Robert Brown, Iowa State University

Dr. Brown is the founding director of the Bioeconomy Institute (BEI) at ISU, a university-wide initiative that coordinates research, educational, and outreach activities related to biobased products and bioenergy. The BEI has helped established several new research enterprises at ISU including the NSF-sponsored Center for Biorenewable Chemicals, the Biobased Industries Center, the BioCentury Research Farm, the Biorenewables Research Laboratory Building, the NSF-sponsored EPRScOR RII project, and the USDA-sponsored CenUSA Bioenergy project. Dr. Brown also helped establish ISU’s Biorenewable Resources and Technology (BRT) graduate program, the first such degree-granting program in the United States. He wrote Biorenewable Resources: Engineering New Products from Agriculture, which is used around the world as a textbook for courses in biorenewables (including ISU’s BRT 501). Dr. Brown’s other administrative duties include directing the Center for Sustainable Environmental Technologies, a $3 million per year research enterprise focusing on thermochemical processing of biomass and fossil fuels. The center has pioneered a variety of innovative technologies including syngas fermentation, gasification of bio-oil, production of sugars, bioasphalt, and co-firing pellets from the fast pyrolysis of biomass, and use of biochars as soil amendment and carbon sequestration agent. Dr. Brown has published over 120 refereed papers and is PI or co-PI on over $70 million in cumulative research funding. He is a Fellow of the American Society of Mechanical Engineering, a Distinguished Iowa Scientist of the Iowa Academy of Science, and the recipient of the David R. Boylan Eminent Faculty Award for Research at ISU in 2002. He received an R&D 100 Award from Research and Development Magazine in 1997 and was named one of the “Top 100” researchers in bioenergy by Biofuels Digest in 2010.

Brian Duff, EERE, U.S. Department of Energy

Brian Duff is currently the chief engineer and acting deployment team leader for the Office of the Biomass Program at the U.S. Department of Energy in Golden, Colorado. Mr. Duff is a biochemical process engineer with 30 years of experience in biotechnology and renewable energy from biomass; he holds a Bachelor of Science degree in biology from Lehigh University and a Master of Science degree in chemical engineering from Stanford University. His primary expertise is in microbial bioconversion processes and the production of fuels and chemicals from lignocellulosic biomass.

Chris Somerville, University of California, Berkeley & Energy Biosciences Institute

Dr. Somerville is currently the Philomathia Professor of Alternative Energy and EBI Director of the Melvin Calvin Laboratory at the University of California, Berkeley. Dr. Somerville received his B.Sc. in mathematics from the University of Alberta (1974), and his PhD in genetics from the
University of Alberta (1978). Dr. Somerville’s research focuses on the synthesis of plant cell wall polysaccharides, the relationship of the structures to cell wall functions, and how the system is regulated.

Jeffrey J. Steiner, USDA Agricultural Research Service

Dr. Jeffrey Steiner is the USDA-Agricultural Research Service National Program Leader for Biomass Production Systems and agency lead of the USDA Regional Biomass Research Centers. His responsibilities include strategic planning and coordination of research for sustainable production of dedicated energy crops and their genetic improvement. He also is involved in the development of partnerships with the Department of Energy, Federal Aviation Administration, and Department of Navy, and with technology providers and other businesses interested in advanced biofuel development. Previous to this assignment, Dr. Steiner was Senior Advisor for Bioenergy in the USDA Office of the Chief Scientist, and was the principal co-author of the President’s Interagency Working Group Growing America’s Fuels report. He received his Ph.D. from Oregon State University, and is a fellow of the American Society of Agronomy and Crop Science Society of America.

