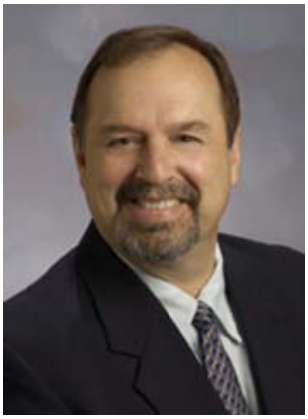
Special Forum
China-US Ecopartnership for Environmental Sustainability
(May 24, 2013, Beijing, China)

Gary S. Sayler

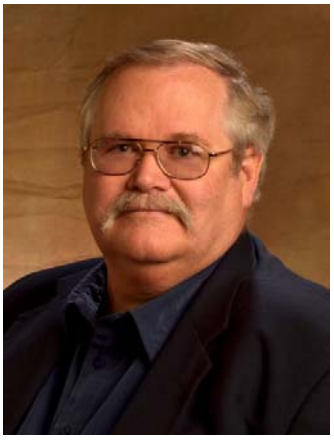
Title: Bacterial Bioluminescence from Microbe to Man: Lux Autonomous Sensing Platforms in Environmental Toxicology and Biomedical Applications



Biosketch: Dr. Sayler is the Beaman Distinguished Professor in the Department of Microbiology, Ecology and Evolutionary Biology at the University of Tennessee, Knoxville; director of the University of Tennessee-Oak Ridge National Laboratory Joint Institute for Biological Sciences; adjunct professor at Gwangju Institute for Science and Technology, South Korea; and Honorary Professor at East China University, Shanghai. He is the founding Director (1986) of the University of Tennessee Center for Environmental Biotechnology. His research interests include microbiology, toxicology, and molecular biology of biodegradation, of toxic pollutants such as PCB and PAH. He pioneered the development of environmental molecular diagnostics including the extraction and analysis of nucleic acids from the environment and wastes, environmental gene probe analysis, bioluminescent bioreporter/sensor technology, and conducted the first field release of a genetically-engineered microorganism for remediation process monitoring and control. Over his career, Dr. Sayler has built and directed programs of approximately $100 million in environmental research, edited five books, and contributed 400 publications and 500 invited presentations. He holds 16 patents on environmental gene probing, genetic engineering for bioremediation, biosensor technology, and environmental gene expression. He received the NIEHS' Research Career Development Award (1980-1985); was named a Top 100 Innovator in Science by Science Digest (1985); received the American Society for Microbiology, Procter and Gamble Award for Environmental Microbiology (1994), the Distinguished Alumni Award of the University of Idaho (1995), the DOW Chemical Foundation SPHERE Award (1998-2000), as well as the Chancellor's Research Scholar Award and the Arts and Sciences Senior Researcher award from the University of Tennessee . He was elected to the American Academy of Microbiology in 1991 and elected AAAS Fellow in 2012. Dr. Sayler has served on numerous of councils and committees for the National Research Council, DOE, EPA, NIEHS, NSF, NASA, and WERF. He was a member of the U.S. Environmental Protection Agency's Science Advisory Board, and Chair of the Board of Scientific Counselors for EPA's Office of Research and Development, and is a past member of the DOE/OS Biological and Environmental Research Advisory Committee. Dr. Sayler is a member of the Science Advisory Board for the Strategic Environmental Research Defense Program, is a member of five professional societies, currently serves on five editorial boards and is associate editor of the ACS journal *Environmental Science and Technology*. Dr. Sayler has directed graduate research of approximately 50 doctoral and 15 master's students in microbiology, ecology and evolutionary biology and engineering. He is President of 490 BIOTech, a bioluminescent imaging start-up company.

Terry C. Hazen

Title: The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster



Biosketch: Dr. Hazen received his B. S. and M. S. degrees in Interdepartmental Biology from Michigan State University. His Ph.D. is from Wake Forest University in Microbial Ecology. Dr. Hazen was Professor, Chairman of Biology and Director of Graduate Studies at the University of Puerto Rico for 8 years. He was the Head of the Ecology Department and Center for Environmental Biotechnology, Co-Director of the Virtual Institute for Microbial Stress and Survival, and DOE BER Distinguished Scientist at Lawrence Berkeley National Laboratory. He is currently the UT/ORNL Governor's Chair Professor at the University of Tennessee in the Departments of Civil & Environmental Engineering, Microbiology, and Earth & Planetary Sciences. He is an adjunct professor at several universities, including Guangdong Institute of Microbiology, Guangzhou, China and Central South University, Changsha, China. He is a fellow of the American Academy of Microbiology and has authored more than 271 scientific publications, not including more than 1055 abstracts and chapters in several books. Dr. Hazen was also the director of the Microbial Community Section of the Joint BioEnergy Institute at LBNL, specifically on community structure in tropical rain forest soil. He has 5 patents that have been licensed by more than 50 companies and are being used world-wide. He also has received 2 R&D100 awards and the Federal Technology Transfer Medal. His research is focused on microbial ecology as it relates to bioenergy, bioremediation, climate change, and environmental biotechnology.

