

**Gary S. Saylor,**

*Distinguished Emeritus Professor, University of Tennessee; President 490 BIO Tech  
BIO*

Dr. Gary S. Saylor is the distinguished professor emeritus in the Departments of Microbiology, Ecology and Evolutionary Biology and adjunct professor in the Department of Biosystems Engineering and Soil Science at the University of Tennessee, Knoxville (UTK). He is the President and Co-founder 490 BIOTech. He is the founding Director of Center for Environmental Biotechnology (CEB) at UT (1986-2015) and was the first Director of the UT-ORNL Joint Institute for Biological Sciences (JIBS) (2006-2014). As Director for the Waste Management Research and Education Institute *Tennessee Center of Excellence* (1991-2005) he conducted a consolidation and reorganization to create the Institute for a Secure and Sustainable Environment (ISSE) serving as interim director (2005-2006). He served on the Science Advisory Board for the US Defense Department, Strategic Environmental Research Defense Program (2011-2015); and was a member of the US Department of Energy, Biological and Environmental Research Advisory Committee (2008-2013). He served as Executive member and Chair of the Board of Scientific Counselors for the EPA Office of Research and Development (2002-2010) and served on the EPA, Science Advisory Board drinking water committee (2002-2009), the Water Environment Research Foundation Research Council (1995-2001) and was Peer Review Chair for the EPA Exploratory Biology Program (1990-1993). He has served on National Academy/NRC Committees including; Evaluating the US EPA Laboratory Enterprise (2013-2014), DOE NRSB-Environmental Management Roadmap (2007-2008), Stand-Off Explosives Detection (2003) and DOE Site Decontamination and Decommissioning (2002). He is Co-founder China-US Joint Research Center for Ecosystem and Environmental Change (JRCEEC), Beijing, (2006-16) and US State Department Ecopartnership (2011-2016) and has held honorary professorships in many universities worldwide. Dr. Saylor was an Associate Editor of *Environmental Science and Technology* (1999-2015) and elected to AAAS Fellowship in 2012, Fellow of American Academy for Microbiology (1995) and ASM Foundation Lecturer (1995-1997). He received the DOW Foundation Support for Public Health Environmental Research and Education (SPHERE) Award (1998), the Distinguished Alumni Award of University of Idaho (1995), and the Procter and Gamble Prize in Applied and Environmental Microbiology from the American Society for Microbiology (1994) and an NIH RCDA and was named a Top 100 Innovator in Science by *Science Digest* (1985). In 2018 he was designated a Distinguished Researcher “Einstein Professor” by the Chinese Academy of Science. 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. Saylor has directed and administered over \$100 million of research and guided 100 PhD and MS students and postdocs during his forty-year career; contributing to 410 peer reviewed publications (with a Goggle Scholar h-index of 90 and 26,000 citations), 19 patents, and over 600 lectures and seminars worldwide. A hallmark of his research and training program has been the highly collaborative and interdisciplinary science and engineering approach to hypothesis development, experimental design, and problem solving as exemplified by the research agenda of the CEB. Through JRCEEC, Dr. Saylor extended this commitment to multinational interdisciplinary communication and collaboration. Committed to research as a continuum of the education and learning process; hundreds of students ranging from high school, to undergraduate and graduate have contributed to and gained experience in his laboratory and have moved on to careers in academia, medicine, finance, government and industry worldwide.



Gary S Sayler

### ***CURRICULUM VITAE***

Department of Microbiology  
The University of Tennessee  
Knoxville TN 37996

Mobile: (865) 406-0671  
Sayler@utk.edu

### **EDUCATION**

Postdoctoral, 1975      Department of Microbiology, University of Maryland.  
Ph.D., 1974              Department of Bacteriology and Biochemistry, University of Idaho.  
B.S., 1971                Department of Bacteriology, North Dakota State University.  
A.A., 1969                Liberal Arts, Bismarck Junior College.

### **RESEARCH INTEREST**

Molecular environmental diagnostics and the applications of biomicroelectronics and biosensors in studies on biodegradation, plasmid evolution, and the ecological and toxicological impacts of environmental contaminants upon the structure and function of microbial communities influencing fate and exposure pathways in risk assessment.

### **EXPERIENCE**

Present                  Distinguished University Professor Emeritus, Microbiology, University of Tennessee  
2016 -                    Adjunct Professor, Biosystems Engineering and Soil  
                                Science, UT Institute for Agriculture  
2006-2014                *Director.* UT-ORNL Joint Institute for Biological Sciences  
2006-2015                *Beaman Distinguished Professor,* The University of Tennessee  
2005-2006                *Interim Director.* Institute for a Secure and Sustainable Environment, University of  
                                Tennessee.  
2000-2015                *Distinguished University Professor.* The University of Tennessee  
1999-2005                *Director.* Waste Management Research and Education Institute, University of Tennessee,  
                                Center of Excellence.  
1986-2015                *Founding Director.* Center for Environmental Biotechnology, University of Tennessee,  
                                Designated Research Center-of-Excellence, 2000  
1985-2015                *Professor.* Departments of Microbiology and Ecology and Evolutionary Biology. Adjunct,  
                                Department of Environmental Engineering. Faculty Appointments: Environmental  
                                Toxicology Program and Biotechnology Program.  
1987-1991                *Director for Research.* Waste Management Research and Education Institute, University of  
                                Tennessee, Center of Excellence.  
1980-1985                *Associate Professor.* University of Tennessee, Department of Microbiology and the Graduate  
                                Program in Ecology.  
1976-1980                *Assistant Professor.* University of Tennessee, Department of Microbiology and the Graduate  
                                Program in Ecology.  
1974-1975                *Postdoctoral Research Fellow.* Department of Microbiology, University of Maryland.  
1971-1974                *Graduate Teaching and Research Assistant.* University of Idaho.  
1971                        *Research Associate.* North Dakota Water Resources Committee.  
1970                        *Research Technician.* Department of Chemistry, North Dakota State University.

### **MEMBERSHIPS**

American Society for Microbiology

American Academy of Microbiology (Fellow 1995)  
American Association for the Advancement of Science (Fellow 2013)  
American Chemical Society  
Society for Environmental Toxicology and Chemistry  
Society for Industrial Microbiology  
The International Society for Optical Engineering  
Institute of Electrical and Electronics Engineers  
Water Environment Research Foundation

