Speaker Biographies
Strengthening High School Chemistry Education through Teacher Outreach Programs

A Workshop to the Chemical Sciences Roundtable

August 4-5, 2008

SPEAKER BIOGRAPHIES

Roxie Allen teaches science in the Upper School of St. John’s School in Houston, Texas. She was first appointed as a teacher at the School in 1990 after obtaining a B.S. from Texas A&M University and an M.S. from the University of Houston. She is also the past president of the Association of Chemistry Teachers of Texas (ACT2). Roxy’s dedication to chemistry education extends beyond her classroom; she recently completed her three year term as a mentor with the U.S. Chemistry Olympiad. From 2004-2006, Roxie helped direct the lecture and laboratory components of the U.S. Chemistry Olympiad Camp attended by the twenty top scorers on the national exam.

L. Anthony Beck received his Ph.D. in Molecular Biology and Biochemistry from the University of California, Irvine and Brookhaven National Laboratory and his postdoctoral training in Denver at both the University of Colorado Health Sciences Center on the molecular biology of brain development and the Eleanor Roosevelt Institute for Cancer Research on the posttranslational processing and nuclear targeting of hepatic and viral proteins. In 1990, he was hired by Life Technologies, Inc (LTI), in Gaithersburg, MD to establish their Molecular Biology and Cell Culture Training Center. In 1992, he moved to Cellco, Inc., a hollow-fiber bioreactor company based in Germantown, MD, where he held managerial positions in Research Applications, Drug Discovery and Asia Pacific Business Development. In 1997 and 1998, Dr. Beck was a consultant for Walter Reed Army Medical Center and the American Registry of Pathology on protocol development for hollow fiber-based zero gravity cell culture experiments for NASA’s Space Shuttle program. In 1998, he co-founded Tissue Engineering Sciences (TES), Inc., where he served as VP for Research & Development. TES’ R&D portfolio included bioartificial blood vessels, ex vivo arterial perfusion models and in vitro blood-brain barrier and pharmacokinetic systems. In 2000, Dr. Beck joined the National Institute on Alcohol Abuse and Alcoholism (NIAAA) as a Scientific Review Administrator and moved to NCRR in 2002 where his programmatic responsibilities include the trans-NIH R24 Human Embryonic Stem Cell Infrastructure awards, the S07 Human Subjects Research Enhancement Program, M01 General Clinical Research Centers (M01) and the R25 Science Education Partnership Award (SEPA).

Constance Blasie is the Program Director of the University of Pennsylvania’s Science Teacher Institute (STI), which offers a Master of Chemistry Education program and a Master of Integrated Science Education program to improve the science content knowledge of in-service science teachers. Since her retirement in 1995 from a thirty-year career as a secondary level mathematics teacher, department chair, and curriculum developer in suburban Philadelphia, Blasie has been instrumental in the design, development and implementation of the two STI master degree programs. She is a graduate of the University of Michigan.
Katharine Covert is the Program Director for Chemistry Centers and Special Projects at the NSF Division of Chemistry. She joined the Division in 2001 and has worked in many programs, including the Inorganic Program, Collaboratives, Environmental Molecular Science Institutes, Discovery Corps Fellows, Research Experience for Undergraduates, and now the Chemistry Centers Programs. Kathy did her undergraduate work at the College of William and Mary (B.S. 1985) and her graduate work at Cornell University (Ph.D., 1991) and then went to the University of Oregon for a postdoctoral position. She taught at West Virginia University and Bates College before moving to NSF Chemistry.

Hai-Lung Dai is the Dean of the College of Science and Technology at Temple University as of January 2007. He was previously the Hirschmann-Makeneni Chair Professor of Chemistry and director of the Science Teacher Institute at the University of Pennsylvania. Hai Lung came to the U.S. for graduate study in chemistry in 1976 at the University of California, Berkeley, after graduation from the National Taiwan University and military service. After a postdoctoral sting at MIT he arrived at Penn as an assistant professor in 1984. Hai Lung was promoted to full professor in 1992 and was the Chairman of the Chemistry Department from 1996-2002. As an accomplished researcher, he has published more than 130 papers in the areas of molecular and surface sciences and received numerous honors including a Dreyfus Foundation Teacher-Scholar Award, a Sloan Fellowship, the 1990 Coblentz Prize in Molecular Spectroscopy, the 1992 Morino Lectureship (Japan), a Humboldt Fellowship (Germany), the 1995 American Chemical Society Philadelphia Section Award, and a Guggenheim Fellowship. As the Chairman Hai Lung, in collaboration with the Penn Graduate School of Education, established the MS in Chemistry Education program, which has trained more than 100 in-service high school teachers. Among many of his other responsibilities are a gubernatorial appointment in the Pennsylvania State Board on Drug, Device and Cosmetic. He is a fellow of the American Physical Society and has been elected by the membership to be the Chair of the Chemical Physics Division of the American Physical Society.