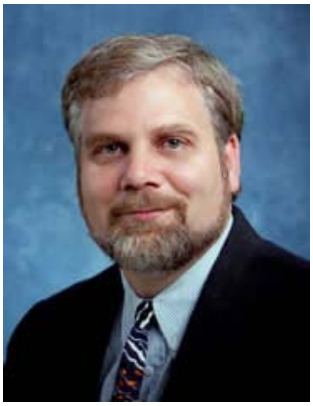
Frank E. Löffler

Title: New Insights into Nitrogen Cycling in Soils

Biosketch: Dr. Löffler received his BS degree in Biology/Agricultural Sciences and the MASc in Microbiology both from the University of Hohenheim in Germany. He performed his doctoral work in the department of Technical Biochemistry at the Technical University Hamburg-Harburg, Germany. The same year, he was awarded a Feodor-Lynen fellowship from the Alexander von Humboldt foundation, and joined the Center for Microbial Ecology at Michigan State University. From 1999 to 2010, he was faculty holding the Carlton Wilder Professorship in the Schools of Civil and Environmental Engineering and of Biology at the Georgia Institute of Technology. Since 2010, Dr. Löffler is a Governor's Chair at the University of Tennessee (UT) and Oak Ridge National Laboratory (ORNL) with appointments in UT's Department of Microbiology, the Department of Civil and Environmental Engineering, and ORNL's Biosciences Division. Discoveries in the Löffler lab have advanced understanding of the diversity and ecophysiology of microorganisms controlling environmentally relevant processes and have contributed quantitative tools for monitoring the presence and activity of microbes involved in bioremediation, nutrient cycling, and greenhouse gas emissions. He has 2 patents and engages in transitioning research findings to bioremediation applications. Dr. Löffler has contributed 90 peer-reviewed publications, more than 300 abstracts, and several book chapters.

Anthony V. Palumbo

Title: Recent Advances on Bacterial Community Involvement in Mercury Transformations in the Environment



Biosketch: Dr. Anthony V. Palumbo is the Director of the Biosciences Division of Oak Ridge National Laboratory. The objective of the Biosciences Division at Oak Ridge National Laboratory is to advance science and technology to better understand complex biological systems and their relationship with the environment. The division has expertise and special facilities in genomics, computational biology, microbiology, microbial ecology, biophysics and structural biology, and plant sciences. Dr. Palumbo has more than 20 years of experience investigating the interactions of microbial populations and contaminant degradation and immobilization in surface and subsurface environments. He has numerous publications on field and laboratory investigations of degradation of hydrocarbons and VOCs (e.g., TCE, Carbon tetrachloride), the reduction and immobilization ofUranium and analysis of microbial community structure in relation to geochemistry and degradation rates. His most recent research has been on the role of bacterial communities in mercury transformations in the environment. Dr. Palumbo is a member of the American Academy of Microbiology and has published more than 145 papers. Dr. Palumbo is also a named inventor on three U.S. patents. He has received Merit Awards from the Society for Technical Communications and a Certificate of Appreciation form the U.S. Department of Energy, Contamination Focus Area. He also received the Annual Scientific Achievement Award for the Environmental Sciences Division of Oak Ridge National Laboratory. Dr. Palumbo has chaired numerous sessions at National and International meetings, most recently as co-chair for the session “Microbial Mediated Retention/Transformation of Organic and Inorganic Materials in Freshwater and Marine Ecosystems” at the American Society for Limnology and Oceanography 2013 Aquatic Sciences Meeting.