Bryce Stokes, PhD, CNJV/Department of Energy

Dr. Stokes is a Senior Advisor with CNJV, a contractor to the U.S. Department of Energy at the Golden Field Office. He is providing support to the DOE Biomass Program in Washington DC. He received his BS and MS from Mississippi State University in Engineering and PhD from Auburn University in Forestry. He worked as a Forest Engineer for Weyerhaeuser Company prior to joining the USDA Forest Service in Auburn, Alabama as a Research Engineer. He later served as Project Leader for the Engineering Unit at Auburn and then served as National Program Leader for Forest Operations Research as part of the Resource Use Sciences Staff in the R&D Washington Office. His 30 years of research focused on harvesting machine and system design and management; biomass recovery and utilization; reducing forest operations environmental impacts; and, specialty systems for pine thinning and wet area harvesting. During his career he also had staff co-responsibility for biomass, carbon sequestration, climate change, and sustainability with his Agency, Department, and in federal interagency working groups. He had co-responsibilities in industrial partnerships for forest productivity and life-cycle analyses. He previously served in a support role for the USDA Energy Council and is Past Chair of the USDA Biobased Products and Bioenergy Coordination Council and the Federal Working Group on Woody Biomass Utilization. He is active in the Council on Forest Engineering, Forest Products Society, and the American Society of Agricultural and Biological Engineers. He served as a U.S. representative to International Energy Agency tasks on conventional forestry and short-rotation crops for energy 10 years. He has over 140 scientific and technical publications. He co-led the update of the Billion Ton Report.
Emily Carter, Princeton University

Professor Carter is the Founding Director of the Andlinger Center for Energy and the Environment at Princeton University and the Gerhard R. Andlinger Professor in Energy and the Environment, as well as Professor of Mechanical and Aerospace Engineering and Applied and Computational Mathematics. She is a theorist/computational scientist first known for her research combining *ab initio* quantum chemistry with dynamics and kinetics, especially as applied to surface chemistry. Later, she merged quantum mechanics, applied mathematics, and solid state physics in her linear scaling orbital-free density functional theory (OF-DFT) that can treat tens of thousands to more than a million metal atoms quantum mechanically, her embedded correlated wavefunction and *ab initio* DFT+U theories that combine quantum chemistry with periodic DFT to treat electronic ground and excited states and strongly correlated materials, and her fast algorithms for *ab initio* multi-reference correlated wavefunction methods that permit accurate thermochemical kinetics and excited states to be predicted for large molecules. She also was a pioneer in quantum-based multiscale simulations of materials. Her research into how materials fail due to chemical and mechanical effects (e.g., corrosion and stress) led to new insights into how to optimally protect these materials against failure (e.g., by doping, alloying, or coating). Her current research is focused entirely on enabling discovery and design of molecules and materials for sustainable energy, including converting sunlight to electricity and fuels, providing clean electricity from solid oxide fuel cells, clean and efficient combustion of biofuels, and optimizing lightweight metal alloys for fuel-efficient vehicles. Professor Carter received her B.S. in Chemistry from UC Berkeley in 1982 (graduating Phi Beta Kappa) and her Ph.D. in Chemistry from Caltech in 1987. After a year as a postdoctoral researcher at the University of Colorado, Boulder, she spent the next 16 years on the faculty of UCLA as a Professor of Chemistry and later of Materials Science and Engineering. She moved to Princeton University in 2004. She holds courtesy appointments in Chemistry, Chemical Engineering, and three interdisciplinary institutes (PICSciE, PRISM, and PEI). The author of over 250 publications, she has delivered more than 400 invited lectures all over the world and serves on numerous international advisory boards spanning a wide range of disciplines. Her scholarly work has been recognized by a number of national and international awards and honors from a variety of entities, including the American Chemical Society (ACS), the American Vacuum Society, the American Physical Society, the American Association for the Advancement of Science, and the International Academy of Quantum Molecular Science. She received the 2007 ACS Award for Computers in Chemical and Pharmaceutical Research, was elected in 2008 to both the American Academy of Arts and Sciences and the National Academy of Sciences, in 2009 was elected to the International Academy of Quantum Molecular Science, and in 2011 was awarded the August Wilhelm von Hoffmann Lecture of the German Chemical Society.

William Hitz, Dupont

Dr. Hitz received his PhD from Iowa State University in 1978 and did postdoctoral work at the DOE Plant Research Lab at Michigan State University. Since 1980 he has been in various research
and research management positions with DuPont and DuPont/Pioneer. Dr. Hitz’ research interests are in carbohydrate chemistry and metabolism and in fatty acid and lipid synthesis. The primary outcome of the work in crop plants has been metabolic engineering of grain quality in corn and soybean to produce grains improved for their end use in human or animal nutrition. Since 2007 he has been one of the technical leads for biological steps in the conversion of cellulosic feed stocks to ethanol in DuPont Industrial Sciences with commercialization through DuPont Cellulosic Ethanol. Dr. Hitz has been part of the enzyme discovery, the C5/C6 ethanologen and the feed stock assessment teams. His larger interests in biofuels stem from an upbringing on a family farm through a career tied to conversion of the outputs of agriculture to usable products.