Reeny D. Davison is the Executive Director of ASSET (Achieving Student Success through Excellence in Teaching) Inc., a nonprofit organization that works to continuously improve teaching and learning through science education. She earned a B.A. in German and English from San Jose State University and spent the junior year studying abroad at the Free University in Berlin. She earned a M.A. in German literature and cultural history and a TESOL (Teaching English to Speakers of Other Languages) certificate from the University of Pittsburgh in 1989. Reeny also received an Ed.D. in educational leadership from Duquesne University in 2000. After working at McKinsey and Company, Inc. for two years she began her teaching career in the Netherlands and taught at the college and adult level for over 20 years. She employs both her education and business skills to ensure ASSET’s entrepreneurial growth. She has received several awards for her work at ASSET from institutions such as Duquesne University and Carlow College.

Jeff Dilks is a staff member in the Office of Workforce Development in the Office of Science of the Department of Energy. He also serves as editor of the Department of Energy’s Journal of Undergraduate Research. He has a B.A. in Physics from University of Illinois and an M.S. in the History of Science and Technology from ISU. During his time as a physics teacher at Ames High School in Iowa, he was one of 24 science teachers chosen for the Quark-Net project in
1999. The project aimed to expose high school teachers to the experiments being conducted and was successful; Dilks built a new Cerenkov calorimeter for use at the CERN Large Hadron Collider. Dilks was named a 2006-2007 Albert Einstein Fellow.

Caryn Galatis teaches chemistry at Thomas Edison High School in Fairfax, Virginia. Galatis earned a B.S. in chemistry from Mary Washington College and a M.Ed. from the University of Virginia. She has been a Science and Math teacher in Fairfax County Public Schools for 30 years, teaching primarily chemistry. Galatis has taught all levels of chemistry, general through AP and IB, and has been the Science Department Chair at Edison H.S. since 1989. Besides her teaching responsibilities, Galatis has been very involved in curriculum and staff development work both in Fairfax County and other parts of Virginia. In the summers she teaches an online chemistry course and works on SOL content review for the state of Virginia. In 1991, Galatis was selected as Chemistry teacher of the year by the American Chemical Society.

Penny J. Gilmer is a Professor of Chemistry and Biochemistry in the Department of Chemistry and Biochemistry at Florida State University (FSU). Gilmer received her Ph.D. in biochemistry from the University of California, Berkeley and held two fellowships at Stanford until joining the FSU faculty in 1977. In her quest to be a "life-long learner," Professor Gilmer earned her D.Sc.Ed. in Science and Mathematics Education from Curtin University of Technology in 2004. Currently, her primary research interests lie in science education. Professor Gilmer has been recognized for her "innovative research and teaching on how to bring science and technology, particularly ethics in science, to students and the community" by the American Association for the Advancement of Sciences. Professor Gilmer is a mentor to both students and teachers, encouraging the use of action research to evaluate areas for improvement in teaching and learning. She also serves as the principal investigator of an FSU subcontract for project entitled, Science Collaboration: Immersion, Inquiry, Innovation, with the Panhandle Area Educational Consortium, funded through the state of Florida. She is the co-editor of Transforming Undergraduate Science Teaching: Social Constructivist Perspectives.

Bryce Hach is the executive director of the Hach Scientific Foundation and a former high school science teacher. Since 2005, the Hach Foundation has focused on Chemistry Education from kindergarten to high school. In order to strengthen the field of science education, the Second Career Chemistry Teacher Scholarship was established in 2007 to encourage career chemists to become chemistry teachers. Hach holds a bachelor’s degree in history and biology and a master’s in public policy management.