## HONORS & AWARDS

Sigma Xi, Member since 1973  
**Research Career Development Award** (National Institute for Environmental Health Sciences), U.S. Public Health Service, NI, 1980-1985.  
**Teaching Incentive Award.** University of Tennessee, College of Liberal Arts, June, 1980.  
**Science Alliance Research Awards.** University of Tennessee, ORNL, 1984-1992.  
**Public and Scientific Affairs Board** American Society for Microbiology, , Committee on Environmental and General Applied Microbiology, July 1985-1995.  
**Top 100 Innovators in Science,** *Science Digest*, 1985  
**Science Advisory Panel** BSAC Subcommittee, and FIFRA subpanel member, U.S. EPA. 1985-87.  
**Consulting Editor,** Environmental Biotechnology Series, McGraw Hill Publishing Co. 1986-1991.  
**Chancellor Research Scholar,** University of Tennessee, 1988  
**Malcolm Moos Visiting Professor,** University of Minnesota, Gray Freshwater Institute. 1987-1989.  
**U.S. Delegate** American Center for International Leadership, to the Science and Technology Commission, US/USSR Emerging Leaders Summits, Philadelphia, PA and Moscow, USSR, 1988-1989.  
**Review Panel Chairman** DOE Subsurface Science Program, , 1989.  
**Chairman,** Applied and Environmental Division, American Society for Microbiology 1990.  
**Chairman,** EPA, Environmental Biology Peer Review Program, Office of Exploratory Research, 1990-1993.  
**Review Panel** University of Chicago, Argonne National Laboratory Energy Systems and Environmental Research Divisions, 1991-, **Chairman** 1993, 1995, 2000.  
**Review Panel** ORNL Lockheed Martin, External, Environmental Sciences Division, 1994-1997, **Chairman** 1995.  
**Senior Researcher Award,** University of Tennessee College of Arts and Sciences, 1994  
**Procter and Gamble Award in Applied and Environmental Microbiology,** American Society for Microbiology, 1994.  
**Foundation for Microbiology Lecturer,** American Academy of Microbiology, 1994-1996.  
**Fellow,** American Academy of Microbiology, 1995 (Lifetime)  
**Silver and Gold Distinguished Alumni Award,** University of Idaho, 1995.  
**Section Editor,** *Antoine Van Leeuwenhoek Journal of Microbiology*, 1994-1999.  
**Editorial Boards.** *Molecular Ecology*, 1991-1999; *Biodegradation*, 1990-2005; *Microbial Ecology*, 1989-1993; *Industrial Microbiology*, 1986-1988; *Applied and Environmental Microbiology*, 1986-1989; *Journal of Microbiological Methods*, 1982-2000.  
**Associate Editor,** *Environmental Science and Technology*, American Chemical Society, 1999-present.  
**Finalist.** Discover Magazine Technology Innovation Award with M. Simpson, 1998.  
**Research Council Member,** Water Environment Research Foundation, , 1999-2003.  
**SPHERE Award,** DOW Foundation, Support for Public Health Research and Education, 1998-

2000.  
**NAS/NRC Committee** “Decontamination and Decommission” DOE Sites 2000-2002.  
**Distinguished University Professor**, The University of Tennessee, 2000.  
**Board Member** Tennessee Biotechnology Association, , 2000-2009.  
**Review Panel Member** NIH SBIR 2001  
**NAS/NRC Committee**, “Standoff Explosives Detection Techniques”, 2002-2003  
**Science Advisory Board**, EPA Drinking Water Committee 2003-2009.  
**American Academy of Microbiology** Promega Biotechnology Research Award Selection  
**Committee Member**, 2003-2006.  
**Board of Scientific Counselors, Executive Committee and Chairman** (07-10) EPA/ORD,  
2004 to 2010.  
**Committee of Visitors.** Office of Biological and Environmental Research, U.S. Department of  
Energy 2004.  
**Beaman Distinguished Professorship**, The University of Tennessee, 2006 – Present.  
**Founder and Executive Committee.** China-US Joint Reserch Center for ecosystem and  
Environmental Change. 2007-present  
**Chairman**, Board of Scientific Counselors, EPA/ORD, 2007-2010.  
**Science Advisory Board**, Charter Board Liaison. U.S. Enviornmental Protection Agency, 2008-  
2010.  
**Biological and Environmental Research Advisory Committee** (BERAC), U.S. Department of  
Energy, Office of Science,2008-2012.  
**NAS/NRC Committee** on “Development and Implementation of a DOE Cleanup Technology  
Roadmap”, 2009.  
**Science Advisory Board Member**, U.S. Department of Defense, Strategic Environmental  
Research and Development Program (SERDP), 2011-2016.  
**Advisory Panel Member**, Life Sciences Division, Lawrence Berkeley National Laboratory, U.S.  
Department of Energy, Berkeley, CA, 2012.  
**AAAS Fellow**, American Association for the Advancement of Science, 2012.  
**Top 10 Innovative Start Up (6)** recognition by “*The Scientist*” for 490 BIOTech. 2013  
**NAS/NRC Committee** “Strengthening EPA’s Laboratory Enterprise”, 2013-2014  
**Einstein Professor, Distinguished Scientist, Chinese Academy of Sciences, Beijing, 2018**

## ACADEMIC RESPONSIBILITIES

### Teaching

Microbial Ecology, Environmental Microbiology, Experimental Microbial Ecology Laboratory,  
Microbial Physiology, Advanced Microbial Physiology and Genetics, Introductory Microbiology,  
Ecology, and Environmental Toxicology, Biotechnology Laboratory (Cell, Molecular and  
Developmental Biology Laboratory), Applied Microbiology and Bioengineering.

### Service and Administration

Presidential Search Committee Member; Board of Directors, University of Tennessee Research  
Foundation VP for Agriculture Search Committees; Board of Directors, Tennessee Biotechnology  
Association; Environment and Natural Resources Interdisciplinary Council; Director, Center for  
Environmental Biotechnology; Director, Waste Management Education and Research Institute,  
Center-of-Excellence; Chairman, ORNL/UT Joint Life Sciences Committee; University of  
Tennessee Research Corporation Advisory Board Member; Promotion and Tenure Committee;  
Research Cabinet College of Liberal Arts; Biotechnology Program Committee; Biology Task  
Force; Dean's Research Advisory Council; Graduate Program in Ecology Executive Committee;  
Environmental Toxicology Advisory Committee; Upper Cumberland Biology Field Station  
Executive Committee; Natural Sciences Curriculum Committee; Search Committees and  
Departmental Committees.

## PATENTS

18. Close, D.M, S.A. Ripp, G.S. Sayler, M. Conway. 2021 Lux Expression in cells and methods of use. *Patent #11,046,962 B2*
17. Ripp, S.A., G.S. Sayler, D.M. Close, M. Connolly, T.B. Henry. 2013 “Autonomous lux reporter system and methods of use” *Patent pending.*
16. Simpson, M.L., M.J. Paulus, G.S. Sayler, B.M. Applegate, S.A. Ripp. 2008. “Microluminometer chip and method to measure bioluminescence” *Patent #7,371,538.*
15. Gupta, R K, S. S. Patterson, G. S. Sayler, S. A. Ripp. 2007. “Lux expression in eukaryotic cells” *Patent #7,300,792.*
14. Allen, M.S., G. Rakesh, G.S. Sayler. 2007. “Destabilized bioluminescent proteins” *Patent #7,250,284.*
13. Simpson, M., M.J. Paulus, G.S. Sayler, B.M. Applegate, S.A. Ripp. 2007. “Bioluminescent bioreporter integrated circuit devices and methods for detecting ammonia.” *Patent #7,208,286.*
12. Simpson; M. L., Paulus; M. J., Sayler; G.S., Applegate; B. M., Ripp; S. A., 2006. “Bioluminescent bioreporter integrated circuit devices and methods for detecting estrogen” *Patent# 7,090,992*
11. Sayler; Gary S., Fleming; J.T., Applegate; B., Simpson; M. L. 2006. “Methods for cell-based combinatorial logic” *Patent #7,020,560*
10. Simpson, M., M.J. Paulus, G.S. Sayler, B.M. Applegate, S.A. Ripp. 2005. “Bioluminescent bioreporter integrated circuit detection methods.” *Patent # 6,905,834.*
9. Sayler, G.S., Simpson; M.L., Applegate; B. M., and Ripp, S. A., 2004. “In Vivo Biosensor Apparatus and Method of Use” *Patent #6,673,596.*
8. Sayler, G.S., S.A. Ripp, and B. Applegate. 2003. “Bioluminescent Biosensor Device” *Patent #6,544,729.*
7. Laroussi, M., G.S. Sayler, and B.B. Glascock. 2001. “Electrodeless Discharge at Atmospheric Pressure” *Patent #6,204,605.*
6. Simpson, M., G.S. Sayler and M.J. Paulus. 2000."Bioluminescent Bioreporter Integrated Circuit (BBIC)" *Patent #6,117,643.*
5. Lajoie, C.A., C.J. Kelly, A.C. Layton and G.S. Sayler. 2000. “Bioluminescent Reporter Bacterium” *Patent #6,110,661.*
4. Fleming, J.T. and G.S. Sayler. 2000. “Isolation of Expressed Genes in Microorganisms.” *Patent #6,090,593.*
3. Lajoie, C.A., C.J. Kelly, A.C. Layton, G.S. Sayler, and R. Stapleton. 2000. “Zoogloal and *Hyphomicrobium* spp. Nucleic Acids.” *Patent #6,124,094.*
2. Lajoie, C., A. Layton, and G.S. Sayler. 1997. “Bioremediation Process Design Utilizing In Situ Soil Washing.” *Patent #5618727.*
1. Blackburn, J.W. and G.S. Sayler. 1988. "Method for the Monitoring and Control of Microbial Populations." *Patent #4792519.*

