associate vice president for research (2002 to 2003) at The University of Texas at Arlington (UTA). In this role, she also served as director of the Institute for Nanoscale Science and Engineering Research and Teaching, a university-wide initiative to facilitate collaborative research, teaching and research facilities. Previously, she was associate dean for research (2001 to 2002) and professor of electrical engineering at UTA (1990 to 2003). From 1981 to 1986 she was a member of the technical staff at AT&T Bell Laboratories. She took a detour in 1999 and served as an Engineering Research Centers (ERC) program director in the Engineering Directorate at the National Science Foundation (1999 to 2001), where she was recognized with the Director's Award for Program Management Excellence and the Director's Award for Collaborative Integration for her services on the CAREER Coordinating Committee. She also received a Certificate of Appreciation for Distinguished Service in the development of the NSF ADVANCE Program. Her current research interests include developing new dye-doped polymer materials with tailored second order optical nonlinearities. These materials are used to fabricate nonlinear optical

thin films, gratings, and optical fiber structures by the ionic self-assembled monolayer technique to be integrated into electro-optic and photonic devices.

Abigail J. Stewart, Ph.D.

Director of the ADVANCE Program at the Institute for Research on Women and Gender, University of Michigan
Sandra Schwartz Tangri Distinguished University Professor of Psychology and Women's Studies, University of Michigan

B.A., Wesleyan University
M.Sc., London School of Economics
Ph.D., Harvard University

Abigail J. Stewart is Sandra Schwartz Tangri Distinguished University Professor of Psychology and Women's Studies at the University of Michigan and director of the UM ADVANCE project. She has received the Henry Murray Award (in personality psychology) and the Carolyn Wood Sherif Award (in psychology of women) from the American Psychological Association. Dr. Stewart has published many scholarly articles and several books, focusing on the psychology of women's lives, personality, and adaptation to personal and social changes. Her current research, which combines qualitative and quantitative methods, includes comparative analyses of longitudinal studies of educated women's lives and personalities; a collaborative study of race, gender and generation in the graduates of a Midwest high school; and research and interventions on gender and science and technology with middle-school-age girls, undergraduate students, and faculty.

Matthew Tirrell, Ph.D.
Richard A. Auhll Professor and Dean
College of Engineering
University of California, Santa Barbara

Ph.D., University of Massachusetts, 1977
B.S., Ch.E, Northwestern University

Dr. Tirrell received his undergraduate education in Chemical Engineering at Northwestern University and his Ph.D. in 1977 in Polymer Science from the University

of Massachusetts. He is currently Dean of the College of Engineering at the University of California, Santa Barbara. From 1977 to 1999 he was on the faculty of Chemical Engineering and Materials Science at the University of Minnesota, where he served as head of the department from 1995 to 1999. His research has been in polymer surface properties including adsorption, adhesion, surface treatment, friction, lubrication and biocompatibilty. He has co-authored over 265 papers and one book and has supervised over 60 Ph.D. students. Professor Tirrell has been a Sloan and a Guggenheim Fellow, a recipient of the Camille and Henry Dreyfus Teacher-Scholar Award and has received the Allan P. Colburn, Charles Stine, the Professional Progress Award and Walker Award from AIChE. He was elected to the National Academy of Engineering in 1997, became a Fellow of the American Institute of Medical and Biological Engineers in 1998, was elected Fellow of the American Association for the Advancement of Science in 2000 and was named Institute Lecturer for the American Institute of Chemical Engineers in 2001.

Cathy A. Trower, Ph.D.
Research Associate, Graduate School of Education, Harvard University

Ph.D., University of Maryland, College Park,1996
M.B.A., University of Iowa
B.B.A., University of Iowa

Dr. Trower is Research Associate at Harvard University, Graduate School of Education. Her current project, entitled the "Collaborative On Academic Career in Higher Education" (aka COACHE) has as a primary purpose making the academy a more attractive and equitable place for new teacher-scholars by giving voice to pre-tenure faculty about the quality of their work life and their level of satisfaction with the workplace including climate, clarity of tenure and promotion processes and criteria, professional development opportunities, and the equity of policies and practices. A secondary purpose of the project is to increase the recruitment, retention, status, success, and satisfaction of faculty of color and white women. Dr. Trower has studied faculty employment issues, policy, and practices for the past fourteen years during which she produced an edited volume, numerous book chapters, articles, and case studies. She has conducted numerous workshops and seminars for colleges and universities interested in faculty diversity and improving the workplace for all new scholars. In addition, Cathy has been a member of several NSF ADVANCE site visit teams and is currently on Advisory Councils for three ADVANCE sites. Previously, Cathy served as a senior level administrator of business degree programs at Johns Hopkins University with responsibility for corporate and community alliances.

2008 ADVANCE Conference Keynote Speaker

David Hall, L.L.M., S.J.D.