Kiara Delle Hargrove strives to motivate urban high school students in chemistry as a science teacher at Baltimore Polytechnic Institute in Baltimore, one of the state's top performing high schools. Hargrove frequently turns lessons into fun, active experiments, such as her demonstration about distilling water from a can of soda, which became a competition to see who could distill the most water. She integrates reading and writing strategies into her lessons, insisting that the composition of her students' science papers be as accurate as the science and math. Teaching a variety of academic levels simultaneously, from special education to gifted level courses, she differentiates instruction to reach every student. Hargrove facilitates remedial math and science study skills among incoming freshmen through the Summer Bridge Program, and serves as the ninth-grade advisor. As co-advisor of the Math Engineering and Science
Association (MESA), she helps elevate the study of math and science among girls, especially African-Americans, at Sudbrook Magnet Middle School. Hargrove was chair of the School Improvement Team from 2006-07 and is co-author of the School Improvement Plan. She has influenced many of her fellow teachers to go beyond traditional approaches to teaching. In 2007, she was one of the 75 recipients of the Milken National Educator Award.

**Brian J. Kennedy** teaches chemistry and is the director of the Chemical Analysis Research Laboratory at Thomas Jefferson High School for Science and Technology (TJHSST). He holds a Ph.D. in analytical chemistry from the University of Wyoming (1997) and a B.S. in chemistry and B.S. in physical science from Radford University. He is currently enrolled in a graduate Education Leadership Program at George Mason University. Prior to teaching at TJHSST, Kennedy taught science for three years through Teach for America, and also completed several years as a National Research Council postdoctoral research assistant at the U.S. Army Research Laboratory, Aberdeen Proving Grounds, in Maryland. During the last seven years TJHSST, Kennedy has taught all levels of chemistry, and sponsors the school's Chemistry Olympiad Team. Kennedy is the recipient of the American Chemical Society Capitol Society of Washington 2008 Leo Schubert Memorial Award for the Outstanding Teaching of High School Chemistry.

**Mary M. Kirchhoff** is the Director of the American Chemical Society Education Division. She holds a Ph.D. in organic chemistry from the University of New Hampshire, an M.S. degree in chemistry from Duquesne University, Pittsburgh, Pa., and a B.A. in chemistry from Russell Sage College, Troy, N.Y. Kirchhoff served as assistant director for special projects in the Education Division and was previously assistant director of the ACS Green Chemistry Institute for three years, where she managed day-to-day operations of the Institute. Prior to joining ACS, she worked at the U.S. Environmental Protection Agency and was an associate professor and an assistant professor of chemistry at Trinity College in Washington, D.C. In 2007, Kirchhoff was named an American Association for the Advancement of Science (AAAS) Fellow, “for leadership in promoting the environmentally sound practice of green chemistry in education and research.” Kirchhoff is a co-author of *Designing Safer Polymers* and co-editor of the ACS' *Greener Approaches to Undergraduate Chemistry Experiments*.

**Michael Klein**, professor of chemistry and physical sciences and director of Penn Laboratory for Research on the Structure of Matter, was cited by the Academy for work that as led to physically significant and predictive descriptions of hydrogen-bonded liquids, self-assembled monolayers, supercooled liquids, conducting fluids and biological membranes. Klein has devised computational methods to predict how the properties of matter respond to changes in pressure and temperature and is noted for his computer simulations of molecular materials. Klein, who has authored approximately 500 papers in research journals, ranks as the world 96th-most-cited chemist, according to an Institute for Scientific Information analysis of research papers published from 1981 to 1997. He has edited three books and serves on the editorial boards of numerous journals. He was a Guggenhein Fellow in 1989-1990 and is a fellow of the Royal Society of Canada, the Chemical Institute of Canada and the American Physical Society. Klein joined the Penn faculty in 1987 after 19 years at the National Research Council Canada, culminating as principal research officer in NRCC Chemistry Division. He received a B.Sc. in 1961 and Ph.D. in 1964 from the University of Bristol in the U.K.
Sandra Laursen is co-director of Ethnography & Evaluation Research, an independent research unit at the University of Colorado at Boulder. E&ER is an interdisciplinary team that conducts research and evaluation studies of education and career paths in science, engineering, and mathematics. Recent projects have examined the advancement of academic women scientists, programs to enhance the success of minority science students, outreach programs in biology and geology, and a multi-campus initiative to improve undergraduate mathematics education. A new study is investigating graduate education and career preparation in chemistry, and a forthcoming book discusses the outcomes of undergraduate research apprenticeships in the sciences. In addition to her research and evaluation work, Laursen is an outreach scientist at the Cooperative Institute for Research in Environmental Sciences, where she leads courses and workshops on Earth and physical science and inquiry-based teaching methods for K-12 teachers, college instructors, and scientists involved in outreach. She has a Ph.D. in physical chemistry, with research experience in photochemistry, free radical reactions, and atmospheric chemical kinetics.