Chuanyong Jing

Title: Arsenic Biogeochemistry, Exposure, and Health Implication

Biosketch: Dr. Jing is a professor at Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences.Dr. Jing received his B. S. degree in Environmental Science from Sichuan University and M. S. degreefrom Xi’an University of Architecture and Technology, China. His Ph.D. is from Stevens Institute of Technology, US. From 2002 to 2007, he was a research assistant professor at Stevens Institute of Technology. In 2008, he was awarded “Hundred Talent” and joined RCEES. His research primarily focus on the areas of environmental molecular and interface science. Key areas of investigation includebiogeochemical cycles of environmentally significant trace elements including arsenic, reactions at environmental interface, including adsorption, precipitation, and dissolution processes that affect the bioavailability of heavy metals and other contaminants, and characterization, fate and transport of heavy metals and persistent organic pollutants.

Jianbo Shi

Title: Accumulation of Total Mercury and Methylmercury in Rice Plants Grown at Different Mining Areas in China

Biosketch: Dr. Jian-bo Shi is an Associate Professor at State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences. He obtained his Ph.D. in environmental science from RCEES in 2005, and was a post-doctoral researcher at Hong Kong Polytechnic University during 2005-2006. He was also a visiting scholar at Swiss Federal Institute of Aquatic Science and Technology (Eawag) in 2007 and at Hong Kong Baptist University in 2008-2009. His research interests have been focused on the biogeochemistry of mercury and speciation analysis of organometallic compounds.

Dali Guo

Title: Root biology and ecosystem processes in forests

Biosketch: Dr. Guo received a BS degree in Soil Science and Plant Nutrition from Nanjing Agricultural University of China and a PhD in Forestry from Virginia Tech of USA. He was an assistant and associate professor at Peking University from 2004-2011 and is now a professor in Forest Ecology at the Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences. Dr. Guospecializes in ecosystem ecology and root biology and his research has advanced understanding of root biology, physiology, anatomy, and mycorrhizal associations in a variety of forests in China. He uses both experimental and modeling tools to understand how root biology may inform the quantification of ecosystem C and N cycling at both stand and global scales. Dr. Guo has contributed nearly 30 peer-reviewed publications, and is an editor or advisor in many editorial boards such as Journal of Ecology, New Phytologist, Global Change Biology, and Elementa.

Shuli Niu

Title: Climate-Carbon Cycle Feedback--Experimental Analysis of Gamma Factor and its Regulatory Mechanisms

Biosketch: Dr. Niu received her BS degree in the Department of Agronomy, Henan Agriculture University, and Ph.D degree in the Institite of Botany, Chinese Academy of Sciences (CAS). From 2008 to 2012, she worked successively as a visiting scholar, postdoc research fellow, and research assistant professor at Department of Microbiology and Plant Biology, Univeristy of Oklahoma, USA. Since 2013 January, Dr. Niu is a professor in Institute of Geographic Sciences and Natural Resources Research (IGSNRR), CAS. She has been studying global change and terrestrial ecosystem using both experimental

and data mining approaches. By using global change manipulative experiments, she studied ecosystem carbon and water cycles in response to climate warming, precipitation regime change, nitrogen deposition, phosphorus addition, and land use change. By using data mining approach for synthesizing the global eddy flux data, she revealed temperature acclimation and adaptation of net ecosystem carbon exchange (NEE) and the seasonal asymmetric temperature sensitivity of NEE at the regional and global scales. Her study comprehensively revealed the regulation mechanisms of biotic and abiotic factors and ecosystem properties in climate-carbon cycle feedback. She has contributed more than 50 peer-reviewed publications in the field of ecology, plant, and soil in recent 10 years.

Yang Gao

Title: Coupling Cycles of Carbon, Nitrogen and Water in Terrestrial Ecosystem and Associative Biological Regulation Mechanism

Biosketch: Dr. Gao received his B. S. in College of Agronomy, South China University of Tropical Agriculture and M. S. degrees in Institute of Mountain Hazards and Environment, & College of Resources and Environment Southwest University. His Ph.D. is from School of Environmental Science and Engineering, Shanghai Jiaotong University. Dr. Gao is assistant professor in Prof. Yu Guirui research group. His research interest is focused on that nitrogen and phosphorus cycling in agricultural ecosystems, chemical element transport and fate in surface and subsurface runoff, and environment remediation and toxicity. He obtained the “Bingwei” Excellent Talents program support (2012 to 2015), Chinese Academy of Sciences. He is a fellow of the IWRA and IAHR, and has authored more than 50 scientific publications. The other honors and awards include that Fourth National Agricultural Conference Best Paper Award for Environmental Science (2010-2011), Fourth National Conference on Doctoral Award for Best PaperReport (2010) and Third National Agricultural Conference Best Paper Award for Environmental Science(2009-2010).