School of Law
Northeastern University

David Hall returned to the faculty at Northeastern University School of Law after a distinguished career as an administrator in the law school and the University. He was appointed Provost and Senior Vice President for Academic Affairs at Northeastern University in July of 1998 and served in that capacity until July 2002. During his tenure as the chief academic officer for Northeastern he oversaw the significant growth in the University's external research funding, retention rate, and the overall academic standing. His two major contributions were in the area of diversity and Practice Oriented Education. Through his leadership of these key initiatives Northeastern made tremendous strides in becoming national leaders in two of its fundamental educational values.

Before being appointed as Provost, he served as Dean of Northeastern University School of Law from 1993 to 1998. Stressing the School of Law's hallmarks—academic excellence, experiential learning, ethical responsibility and social justice—David Hall called upon all law schools to be places "where the values and spiritual foundations of future lawyers are nurtured, challenged and systematically emphasized." Working to bridge the often-alienated worlds of law and the inner city, in 1995, David Hall helped to establish the Urban Law and Public Policy Institute, which brings together community activists, government representatives and academicians to develop solutions to seemingly intractable urban dilemmas. With a $1.6 million grant from the U.S. Department of Education's Urban Community Service Program, the institute worked for numerous years with local community groups on inner city revitalization and violence prevention programs. President George Bush appointed Professor Hall in 2003 to serve as a member of the Board of Directors of the Legal Services Corporation. He was appointed by the President of the American Bar Association to serve on a special Access to Justice Task Force in 2005.

David Hall served as associate dean of academic affairs for the School of Law from 1988 to 1992. He taught at the law schools of the University of Mississippi and the University of Oklahoma prior to his appointment at Northeastern, and practiced with the Federal Trade Commission in Chicago before entering academia. His publications include works on civil rights, the constitution and race, legal education, and social justice. He has authored a book on the intersection of law and spirituality, entitled *The Spiritual Revitalization of the Legal Profession: A Search for Sacred Rivers*, published by the Edwin Mellen Press.

2008 ADVANCE Conference Speakers

Stephanie G. Adams, Ph.D.

Dr. Stephanie G. Adams is the Associate Dean for Undergraduate Education in the College of Engineering and an Associate Professor of Industrial and Management Systems Engineering at the University of Nebraska-Lincoln (UNL). During the 2006-2007 Academic Year she will be working at the National Science Foundation in Arlington, VA as a Program Director in the Engineering Education and Centers Division. Dr. Adams is an honor graduate of North Carolina Agricultural and Technical State University, where she earned her BS in Mechanical Engineering, in 1988. In 1991 she was awarded the Master of Engineering degree in Systems Engineering from the University of Virginia. She received her Ph.D. in Interdisciplinary Engineering from Texas A&M University in August of 1998. Her areas of concentration were Industrial Engineering and Management. Her research interests include Team Effectiveness, Collaborative and Active Learning, Engineering Education and Pedagogy, and Quality Control and Management. She has published a number of articles on the effective use of teams, as well as articles on issues related to mentoring students. In 2003 she received the prestigious CAREER award from the National Science Foundation to support her goal of designing, developing and validating a model for the facilitation of effective teaming in the engineering classroom and for the enhancement of learning. Dr. Adams is the recipient of numerous awards for teaching, mentoring and service.

The Effective Teaming Laboratory, directed by Dr. Adams, was established in 2002 with funds from the National Science Foundation. The Lab is home to a team of researchers working on the development of a model for the facilitation of effective teaming in the engineering classroom. The lab is equipped with audio and video technology to observe engineering students working in teams. Observations are being used to develop methodologies and instruments to measure individual growth and team effectiveness.

Jane Chumley Ammons, Ph.D.

Jane Ammons serves as the Associate Dean of Engineering for Faculty Affairs and Professor of Industrial and Systems Engineering at the Georgia Institute of Technology in Atlanta, Georgia, USA. Her areas of expertise include production systems design and analysis, manufacturing systems, reverse logistics, and continuous quality improvement. Dr. Ammons received her Ph.D. in Industrial and Systems Engineering from

the Georgia Institute of Technology, and her M.S.I.E. and B.S.I.E. cum laude from the University of Alabama. In addition to her academic experience, Dr. Ammons has worked as a plant engineer for an industrial manufacturer and is a registered Professional Engineer in the state of Georgia.

Dr. Ammons is an active researcher who has published numerous scholarly articles and book chapters. At Georgia Tech, Dr. Ammons has been honored with eight teaching/faculty awards at the school and university levels. She has served as an advisor for the Tau Beta Pi student chapter since 1987 and is engaged in activities to enhance the development of Georgia Tech students and faculty, including women and under-represented groups. At Georgia Tech she served as the NSF ADVANCE Professor of Engineering from 2002-2006 serving to advance the career success of women engineering faculty.