Bridget McCourt is the Director of Bayer Corporation's Making Science Make Sense® science literacy initiative. Prior to joining Bayer in 2006, she previously worked as Communication Representative at NOVA Chemicals. Bridget earned her B.A. in history from St. Mary’s Of Notre Dame in 1993.

Sergey Nizkorodov is an associate professor of chemistry at the University of California, Irvine. He earned his M.S. degree in biochemistry at Novosibirsk State University and his Ph.D. degree in physical chemistry at the University of Basel. Prof. Nizkorodov is the principal investigator in the Aerosol Photochemistry Group (http://aerosol.chem.uci.edu/), a component of the NSF-funded AirUCI institute. His research focuses on the interaction between solar radiation and atmospheric aerosols, and on indoor air pollution. In 2005, he was awarded the Coblentz Award as an outstanding young molecular spectroscopist. He is a recipient of the 2007 Camille Dreyfus Teacher-Scholar Award and the 2006 UCI School of Physical Sciences Award for Outstanding Contributions to Undergraduate Education for his educational work at UCI.

Gil Pacey is currently leading the Miami University Nanotechnology Initiative that is charged with incorporating nanotechnology into the teaching and research of Miami University. His current research efforts focus on nanotechnology and microfluidics in order to develop a “smart nozzle” technology, in which the nozzle is capable of detecting the components of the substance being pumped through and providing necessary feedback to the controlling system. Pacey has served on the faculty of Miami University of Ohio since 1979, and currently serves as both the Associate Dean for Research and Scholarship and as the Director of the Miami University Center for Nanotechnology within the Department of Chemistry and Biochemistry. He previously served as the director of the Ohio Micromachining Analytical Chemistry Consortium (1997-2001). Professor Pacey received his Ph.D. in 1979 from Loyola University of Chicago, where his graduate and postgraduate advisor was Carl E. Moore. The author of over 100 publications, Professor Pacey has 8 years of experience as an industry consultant.

Joan Prival is the Lead Program Director for the Robert Noyce Teacher Scholarship program in the Division of Undergraduate Education at the National Science Foundation. In addition, she
serves as a Program Director in the Math and Science Partnership program and the Advanced Technological Education program. She received a B.A. degree in Biological Sciences from Wellesley College and a Ph.D. in Biochemistry from the Massachusetts Institute of Technology. As a research biochemist, she conducted studies on blood cell differentiation and leukemia at the National Cancer Institute. Prior to coming to NSF in 1997, she served as an education policy specialist for 14 years with the Washington D.C. Public Schools. In 1999 she was awarded a fellowship from the Japan Society for Promoting Science to study teacher preparation in Japan. She has received four NSF Director’s Awards, including the NSF Director’s Award for Superior Accomplishment in 2002.

Patricia Soochan received a Bachelor and Master of Science from George Washington University in 1977 and 1981. In 1982 she became a biochemist at Bethesda Research Labs, later to be known as Life Technologies. Her work included conducting biotechnology workshops in France and Brazil. In 1987 she became a senior information specialist at Social and Scientific Systems, a consultant to the National Cancer Institute. There she worked with physicians in preparing reports of investigational cancer therapies. In 1991 she joined the National Science Foundation as a science assistant/biologist involved in grants management in the cell biology program. In 1994 she joined the undergraduate science education program at the Howard Hughes Medical Institute, where she is now a program officer engaged in all aspects of competition and award management from system design to policy development, with an emphasis on college grantees.

Kathryn D. Sullivan was named Director, Battelle Center for Mathematics and Science Education Policy at the John Glenn School of Public Affairs, Ohio State University, Columbus, Ohio, in October 2006. The center addresses the nation’s global competitiveness by developing policies and practices to increase the number of students in the science, technology, engineering, and mathematics fields. Sullivan previously served as President and CEO of the Center of Science and Industry (COSI), a dynamic center of hands-on science learning, where she now volunteers as a science advisor. Prior to joining COSI, Sullivan was the Chief Scientist of the National Oceanic and Atmospheric Administration (NOAA). Sullivan is a veteran of three space shuttle missions and the first American woman to walk in space. She holds a Bachelor of Science degree in Earth Sciences from University of California at Santa Cruz and a Ph.D. in oceanography from Dalhousie University (Nova Scotia). She was appointed to the National Science Board in 2004, and elected Vice Chairman in 2006.