**Rina Singh, Biotechnology Industry Organization (BIO)**

Dr. Singh is currently the Director of the Policy, Industrial and Environmental Section at the Biotechnology Industry Organization (BIO). Rina Singh is director of policy in the industrial biotechnology and environmental section of the Biotechnology Industry Organization (BIO). Singh previously served as the business development manager at Ashland Inc. She was appointed by the president and CEO as member of an innovative 10-member team assembled to develop a new strategic direction for Ashland, identifying investment opportunities for $1.5 billion resulting from divestiture of petroleum refining operations. Singh held general management positions in the technology and business development areas of Ashland, including bioproducts business development manager and platform technology manager. She started her career at The Dow Chemical Co. as a senior research chemist in the Engineering Thermoplastics Group. The holder of 24 patents and publications, Singh received a B.S., a doctorate in natural products (synthetic organic chemistry) and a post-doctoral degree in polymer science from McGill University.
Douglas Elliott, Pacific Northwest National Laboratory

Mr. Elliott has over 35 years of research and project management experience in the Battelle system at the Pacific Northwest National Laboratory (PNNL). His work has mainly been directed toward development of fuels and chemicals from biomass and waste. His experience is primarily in high-pressure batch and continuous-flow processing reactor systems. This research has also involved him in extensive study of catalyst systems. In addition to process development, chemical and physical analysis has also been a significant part of his work. While at Battelle, Mr. Elliott’s research has involved such subject areas as biomass liquefaction and hydroprocessing of product oils, catalytic hydrothermal gasification of wet biomass and wastewaters, and chemicals production from renewable sources. His work in biomass liquefaction has involved him in International Energy Agency Bioenergy tasks as the representative for the U.S. and currently as the leader of the Task 34 on Pyrolysis.

Leonard Katz, Lygos & University of California, Berkeley

Dr. Katz is currently an Associate Professor at the University of California, Berkeley and serves on the Scientific Advisory Board for Lygos. His research areas include bio-inspired approaches to biofuels, calixarene-bound metal clusters, calixarene-modified nanoparticles, grafted calixarene oxide surfaces, and grafted calixarenes as single-site heterogeneous catalysts. He received his PhD from the California Institute of Technology in 1999. Dr. Katz has published more than 95 papers and is an inventor with more than 25 patents issued. He has also pioneered efforts to manipulate modular PKS systems to produce new compounds. Dr. Katz’s credentials include Research Director and Industrial Liaison Officer of the Synthetic Biology Engineering Research Center, former VP of Biological Sciences at Kosan Biosciences, Inc., and co-inventor of Lygos’ technologies.

Jeffrey Steiner (see bio in Guest Speaker section)
Paul Bryan, Independent Consultant

Paul F. Bryan was, until late 2011, Program Manager for Biomass at DOE/EERE. Currently, Dr. Bryan is an Independent Consultant. He previously spent fifteen years with Chevron in California and Western Australia, most recently as Vice President of Biofuels Technology. Prior to that, he spent eight years in academia (MIT, Colorado School of Mines) and industry (Union Carbide). His educational background includes degrees in chemical engineering from Penn State (B.S.) and UC-Berkeley (Ph.D., 1985), and a post-doc in applied thermodynamics at the Ecole des Mines - Paris. He has been active in a variety of industry and professional organizations, including the Separations Division of the AIChE, the North American Membrane Society, the Gas Processors Association, and the Gordon Research Conferences.