## PUBLICATIONS (h-index, ISI Web of Knowledge 52, Google Scholar 90, 26,000 citations)

418. Yu, F., Munoz, B., Bienkowski, P.R., Sayler, G.S. 2022. Continuous trichloroethylene biodegradation by *Pseudomonas putida* F1 in a biofilm reactor and determination of an optimal feeding path via a response surface model. *Engineering Reports*. 3(9):e12385.
417. Xu, T., Close, D., Ud Din, G., Sayler, G., & Ripp, S. 2022. Engineering autobioluminescent eukaryotic cells as tools for environmental and biomedical surveillance. *Handbook of Cell Biosensors*, 57-70.
416. Zhuang, J., Sun, H., Sayler, G., Kline, K. L., Dale, V. H., Jin, M., ... & Löffler, F. E. 2021. Food–

- Energy–Water Crises in the United States and China: Commonalities and Asynchronous Experiences Support Integration of Global Efforts. *Environmental Science & Technology*, 55(3), 1446-1455.
415. Zhuang, J., Löffler, F.E., & Sayler, G.S. 2021. Creating a Research Enterprise Framework for Transdisciplinary Networking to Address the Food–Energy–Water Nexus. *Engineering*.
414. Zhuang, J., Löffler, F.E., & Sayler, G.S. 2021. Closing transdisciplinary collaboration gaps of food-energy-water nexus research. *Environmental Science & Policy*. 126:164-167.
413. Xu, T., Gilliam, M., Sayler, G., Ripp, S., & Close, D. 2021. Screening for androgen agonists using autonomously bioluminescent HEK293 reporter cells. *BioTechniques*, 71(2), 403-415.
412. Yu, F., Munoz, B., Bienkowski, P. R., & Sayler, G. S. 2021. Continuous trichloroethylene biodegradation by *Pseudomonas putida* F1 in a biofilm reactor and determination of an optimal feeding path via a response surface model. *Engineering Reports*, e12385.
411. Wienhold, M., Kirkpatrick, A., Xu, T., Ripp, S., Sayler, G., & Close, D. 2021. Improvements in Smartphone and Night Vision Imaging Technologies Enable Low Cost, On-Site Assays of Bioluminescent Cells. *Frontiers in Bioengineering and Biotechnology*, 1150.
410. Zhuang, J., Loeffler, F. E., Sayler, G., Yu, G., & Jiang, G. 2021. Solving Shared Problems at the Food, Energy, and Water Nexus. *Eos, Transactions American Geophysical Union (Online)*, 102(1).
409. Rochkind-Dubinsky, M. L., Sayler, G. S., & Blackburn, J. W. 2020. Microbiological decomposition of chlorinated aromatic compounds. *CRC Press*.
408. Yu, F., Munoz, B., Bienkowski, P.R., Sayler, G.S. 2020. Bayesian estimation and sensitivity analysis of toluene and trichloroethylene biodegradation kinetic parameters. *Journal Of Environmental Quality*. 49(3): 640-653.
407. Conway, M., Xu, T., Kirkpatrick, A., Ripp, S., Sayler, G., & Close, D. 2020. Real-time tracking of stem cell viability, proliferation, and differentiation with autonomous bioluminescence imaging. *BMC biology*, 18(1), 1-14.
406. Xu, T., Young, A., Narula, J., Sayler, G., & Ripp, S. 2020. High-throughput analysis of endocrine-disrupting compounds using blyes and blyas bioluminescent yeast bioassays. In *Bioluminescent Imaging* (pp. 29-41). Humana, New York, NY.
405. Yang, L.Q., Chen, X.J., Zang, X.F., Radosevich, M., Ripp, S., Zhuang, J., Sayler, G.S. 2019. Surface-Adsorbed Contaminants Mediate the Importance of Chemotaxis and Haptotaxis for Bacterial Transport Through Soils. *Frontiers In Microbiology*. 10:2691.
404. Kirkpatrick, A., Xu, T., Ripp, S., Sayler, G., & Close, D. 2019. Biotechnological advances in luciferase enzymes. In *Bioluminescence-Analytical Applications and Basic Biology*. IntechOpen.
403. Xu, T., Young, A., Marr, E., Sayler, G., Ripp, S., & Close, D. 2018. A rapid and reagent-free bioassay for the detection of dioxin-like compounds and other aryl hydrocarbon receptor (AhR) agonists using autoluminescent yeast. *Analytical and bioanalytical chemistry*, 410(4), 1247-1256.
402. Sayler, G. S., & Blackburn, J. W. 2018. Modern biological methods: The role of biotechnology. In *Biotreatment of Agricultural Wastewater CRC Press*. (pp. 53-72).
401. Sanseverino, J., Fleming, J. T., Heitzer, A., Applegate, B. M., & Sayler, G. S. 2018. Applications of Environmental Biotechnology to Bioremediation. In *Remediation of Hazardous Waste Contaminated Soils* (pp. 97-123). Routledge.
400. Wang, J., J. Baudry, G.S. Sayler. 2017. Molecular Dynamic Simulation and Biological Verification of Xenobiotic Binding with the Human Estrogen Receptor (hER). In Preparation For, *Environmental Health Perspectives*.
399. Vulava VM, Vaughn DS, McKay LD, Driese SG, Cooper LW, Menn FM, Levine NS, Sayler GS. 2017. Flood-induced transport of PAHs from streambed coal tar deposits. *Science of the Total Environment* 575:247-257.
398. Cusick K.D.; S.W. Wilhelm; P.E. Hargraves; G.S. Sayler. 2016. Single-cell PCR of the luciferase conserved catalytic domain reveals a unique cluster in the toxic bioluminescent dinoflagellate *Pyrodinium bahamense*. *Aquatic Biology* 25:139-150.