Dr. Ammons has provided national and international leadership and service on several boards and advisory panels. She has chaired the U.S. National Science Foundation (NSF) Engineering Advisory Committee and the U.S. NSF Advisory Committee for the Division of Design and Manufacturing. She has also served as a member of the U.S. NSF Alan T. Waterman Award Committee to recognize the top young U.S. scientist/engineer. Dr. Ammons has served as a consultant to the U.S. Army Science Board. Dr. Ammons has served as Secretary of the IIE Board of Trustees and chaired the Trustees of the IIE Scholarship Fund. She initiated the NSF Engineering Scholars program as Chair of the seminal workshop. She has chaired the Computer Equipment Disposal and Recycling Council for the State of Georgia and served as a member of the City of Atlanta Permitting Improvement Project's Stakeholders Group. Currently Dr. Ammons serves a member of the Technical Committee for the Uganda: Millennium Science Initiative (MSI) Project co-financed by the World Bank. She serves as a Program Evaluator for the engineering education accreditation body (ABET), as an external advisor to the Virginia Tech ADVANCE program. She is a member of IIE, SME, INFORMS, the American Society of Engineering Education, and has been elected a Fellow of IIE.

Paula Hammond, Ph.D.

Paula Hammond was named the distinguished Bayer Chair Professor of Chemical Engineering at MIT in 2004. Dr. Hammond was one of a group of key faculty members involved in the planning and writing of the proposal for the Institute for Soldier Nanotechnologies (ISN) at MIT.
In 1994 she was awarded the NSF Postdoctoral Fellowship in Chemistry while performing postdoctoral research in the Harvard University Chemistry Dept as a member of the Whitesides research group. In 2000, Professor Hammond was awarded the Junior Bose Faculty Award, and the GenCorp Signature University Award. She has also received the NSF Career Award, the EPA Early Career Award, the DuPont Young Faculty Award, and the 3M Innovation Fund Award. In March 2007, Professor

Hammond is elected as a *Fellow of the American Physical Society* for her contributions on thin-film patterning of polymers through selective deposition and her studies on side-chain liquid-crystalline block copolymers. Dr. Hammond's research and educational program emphasizes the use of molecular aspects in the study and development of new materials and processes. Its basis is the molecular design and synthesis of self-assembling polymeric systems, and the understanding and use of secondary interactions to guide their assembly at surfaces as well as in the bulk state. This is achieved in two primary areas of research. The first area involves the use of polymer-surface interactions as a guide to the assembly of single and multicomponent micron and submicron scale structures on a broad range of surfaces as a means of microfabrication. Her research group has developed a new approach to patterning polymer thin films on a micron length scale using nonlithographic techniques that involve the manipulation of surface functionality and polymer adsorption technique. Applications range from electro-optical devices to biologically active functional surfaces and sensors.

Anne MacLachlan, Ph.D.

Anne MacLachlan's research focuses on graduate education, graduate student professional development, graduate education in science and engineering and subsequent professional employment, and conditions of faculty employment and careers. Her interests also include the role of community colleges in training first generation and underrepresented students to transfer to four year institutions in science, and research on undergraduate summer research students. In all these areas her focus is on underrepresented groups and women. A related research interest is the historical development of graduate education in the United States and evaluating the extent of German influences on it. Prior to joining CSHE, Dr. MacLachlan worked at the UC Berkeley Graduate Division, served as Assistant Dean of the UC Santa Barbara Graduate Division, and coordinated academic placement at the UC Berkeley Career Planning and Placement Center. She has also taught at UC Berkeley, UC Santa Barbara, and the University of Maryland's overseas campus; she lived in Germany for three years and in Holland for five. Her Ph.D. is in German Economic History. In addition to her research at the Center, Dr. MacLachlan currently works with the Earl Warren Institute on Race, Ethnicity, and Diversity at Boalt Hall School of Law, evaluating the diversity of the Berkeley campus and the impact of California's Proposition 209, and with the Department of Molecular and Cell Biology developing and evaluating programs for professional development and student diversity support. Dr. MacLachlan has been a fellow at the Max Planck Institute for History and at the International Conference on Women in Engineering and Science in Korea. She has reviewed for NSF, NIH, FIPSE, and foundations and consulted for AAAS and the Center for Advancing Science and Engineering Capacity

Joyce Eaton Weinsheimer, Ed.D.

After 20 years of providing leadership on teaching and learning issues at the University of Minnesota, Joyce Weinsheimer relocated to Atlanta in 2005 and joined the CETL staff as Assistant Director for Faculty Development. Her areas of special interest include teaching for learning, developing programming that enhances teaching throughout a lifespan (whether it be for early career, mid career, or senior faculty), and initiating partnerships that bring together people with different backgrounds and strengths to address teaching and learning issues. In addition, Joyce enjoys working with international faculty who teach American students in study abroad programs.

Joyce earned her B.S. at the State University of New York College at Buffalo with an emphasis in English and her Ed.D in Higher Education with a second field in Educational Psychology at Texas Tech University. After directing learning centers at both Texas Tech University and the University of Minnesota, Joyce helped create the Center for Teaching and Learning Services at the University of Minnesota and served as its director for nine years. Joyce has published several books and articles on promoting student success, collaborated with faculty from several higher education institutions to develop interactive on-line workshops for both TAs and faculty, and published articles on faculty development.