Robert H. Tai is an associate professor in the Curry School of Education at the University of Virginia. After receiving a B.A. and B.S. in Mathematics and Physics (1986) from the University of Florida, Professor Tai went on to earn his M.S. in physics from the University of Illinois in 1987. After working as a research assistant in the Nuclear Physics Laboratory at the University of Illinois, Professor Tai taught physics in Illinois and Texas. Professor Tai earned his Ed.M. (1994) and Ed.D. (1998) in Science Education from the Harvard University Graduate School of Education, where he then worked as a researcher and teaching fellow. Professor Tai has taught fifteen college courses on science education between his previous position of College of Staten Island and his current position at the University of Virginia. In May 2008, Professor Tai was recognized with the 2008 Award for Education Research Leadership from the Council of
Irwin Talesnick is a Professor Emeritus at Queen’s University in Ontario. He continues to create and distribute educational and fascinating demonstrations through his company, S17 Science Supplies and Services. His experiences include a lifetime of teaching, of training teachers, of providing educational materials for others to use, and of giving workshops. Starting in 1960, he taught high school chemistry, physics and general science in Toronto. Then for 25 years he was a professor of chemical education at the Faculty of Education at Queen’s University in Kingston, Ontario, preparing new teachers for a life in the classroom. Talesnick has been the recipient of the Science Association of Ontario’s (STAO/APSO) Life Member and Service Awards. In 1993, the year he retired from Queen’s University, the STAO/APSO Excellence in Teaching Award was replaced with the Irwin Talesnick Award for Excellence In the Teaching of Science. Since his retirement, he has expanded his workshop and lecturing schedule, which, over the years has taken him from Canada to the U.S., Mexico, England, Wales, China, Sweden and Israel. Irwin was the chair of the Chem Ed conferences in 1987 and 1989 at Queen’s University in Kingston, and in 2001 at York University in Toronto. He has been a presenter at all of the Chem Ed conferences since the beginning in 1973 at Waterloo.

Gerald Wheeler joined as Executive Director of the Association in 1995. He received an undergraduate degree in science education from Boston University and a Master’s degree in physics and a Ph.D. in experimental nuclear physics, both from the State University of New York at Stony Brook. Between undergraduate and graduate school, he taught high school physics, chemistry, and physical science. For much of his career, Dr. Wheeler has played a key role in the development of mass media projects that showcase science for students. Prior to joining the National Science Teachers Association, Dr. Wheeler was Director of the Science/Math Resource Center and Professor of Physics at Montana State University. He also headed the Public Understanding of Science and Technology Division at the American Association for the Advancement of Science (AAAS) and has served as President of the American Association of Physics Teachers (AAPT). He is a fellow of the W. K. Kellogg Foundation and AAAS and has served on advisory boards and committees for the American Institute of Physics and the National Assessment of Educational Progress.

Kenneth White has served as Manager of the Office of Educational Programs (OEP) at the U.S. Department of Energy's (DOE) Brookhaven National Laboratory since 2004. White earned a B.S. with concentrations in engineering technology and education from the University of the State of New York, Regents College, Albany, in 1990, and an M.B.A. from Dowling College in 2003. From 1978 to 1986, he served in the U.S. Navy as a nuclear training instructor, a lead engineering laboratory technician and an engineering watch supervisor. In 1987, he became the Training Program Development Supervisor for the Long Island Lighting Company, and, in 1990, he joined Brookhaven Lab as a senior reactor support specialist at the High Flux Beam Reactor (HFBR). In 1994, he became Water Chemistry Group Leader at the HFBR. In 1998, White was appointed as the Special Assistant to the Assistant Laboratory Director for Community, Education, Government and Public Affairs (CEGPA), and Manager of Environmental Management Community Relations within CEGPA. In addition to serving as Interim OEP Manager since December 2003 until his appointment as Manager, he also filled that position.
from 2000-2001. A past president of the Long Island Section of the American Nuclear Society, White is the recipient of the American Nuclear Society Training Excellence Award and the Brookhaven Award for distinguished service to the Laboratory.