397. Xu T.; E. Marr; W. Handagama; D. Close; G. Sayler; S. Ripp. 2016. The expanding toolbox of in vivo bioluminescent imaging. *Frontiers in Oncology*, 6..
396. Xu T, Marr E, Sayler G, Ripp S. Monitoring endocrine disrupting contaminants using high-throughput bioluminescent yeast assays. *Methods in Molecular Biology*, in press.
395. Du, L.; K. Arnholt; S. Ripp; G. Sayler; S. Wang; C. Liang; J. Wang; J. Zhuang. 2015. Biological toxicity of cellulose nanocrystals (CNCs) against the *luxCDABE*-based bioluminescent bioreporter *Escherichia coli* 652T7. *Ecotoxicology*. 24:2049-2053.
394. Xu, T.; E. Marr; H. Lam; S. Ripp; G. Sayler; D. Close. 2015. Real-time toxicity and metabolic activity tracking of human cells exposed to *Escherichia coli* 0157:H7 in a mixed consortia. *Ecotoxicology*. 24:2133-2140.
393. Zhuang, J; H. Yu; T.B. Henry; G.S. Sayler. 2015. Fate and toxic effects of environmental stressors: environmental control. *Ecotoxicology*. 24:2043-2048.
392. Xu, X.; K. Oliff; T, Xu; S. Ripp; G.Sayler; J. Zhuang. 2015. Microbial availability of mercury: effective detection and organic ligand effect using a whole-cell bioluminescent bioreporter. *Ecotoxicology*. 24:2200-2206.
391. Wang, J.; E. Eldridge; F. Menn; T. Dykes; G.S. Sayler. 2015. Standardized application of yeast bioluminescent reporters as endocrine disruptor screen for comparative analysis of wastewater effluents from membrane bioreactor and traditional activated sludge. *Ecotoxicology*. 24:2088-2099.
390. Osimitz, Thomas G.; Eldridge, Melanie L.; Slotter, Eddie; Welsh, William; Ai, Ni; Sayler, Gary S.; Menn, Fu-Min; Toole, Colleen. 2015. Corrigendum to Lack of androgenicity and estrogenicity of the three monomers used in Eastman's Tritan (TM) copolyesters. *Food And Chemical Toxicology*, 75, 188.
389. Eldridge, M.L., D.D. França, C.C. Montagner, G.A. Quinágua, G. Sayler, W.F. Jardim, G.A. Umbuzeiro. 2015. Comparison of two yeast bioluminescent assays applied to water monitoring of estrogenic activity, *Applied Research in Toxicology*, 1:(1) 1-8.
388. Osimitz, Thomas G.; Eldridge, Melanie L.; Slotter, Eddie; Welsh, William; Ai, Ni; Sayler, Gary S.; Menn, Fu-Min; Toole, Colleen. 2015. Lack of androgenicity and estrogenicity of the three monomers used in Eastman's Tritan (TM) copolyesters. *Food And Chemical Toxicology*, 50, 2196-2205.
387. Xu, Tingting; Ripp, Steven; Sayler, Gary S.; Close, Dan M. 2014. Expression of a Humanized Viral 2A-Mediated lux Operon Efficiently Generates Autonomous Bioluminescence in Human Cells. *PLOS ONE*, 9 (5), e96347
386. Chauhan, A; A. Smartt; J. Wang; S. Utturkar; A. Frank; M. Bi; J. Liu; D. Williams; T. Xu; M. Eldridge; A. Arreaza; A. Rogers; H.C. Gonzalez; A.C. Layton; H.L. Baxter; M. Mazarei; J.M. DeBruyn; C.N. Stewart, Jr; S.D. Brown; L.J Hauser; G.S. Sayler. 2014. Integrated metagenomics and metatranscriptomics analyses of root-associated soil from transgenic switchgrass. *Genome announcements*, 2(4)e00777-14.
385. Xu, T.; D. Close; A. Smartt; S. Ripp; G. Sayler. 2014. Detection of organic compounds with whole-cell bioluminescent bioassays. *Advances in biochemical engineering/biotechnology*, 144, 111-51.
384. Chauhana A; A. Layton; T. Vishnivetskaya; D. Williams; S. Pfiffner; B. Rekepalli; B. Stackhouse; M. Lau; T. Phelps; N. Mykytczuk; J. Ronholm; L. Whyte; G.S. Sayler and T. Onstott. 2014. Metagenomes from Thawing Low-Soil-Organic-Carbon Mineral Cryosols and Permafrost of the Canadian High Arctic. *Genome Announcement*, 2(6)e01217-14.
383. Layton, A; A. Chauhan D. E. Williams; B. Malloux; P.S.K. IKnappett; A.S. Ferguson; L.D. McKay; M. J. Alam; K.M. Ahmed; A. van Green; G.S. Sayler. 2015. Metagenomes of microbial communities in arsenic and pathogen contaminated well and surface water from Banglades. *Genome Announcement*, 2 (6) e01170-14.
382. Xu, T., G.S. Sayler, S. Ripp, D.M. Close. 2014. Expression of a Humanized Viral 2A-Mediated lux Operon Efficiently Generates Autonomous Bioluminescence in Human Cells. *PloS One*, 9(5), e96347.
381. Connolly, M.H., R.M. Dutkosky, T.P. Heah, G.S. Sayler, and T.B. Henry. 2014. Temporal

- Dynamics of Oocyte Growth and Vitellogenin Gene Expression in Zebrafish (*Danio Rerio*). *Zebrafish*. Vol. 11, No. 2: 107-114.
380. Harris, J.B., M.L. Eldridge, G.S. Sayler, A.C. Layton, and J. Baudry. 2014. A Computational Approach Predicting CYP450 Metabolism and Estrogenic Activity of An Endocrine Disrupting Compound (PCB-30). *Environ. Toxicol and Chem.* 7:1615-1623.
379. Close D., T. Xu, S.A. Ripp, G.S. Sayler. 2014. Real-time bioluminescent tracking of cellular population dynamics. *Methods in molecular biology (Clifton, N.J.)*, 1098, 107-16.
378. Vishnivetskaya, T.A., A.C. Layton, M.C.Y. Lau, A. Chauhan, K.R. Cheng, A.J. Meyers, J.R. Murphy, A.W. Rogers, G.S. Saaranya, D.E. Williams, S.M. Pfiffner, J.P. Biggerstaff, B.T. Stackhouse, T.J. Phelps, L. Whyte, G.S. Sayler, T.C. Onstott. 2014. Commercial DNA extraction kits impact observed microbial community composition in permafrost samples. *FEMS Microbiology Ecology*, 87(1), 217-230.
377. Shi, Wen-Juan; Menn, Fu-Min; Xu, Tingting; Zhuang, Zibo T.; Beasley, Clara; Ripp, Steven; Zhuang, Jie; Layton, Alice C.; Sayler, Gary S. 2014. C60 reduces the bioavailability of mercury in aqueous solutions. *Chemosphere* [0045-6535] vol:95 pg:324 -328.
376. Cusick Kathleen D; Sayler Gary S. 2013. An overview on the marine neurotoxin, saxitoxin: genetics, molecular targets, methods of detection and ecological functions. *Marine drugs* , 11(4), 991-1018.
375. Ji, X; S.A. Ripp, A.C. Layton, G.S. Sayler, J.M. DeBruyn. 2013. Assessing long term effects of bioremediation: soil bacterial communities 14 years after polycyclic aromatic hydrocarbon contamination and introduction of a genetically engineered microorganism. *Journal of Bioremediation & Biodegradation*, 4(8), 1000209/1-1000209/8, 8 pp.
374. Osimitz, T.G., M.L. Eldridge, E. Slotter, W. Welsh, N. Ai, G.S. Sayler, F. Menn, C. Toole. 2013. Lack of androgenicity and estrogenicity of the three monomers used in Eastman's Tritan copolyesters. *Food and Chemical Toxicology* , 62, 965.
373. Xu, T., D.M. Close, J. D. Webb, S.L. Price, S.A. Ripp, G.S. Sayler. 2013. Continuous, real-time bioimaging of chemical bioavailability and toxicology using autonomously bioluminescent human cell lines. *Proceedings of SPIE, 8723(Sensing Technologies for Global Health, Military Medicine, and Environmental Monitoring III)*, 872310/1-872310/9.
372. Xu, T., D.M. Close, G.S. Sayler, S. Ripp. 2013. Genetically modified whole-cell bioreporters for environmental assessment. *Ecological Indicators* , 28, 125-141.
371. Ripp, S.A., G.S. Sayler, D.M. Close, M. Connolly, T.B. Henry. 2013. Autonomous lux reporter system and methods of use. *U.S. Pat. Appl. Publ.*, US 20130031644 A1 20130131.
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20. Sherrill, T.W. and G.S. Sayler. 1980. Phenanthracene biodegradation in freshwater environments. *Appl. Environ. Microbiol.* 39:172-178.
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16. Morrison, W.D., R.V. Miller and G.S. Sayler. 1978. Frequency of F116 mediated transduction of *Pseudomonas aeruginosa* in a freshwater environment. *Appl. Environ. Microbiol.* 5.36:724-730.
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8. Colwell, R.R. and G.S. Sayler. 1976. Interactions of Polychlorinated Biphenyl (PCB) with Estuarine Microorganisms and Shellfish. U.S. Environmental Protection Agency. EPA-600/3-77-070, Ecological Research Series.
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6. Sayler, G.S., J.D. Nelson, Jr., A.J. Justice and R.R. Colwell. 1976. Incidence of *Salmonella*, *Vibrio parahaemolyticus* and *Cl. botulinum* in an estuary. *Appl. Environ. Microbiol.* 31:723-730.
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4. Colwell, R.R., G.S. Sayler and J.D. Nelson, Jr. 1975. Microbial mobilization of mercury in the aquatic environment. In: *Environmental Biogeochemistry*\_Vol. II. Ed. J.O. Nriagu. Ann Arbor Science Publ. Inc.
3. Colwell, R.R., S.G. Berk, G.S. Sayler, J.D. Nelson, Jr., and J.M. Esser. 1975. Mobilization of mercury by aquatic microorganisms. International Conference on Heavy Metals in the Environment. Toronto, Canada. 831-844.
2. Sayler, G.S., R.R. Colwell and J.D. Nelson, Jr. 1975. The role of bacteria in bioaccumulation of mercury in the oyster, *Crassostrea virginica*. *Appl. Microbiol.* 30:91-96.
1. Colwell, R.R., G.S. Sayler and J.D. Nelson, Jr. 1975. Microbiology of the Upper Chesapeake Bay. Upper Bay Survey. Maryland Department of Natural Resources. 2:3-3B016.