Jennifer Sinclair Curtis, University of Florida

Jennifer Sinclair Curtis is Distinguished Professor in the Chemical Engineering Department at the University of Florida (UF). Prior to this, she held administrative roles as Department Chair of Chemical Engineering at UF and Associate Dean of Engineering and Department Head of Freshman Engineering at Purdue University. Professor Curtis received a B.S. in Chemical Engineering from Purdue University (1983) and a PhD in Chemical Engineering from Princeton University (1989). She has an internationally-recognized research program in the development and validation of numerical models for the prediction of particle flow phenomena. She is the co-author of over 100 publications and has given over 160 invited lectures at universities, companies, government laboratories and technical conferences. Professor Curtis is a recipient of a Fulbright Senior Research Scholar Award, a NSF Presidential Young Investigator Award, the American Society of Engineering Education’s (ASEE) Chemical Engineering Lectureship Award, the Eminent Overseas Lectureship Award by the Institution of Engineers in Australia, the ASEE’s Sharon Keillor Award for Women in Engineering, and the AIChe Fluidization Lectureship Award. She currently serves as Associate Editor of the AIChE Journal and on the Editorial Advisory Board of Industrial & Engineering Chemistry Research, Powder Technology, and Chemical Engineering Education. She has served on the National Academy of Engineering’s (NAE) Committee on Engineering Education and has participated in two NAE Frontiers of Research Symposiums (2003 and 2008). Currently, she is a Board member of the National Academies’ Chemical Science Roundtable, as well as the Council for Chemical Research.

Luis Martinez, Rollins College

Luis E. Martínez is an associate professor of chemistry at Rollins College in Winter Park, Florida. Dr. Martínez’s research interests are the discovery, development, and application of unique, transition metal-mediated, solid-phase synthetic methods for the high-throughput synthesis of pharmacologically active small molecules and the concurrent assessment of the chemical genetics
of the resulting compound libraries in infectious disease, immune response, oxidative stress and cell cycle control. Martínez’s experience spans both academia and business. Prior to his position with UTEP, Martínez served as a Senior Account Executive with Feinstein-Kean Healthcare, an Ogilvy PR Worldwide Company. Martínez has also been involved with scientific workforce diversity and American competitiveness, broadening participation in research and the recruitment and retention university minority faculty and students in science for over a decade. He has been actively involved with SACNAS (Society for the Advancement of Chicanos and Native Americans in Science) and has served as a member of the SACNAS Board of Directors for eight years. In addition to his current service on the SACNAS Board, he also currently sits on the ACS Minority Affairs Committee. Martinez received his B.S. in chemistry with honors in 1991 from Trinity University (San Antonio, TX) and his Ph.D. in organic chemistry from Harvard University in 1997.

**ADVISOR TO THE COMMITTEE BIOGRAPHY**

Richard Greene, Office of Basic Energy Sciences, DOE

Dr. Richard Greene is Lead for the Photochemistry and Biochemistry Team in the Chemical Sciences, Geosciences, and Biosciences Division of the Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy. Following various bench positions at the National Center for Agricultural Utilization Research, a USDA-Agricultural Research Service (ARS) laboratory in Peoria, IL, he was selected Leader of the Biopolymer Research Unit. He served in that capacity from 1990 to 1999, where he directed a broad program of biochemical, biophysical, microbiological, and genetic research. Studies focused on interactions of natural polymers, particularly polysaccharides, with biological systems. During his tenure, the Biopolymer Research Unit generated several commercial products from bench discoveries and won two R&D 100 Awards. In 1999, Dr. Greene moved to ARS Headquarters in Washington, DC, to work in the Office of International Research Programs, where he became its Director in 2003. In 2006, he came to DOE to manage the Energy Biosciences Program. When the Energy Biosciences Program merged with the Solar Photochemistry Program to form the Photochemistry and Biochemistry Team in 2008, Dr. Greene was selected Lead. The Team supports fundamental research on the molecular mechanisms involved in the capture of light energy and its conversion into chemical and electrical energy through biological and chemical pathways. Dr. Greene is the author of over 80 peer-reviewed journal articles and patents. He served for 9 years on the Editorial Board of Applied and Environmental Microbiology. Other major honors include two USDA Secretary Awards, an Arthur S. Flemming Award, along with election as U.S. Representative to the Governing Body of the Agricultural Cooperative Research Programme, Organisation for Economic Cooperation and Development (OECD). Dr. Greene received his B.A. in Biochemistry from Cornell University (1976); and his PhD in Biochemistry from Cornell University (1982).