### DOCTORAL DISSERTATIONS DIRECTED

- Wang, J. 2015. Standardized application of yeast bioluminescent reporters as endocrine disruptor screen for comparative analysis of wastewater effluents from membrane bioreactor and traditional activated sludge. UTK
- Xu, T. 2012. Optimization of Bacterial Bioluminescence (*lux*) Expression and Development of Autonomous *lux*-Based Reporters in Human Cell Lines. UTK
- Scholz, M. 2012. Sulfate reducing communities in aquifer systems can be reliably stimulated by addition of complex nutrients
- Close, D. 2011. Development of an Autonomous Mammalian *lux* Reporter System. UTK
- Jiang, K. 2011. Genomic and Molecular Analysis of the Exopolysaccharide Production in the Bacterium *Thauera aminoaromatica* MZ1T. UTK
- McIntosh, V. 2010. An Analysis of Global Gene Expression Resulting from Exposure to Energetic Materials. Microbiology. UTK
- DeBruyn, J. 2008. Distribution and dynamics of pyrene-degrading Mycobacteria in freshwater sediments contaminated with polycyclic aromatic hydrocarbons. Department of Ecology & Evolutionary Biology. UTK.
- Mann, D. 2008. VACNF as a Platform for Gene Delivery and Expression Analysis in Mammalian cells. Microbiology. UTK.
- Ozen, A. 2007. Construction of Bacteriophage-Based Bioluminescent Bioreporters for *Staphylococcus aureus* and *Salmonella* Monitoring. Microbiology. UTK
- Bin, W. 2004. Immunotoxicological study of depleted uranium. Microbiology. Ecology and Evolutionary Biology. UTK.
- Patterson, S. 2003. Optimization of bacterial luciferase for expression in mammalian cells. Microbiology. UTK.
- Cook, K. 2003. Evaluation of microbial inocula for initiation of biological life support systems for wastewater processing on long term and deep space missions. Microbiology. UTK.
- Allen, M. 2003. Isolation and characterization of the exopolysaccharide produced by *Thauera* strain MZ1T and its role in flocculation. Microbiology. UTK.
- Rice, J. 1999. Effects of 2,4-D and 2,4,5-T metabolites on degradation of chlorinated phenoxyacetic acids, dibenzofuran, and dibenzo-p-dioxin by environmental bacteria. Microbiology. UTK.
- Shingleton, J. 1998. Degradation of toluene and trichloroethylene in a radial flow reactor. Chemical Engineering. UTK. (Co-Advisor)
- Kehrmeyer, S. 1997. Contaminant bioavailability in biodegradation measurement using bioluminescent bioreporters and their development. Microbiology. UTK
- Leblond, J. 1997. Cometabolic Versatility of the NAH System of *Pseudomonas Fluorescens*. Microbiology. UTK

- ❑ Stapleton, R. 1997. Natural Attenuation of Petroleum Hydrocarbons in Groundwater. Ecology, UTK.
- ❑ Applegate, B. 1997. Construction of Recombinant Bacteria to Elucidate Catabolic Regulation and Critical Catabolic Reactions of Phenanthrene Metabolism by the NAH System. Microbiology, UTK.
- ❑ Kelly, C. 1997. Kinetic analysis of bioluminescent bacterial reporters: An inducible tod-lux reporter for trichloroethylene co-metabolism. Chemical Engineering, UTK. (co-advisor)
- ❑ Ahn, Y. 1997. Microbial and molecular basis of polycyclic aromatic hydrocarbon biodegradation in contaminated sites. Microbiology, UTK.
- ❑ Tschantz, M. 1996. Experimental evaluation and mathematical modeling of the fundamental processes affecting TCE co-oxidation by the sMMO enzyme system of *Methylosinus trichosporium* OB3B. Chemical Engineering, UTK. (co-advisor)
- ❑ Johnston, W. 1996. Molecular and environmental stability of the lux reporter plasmid, pUTK21 of *Pseudomonas fluorescens* HK44. Microbiology, UTK.
- ❑ Koh, S. 1994. Molecular approach for measuring methanotrophic bacterial population dynamics in TCE degradation. Ecology, UTK.
- ❑ Webb, Oren. 1992. Analysis of *Pseudomonas fluorescens* HK44 for use as a biosensor for PAH pollutant degradation and migration. Chemical Engineering, UTK. (Co-Advisor)
- ❑ Dunbar, P. 1992. A mathematical model correlating catabolic gene activity with biodegradation rates using a bioluminescent reporter strain. Chemical Engineering, UTK. (Co-Advisor)
- ❑ Breen, A. 1992. Isolation and characterization of linear alkylbenzene Sulfonate mineralizing bacteria consortia. Environmental Toxicology, UTK.
- ❑ DiGrazia, P. 1991. Microbial systems analysis of naphthalene degradation in a continuous flow soil slurry reactor. Chemical Engineering, UTK. (co-advisor)
- ❑ Packard, J. 1990. Distribution of pSS50 catabolic genes in PCB contaminated, microbial sediment communities. Graduate Program in Ecology, UTK.
- ❑ Burlage, R. 1990. Bioluminescence as a reporter of gene activity. Microbiology, UTK.
- ❑ Pettigrew, C. 1988. Microbial Ecology of Bacterially Mediated PCB Biodegradation. Department of Microbiology, UTK.
- ❑ Ogram, A. 1988. The Extraction and Purification of Microbial DNA from Sediments. Department of Microbiology, UTK.
- ❑ Ogunseitan, O. 1988. Plasmid transfer and maintenance in groundwater bacteria. Department of Microbiology, UTK.
- ❑ Johnson, A. 1987. Effect of contamination on nutrient cycles in aquatic microcosms. Environmental Toxicology Program, UTK.
- ❑ Hooper, S. 1987. Molecular characterization of pSS50 4, chlorobiphenyl catabolic plasmid. Department of Microbiology, UTK.
- ❑ Swindoll, C.M. 1986. Bacterial uptake and mobilization of PCB from aquatic sediments. Department of Zoology, UTK. (Co-directed with M. Whiteside).
- ❑ Davis, J.W. 1985. Biodegradation of organic constituents of coal slurry transport water. Department of Microbiology, UTK.
- ❑ Perkins, R.E. 1985. The role of microbial populations in stream phosphorous spiraling. Department of Microbiology, UTK.
- ❑ Shields, M.S. 1984. The occurrence and significance of bacterial degradative plasmids in the biotransformations of environmental contaminants. Department of Microbiology, UTK.
- ❑ Reid, M.C. 1984. Characterization of organic contaminants in coal slurry wastewater. Graduate Program in Ecology, UTK.
- ❑ Sherrill, T.W. 1982. Evaluation of the role of environmental contamination in enhanced microbial degradation of polycyclic aromatic hydrocarbons. Graduate Program in Ecology, UTK.
- ❑ Mallory, L.M. 1980. Numerical taxonomic analysis of bacterial guild structure in aquatic environments. Graduate Program in Ecology, UTK.
- ❑ Shiaris, M.P. 1979. Interactions of polychlorinated biphenyls (PCB) with natural microbial

populations in freshwater environments. Graduate Program in Ecology, UTK.

### MASTERS THESIS DIRECTED

- Smartt, A. 2014. A Genomic and Transcriptomic Approach to Understanding Cold Acclimation in *Pseudomonas fluorescens* HK44. UTK
- Mead, T. 2012. An Analytical Survey of a Biotinylated Bacteriophage System for Quantifying Transduction Events in Natural Ecosystems. UTK
- Johnson, C. 2007. Development of a Bacteriophage Based Bioluminescent Bioreporter System for the Detection of *Escherichia coli* K12 and O157:H7. UTK.
- Mitchell, E. 2004. Sol-gel Encapsulation of a Bioluminescent Bioreporter. UTK.
- Stair, J. 1998. 16S Ribosomal RNA Analysis to Detect Soil Microbial Community Shifts in Response to Changing Agricultural Practices from Row Crops to Short Rotation Woody Crops. Microbiology. UTK.
- LaTorre, K.A. 1998. Aerobic Biodegradation of PCBs in Photolyzed and Non-Photolyzed Surfactant Solutions. Civil and Environmental Engineering. UTK.
- Narayana, P. 1997. Identification of Microbial Populations in Activated Sludge by 16S rDNA Analysis and Fluorescent In Situ Hybridization. Biotechnology, UTK.
- Muccini, M. 1997. Toxicity Reduction Evaluation of PCB-Contaminated Soils. Ecology, UTK.
- Yao, W. 1996. RNA fingerprinting of total bacterial RNA obtained by *in situ* extraction of soil microcosms inoculated with strain *Pseudomonas putida* F1. Microbiology, UTK.
- Minocha, U. 1995. Bioavailability of dissolved organic carbon in surface water by surface and subsurface bacteria. Ecology, UTK.
- Rice, J. 1995. Use of bioluminescent reporter to monitor exopolysaccharide production by environmental bacteria from corroded metal surfaces. Microbiology, UTK.
- Korde, M. 1991. Effect of soil composition and contamination on naphthalene mineralization, Department of Microbiology, UTK.
- Breen, A. 1987. Physiological and molecular characterization of a groundwater *Pseudomonas* sp. Department of Microbiology, UTK.
- Tedford, E.T. 1985. Frequency and transmissibility of plasmid DNA in groundwater bacteria. Graduate Program in Ecology, UTK.
- Ward, M. 1982. The effect of synthetic oil contamination on microbial processes in soil. Graduate Program in Ecology, UTK.
- Ricard, M.O. 1981. Comparative effects of fossil fuel hydrocarbons on microbial activity in freshwater sediments. Graduate Program in Ecology, UTK.
- Perkins, R.E. 1981. Organic matter mineralization activity of microbial populations in natural and stressed freshwater sediments. Department of Microbiology, UTK.
- Sherrill, T.W. 1980. Biodegradation of phenanthrene in freshwater environments. Department of Microbiology, UTK.
- Pedersen, D. 1979. Methanogenesis in aquatic sediments: Inherent variability and effects of environmental contaminants. Department of Microbiology, UTK.

### POSTDOCTORALS DIRECTED

Applegate, Bruce	Heitzer, Armin	Nikbakht, Kave
Bowman, John	Henry, Theodore	Nivens, David
Brigati, Jennifer	Hilton, Barry	Poorvin, Leo
Chauhan, Archana	Hurt, Richard A.	Park, June Woo
Cho, Yee Suk	Jain, Rakesh	Reid, M. Carey
Close, Daniel	Jimenez, Luis	Ripp, Steve
Connolly, Michelle	Kelly, Christine	Rochkind, Melissa
Dionisi, Hebe	King, Henry	Sanseverino, John
Eldridge, Melanie	Kong, Hay Long	Shingleton, Justin



Fleming, James  
Gupta, Rakesh  
Harms, Gerda  
Hawkins, Shawn  
Hay, Anthony

Lajoie, Curtis  
Layton, Alice  
Matrubutham, Uday  
McIntosh, Vernon  
Menn, Fu Min

Steward, Charles  
Vishnivetskaya, Tatiana  
Wallace, William  
Xu, Tingting

## REVIEWER AD HOC

### Journals

*Science*

*Archives of Environmental Contamination and Toxicology*

*Canadian Journal of Microbiology*

*Environment International*

*Environmental Pollution*

*Environmental Science and Technology*

*Gene*

*Journal of Bacteriology*

*Journal of Microbiological Methods*

*Journal of Industrial Microbiology*

*Biotechnology and Engineering*

*Biodegradation*

*Microbial Ecology*

*Environmental Toxicology and Chemistry*

*Biotechnology Progress*

*Enzyme and Microbial Technology*

*Current Opinions in Microbiology*

*Soil Science Society of America*

*Water Research*

### Agencies

National Institutes of Health

National Science Foundation

Environmental Protection Agency

Water Research Foundation

Department of Energy

Department of Interior

US Air Force

US Department of Agriculture

Department of Commerce

National Environmental Research Council

Ireland Higher Education Commission

### Others

Sovran Bank

Hudson River Foundation

Nordic Environmental Biotechnology Program

OECD

Austrian Science Foundation

Duke University

Kluwer

Massachusetts Institute of Technology

North Carolina Biotechnology Center

Canada Research Chairs Program

Biotechnology Research Institute of Canada

## CONFERENCES AND COMMITTEE PARTICIPATION

### 2014

China-U.S. Joint Symposium “Water, Energy and Ecosystem sustainable Development”, Hefei, Anhui, China, Chair and Co-Organizer, (October)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (October)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (September)

To attend the Biological Robustness in Complex Settings (BRICS) Program Proposers’ Day, Arlington, VA, Invited Attendee, (August)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Salt Lake City, UT, Committee Member, (June)

Committee on Strengthening the U.S. Environmental Protection Agency Laboratory Enterprise, NRC Washington, D.C., Committee Member, (February)

### 2013

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (December)

Committee on Strengthening the U.S. Environmental Protection Agency Laboratory Enterprise, NRC Triangle Park, N.C., Committee Member, (December)

International Review Panel for the Research Center for Eco Environmental Studies, Chinese Academy of Sciences, Beijing, China. Reviewer, (November)

China-U.S. Joint Research Center for Ecosystem and Environmental Change, Chair and Co-Organizer, (November)

On-Site assessment of the Institute of Applied Ecology, of the Chinese Academy of Sciences, Shenyang, China, Committee Member, (October)

Committee on Strengthening the U.S. Environmental Protection Agency Laboratory Enterprise, Washington, D.C., Committee Member, (September)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (September)

BioEnergy Science Center Scientific Advisory Board Meeting, Chattanooga, TN, Committee Member, (July)

Department of Energy, Office of Biological and Environmental Research, Climate and Environmental Sciences Division 2013 Committee of Visitors' Meeting, Germantown, MD, Committee Member, (July)

2013 Korean Society for Microbiology Biotechnology's 40<sup>th</sup> Anniversary International Symposium, Pyeongchang Gangwondo, Korea, Invited Speaker (July)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (June)

China-U.S. Forum of Environmental Health, Nanjing, China, Chair and Co-Organizer, (May)

China-U.S. Joint Workshop on Systems Biology for Environmental Sustainability, Chenyang, China, Chair and Co-Organizer, (May)

China-U.S. Forum of Ecosystem and Environmental Biotechnology, Beijing, China. Invited Attendee, (May)

ENIGMA Scientific Advisory Committee Annual Meeting, Berkeley, CA, Committee Member, (April)

ACS National Meeting, New Orleans, LA, Invited Attendee (April)

ES&T Editorial Advisory Board Meeting, New Orleans, LA, Associated Editor (April)

**2012**

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (October)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Gaithersburg, MD, Committee Member, (October)

U.S.-China Joint Research Center Conference Workshop, Beijing, China, Chair and Co-Organizer, (September)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (September)

BioEnergy Science Center Scientific Advisory Board Annual Science Retreat, Chattanooga, TN, Committee Member, (July)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (June)

USA-East Coast Perkinelmer Owners Group, Newton, MA, Attendee (June)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Gaithersburg, MD, Committee Member, (June)

22 Tennessee Water Resources Symposium, Nashville, TN, Attendee (April)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (March)

ENIGMA Scientific Advisory Committee Annual Meeting, Bethesda, MD, Committee Member, (February)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Washington, DC, Committee Member, (February)

**2011**

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (October)

Strategic Environmental Research and Development Program (SERDP) Scientific Advisory Board Meeting, Arlington, VA, Committee Member, (September)

NRC Committee on Sustainable Development of Algal Biofuels, Washington, DC, Invited Speaker (June)

U.S.-China Joint Research Center Conference Workshop, Beijing, China, Chair and Co-Organizer, (May)

Lawrence Berkeley National Laboratory Strategic BioSciences Review, Berkeley, CA, Committee Member, (April)

Department of Bioengineering Workshop: “Increasing the efficiency of the bioeconomy: Creating and industrial revolution in engineering biology”, Berkeley, CA, Invited Attendee (April)

ACS National Meeting, Anaheim, CA, Invited Attendee (March)

ES&T Editorial Advisory Board Meeting, Anaheim, CA, Associated Editor (March)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Washington, DC, Committee Member, (March)

ENIGMA Scientific Advisory Committee Annual Meeting, Berkeley, CA, Committee Member, (February)

BioEnergy Science Center Scientific Advisory Board Meeting, Atlanta, GA, Committee Member, (January)

**2010**

EPA/ORD Board of Scientific Counselors Executive Committee Meeting, Chair, Washington, DC, (October)

U.S.-China Joint Research Center Conference, E<sup>3</sup>, Beijing, China, Chair and Co-Organizer, (September)

U.S.-China Workshop on Biotechnology of Bioenergy Plants, Beijing, China, Chair and Co-Organizer, (September)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Washington, DC, Committee Member, (September)

BioEnergy Science Center Scientific Advisory Board Meeting, Atlanta, GA, Committee Member, (August)

Environmental Protection Agency’s (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Corvallis, OR, Chair (July)

BioEnergy Science Center Scientific Advisory Board Annual Science Retreat, Asheville, NC, Committee Member, (June)

Goldschmidt 2010, Earth, Energy, and the Environment, University of Tennessee and Oak Ridge National Laboratory, Knoxville, TN, Invited Attendee (June)

US Department of Energy System Biology Knowledgebase Final Workshop, Arlington, VA, Invited Attendee (June)

ASM 110<sup>th</sup> Annual Meeting, San Diego, CA Invited Presentation and Session Co-Chair (May)

ACS National Meeting, San Francisco, CA, Invited Attendee (March)

ES&T Editorial Advisory Board Meeting, Washington, DC, Associated Editor (March)

Biological and Environmental Research Advisory Committee (BERAC) Workshop, Washington, DC Committee Member, (March)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Gaithersburg, MD, Committee Member, (February)

Workshop on Characterization of Microbial Communities Associated with Polluted Environments Using Polyphasic Approach, The Microbial Type Culture Collection and Gene Bank (MTCC), Chandigarh, India Invited Speaker (February)

Environmental Protection Agency’s (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Washington, DC, Chair (February)

SAB Science Integration for Decision Making Interviews, EPA/OSPWashington, DC Committee Member (January)

**2009**

SAB Science Integration for Decision Making Fact Finding Meeting, Kansas City, KS Committee Member (December)

Gulf Coast Research Laboratory, The University of Southern Mississippi, Ocean Springs, MS Invited Speaker (December)

SAB Science Integration for Decision Making Fact Finding Meeting, Cincinnati, OH Committee Member (November)

U.S.-China Joint Research Center Conference Workshop, Oak Ridge, TN, Chair, (November)

DOE/BRC Review of the BioEnergy Science Center, Oak Ridge, TN, Committee Member, (October)

U.S. Environmental Protection Agency (EPA) Nanomaterial Case Studies Workshop, Durham, NC, Participant. (September)

EPA Science Advisory Board, Drinking Water Committee, Washington, DC, Committee Member, (September)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Washington, DC, Chair (September)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Gaithersburg, MD, Committee Member, (September)

BioEnergy Science Center Scientific Advisory Board Meeting, Atlanta, GA, Committee Member, (August)

Environmental Remediation Sciences Program (ERSP) Workshop, Gaithersburg, MD, Invited Attendee (August)

Vanderbilt University, Department Molecular Biology, Nashville, TN, Invited Seminar, (July)

BioEnergy Science Center Scientific Advisory Board Annual Science Retreat, Asheville, NC, Committee Member, (June)

EPA Science Advisory Board, Drinking Water Committee, Washington, DC, Committee Member, (June)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Duluth, MN, Chair (June)

Environmental Protection Agency's (EPA) Workshop, Irving, TX, Invited Speaker (May)

Biological and Environmental Research Advisory Committee (BERAC) Workshop, Bethesda, MD, Committee Member, (May)

ES&T Editorial Advisory Board Meeting, Washington, DC, Associate Editor (April)

Department of Civil Engineering's Academic Program Review, Knoxville, TN, Reviewer, (March)

Remediation Technology Summit (REMTEC09), Atlanta, GA, Invited Speaker, (March)

Tennessee Biotechnology Association Board Meeting. Nashville, TN. Board member, (February)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Bethesda, MD, Committee Member, (February)

External Review committee, GTL at Lawrence Berkeley National Laboratory, Reviewer, (February)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Arlington, VA, Committee Member (February)

Proliferation Deterrence Merit Review Team Workshop "Development of Methodology for Spent Fuel" Savannah River National Laboratory, Aiken, SC, Reviewer, (January)

**2008**

Vanderbilt University, Department of Civil and Environmental Engineering, Nashville, TN, Invited Seminar, (November)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Homeland Security Subcommittee, Cincinnati, OH, Chair, (May)

2008 EPA Science Forum on Innovative Technologies: Key to Environmental and Economic Progress, Washington, DC, Invited Speaker (May)

Biological and Environmental Research Advisory Committee (BERAC) Meeting, Gaithersburg, MD, Committee Member, (May)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, GulfBreeze, FL, Chair (May)

National Academies NRSB-EM Roadmap Committee, Washington, DC, Committee Member (April)  
 EPA Science Advisory Board, Drinking Water Committee, Washington, DC, Committee Member, (April)  
 ES&T Editorial Advisory Board Meeting, Washington, DC, Associated Editor (April)  
 Strategic Research Clusters Programme 2008, Dublin, Ireland, Reviewer, (April)  
 Environmental Remediation Sciences Division (ERSD) Science Focus Areas Review, Lansdowne, VA, Reviewer, (April)  
 Tennessee Biotechnology Association Board Meeting. Oak Ridge, TN. Board member, (April)  
 BioEnergy Science Center Scientific Advisory Board Meeting, Oak Ridge, TN Committee Member, (March)  
 National Academies NRSB-EM Roadmap Committee, Irvine, CA, Committee Member (February)  
 Technology Review Meeting with Mascoma Corporation, Cambridge, MA Invited Reviewer (February)  
 BioEnergy Science Center Scientific Advisory Board Annual Science Retreat, Townsend, TN Committee Member, (February)  
 Joint Genomics: GTL Contractor-Grantee Workshop VI & Metabolic Engineering Working Group Interagency Conference on Metabolic Engineering 2008, Bethesda, MD Invited Speaker (February)  
 University of Florida, Gainesville, FL, Invited Speaker (January)  
 Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Arlington, VA, Chair (January)  
 National Academies NRSB-EM Roadmap Committee, Augusta, GA, Committee Member (January)

**2007**

Scientific Advisory Committee, The University of Tennessee, Knoxville, TN, Committee Member, (Monthly)  
 Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Washington, DC Chair (January)  
 University of California Santa Barbara, Santa Barbara, CA, Invited Seminar (February)  
 ES&T Editorial Advisory Board Meeting, Washington, DC Associated Editor (April)  
 29<sup>th</sup> International Union of Biological Sciences General Assembly and Scientific Symposium, Washington, DC, Invited Speaker (May)  
 Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Narragansett, RI, Chair (May)  
 IUMACRO'07 - IUPAC and ACS Conference on Macromolecules for a Safe, Sustainable and Healthy World", 2nd Strategic Polymer Symposium, Brooklyn, NY, Invited Speaker (June)  
 National Academies NRSB-EM Roadmap Committee, Oak Ridge, TN, Committee Member (June)  
 Contamination CleanUp 07 Conference, Adelaide, Australia, Invited Speaker (June)  
 Environmental Protection Agency's (EPA), Science Advisory Board's (SAB), Washington, DC Committee Member (July)  
 System Biology LDRD Review Panel, Oak Ridge, TN, Panel Member (August)  
 National Academy Of Sciences, Boise, ID, Speaker, (August)  
 U.S.-China Workshop on Environmental Aspects of Bioenergy Production and Sustainability, Chair, (September)  
 Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Arlington, VA, Committee Member (September)  
 Tennessee Biotechnology Association Board Meeting. Nashville, TN. Board member, (September)  
 Purdue University, Purdue, West Lafayette, IN, (October)  
 Environmental Sensing Symposium, Inland Northwest Research Association, Boise, ID (October)  
 National Academies NRSB-EM Roadmap Committee, Richland, WA, Committee Member (October)  
 International Symposium of Persistent Toxic Substances, Beijing, China, Keynote Speaker, (November)  
 International Symposium on Clean Energy Technology, Shanghai, China, Keynote Speaker, (November)  
 University of Science and Technology of China (USTC), Hefei, China Invited Seminar, (November)  
 Institute of Geographical Science and Natural Resources Research, Chinese Academy of Sciences (CAS), Beijing, China Invited Seminar, (November)

China Ecology Forum, Beijing, China, Invited Seminar, (November)

CAS and NSFC for Collaboration in Bioenergy Research, Beijing, China Invited Attendee, (November)

China National Cereals, Oils and Foodstuffs Import & Export Corporation (COFCO), Beijing, China, Invited Lecture, (November)

Grassland Research Institutes, Beijing, China Invited Attendee, (November)

Tennessee Biotechnology Association Board Meeting, Chattanooga, TN. Board member, (December)

**2006**

2<sup>nd</sup> ASM – IEEE EMBS Conference on Bio, Micro and Nanosystems, San Francisco, CA Invited attendee (January)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Washington, DC Committee member (February)

Environmental Systems Microbiology Symposium, Bioluminescent Bioreporters for Integrated Circuit Sensing of Environmental Chemicals and Processes, Georgia Institute of Technology, Atlanta, GA Invited speaker (March)

ES&T Editorial Advisory Board Meeting, Washington, DC Committee member (April)

Earth Sciences Division Review Committee, Lawrence Berkeley National Laboratory Berkeley, CA, Committee member (April)

The College of Graduate Studies at Kuwait University, Evaluating the MSc. Program in Microbiology, Kuwait City, Kuwait, Invited Reviewer (April)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Las Vegas, NV Committee member, (June)

Expeditionary Unit Water Purification, EUWP Program Review, Talk: Biophotonic Biosensors for Water Quality Assessment, Washington, DC Invited speaker (June)

Establishment of China-US Joint Research Center for Ecosystem and Environmental Changes, Chinese Academy of Sciences, Beijing, China, US Lead Organizer (July)

Review of proposals for the LDRD Director's R&D Fund (Systems Biology), Oak Ridge, TN Invited reviewer (August)

Environmental Protection Agency's (EPA), – Peer Review, Cincinnati, OH Invited reviewer (September)

Bioenergy Meeting - Atlanta GA, Invited reviewer (September)

Tennessee Biotechnology Association Board Meeting, Nashville, TN. Board member, (September)

Renewable Energy Conf, St. Louis, MO Invited attendee (October)

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee Meeting, Washington, DC, Committee member (October)

Tennessee Bioenergy Strategic Summit, Oak Ridge, TN Invited attendee, (October)

Natural Gas Technologies 2006: Energy and the Environment, Talk: Dynamic, Real-Time and Long-Term Pollutant Monitoring Using Bioluminescent Bioreporters and Integrated Circuits., Orlando, FL, Invited speaker (October)

Meeting with Program Managers at DOE, Washington, DC Invited attendee (October)

**2005**

US National Oceanographic Partnership Program Ocean Ecogenomics Workshop. Washington, DC Invited attendee. (March).

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive Committee. Washington D.C. Committee member. (April).

Shanghai Jiao Tong University, MicroEnGen-11: 2<sup>nd</sup> SCOPE meeting on Microbial Environmental Genomics Conference, Shanghai, China, Keynote Address. (June)

IUMS 2005 Microbes in a Changing World, San Francisco, CA Invited Lecturer and Co-Chair. (July)

Gordon Conference on Engineering Sciences for Space Exploration, Les Diablerets, Switzerland, Invited Session Chair, (August).

3<sup>rd</sup> International IERC Workshop on Environment and Sustainable Development, Gwangju Institute of Science and Technology, Invited Address, Gwangju, Korea, (November).

2005 International Symposium of Korean Society for Applied Biological Chemistry, Application of

Biotechnology for Sustainable Environments Invited Lecturer Jeju Island, Korea, (November).  
Hanyang University, School of Material and Chemical Engineering, Invited Seminar, Seoul, Korea  
(November)

Myungji University, Division of Environmental Engineering and Biotechnology, Invited Seminar,  
Kyeonggi-do, Korea (November)

#### **2004**

Photonics West 2004 Program. San Jose, CA. Invited lecture. (January).

NASA Peer Review Services. Washington D.C. Invited reviewer. (February).

NSF Advancing the Quality of Water (AQWA) Workshop. Chapel Hill, NC. Invited lecture. (March).

Environmental Science and Technology Editorial Advisory Board Meeting. Washington D.C. Board member. (April).

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive  
Committee. Research Triangle Park, NC Committee member. (May).

U.S. Environmental Protection Agency Science Advisory Board's Drinking Water Committee (DWC).

Raleigh-Durham, NC. Committee member. (May).

U.S. Department of Energy Genomics: Genomes-to-Life Roadmapping Workshop. Arlington VA. Invited participation. (June).

Department of Energy NanoSummit: Nanoscale Science and Our Energy Future. Washington D.C.  
Invited participation. (June).

7<sup>th</sup> Biennial Symposium: International Society for Environmental Biotechnology. Chicago, IL. Invited speaker. "Environmental Chemical Biosensing using Bioluminescent Bioreporting Bacteria and Yeast"(June).

Tennessee Biotechnology Association Board Meeting. Nashville, TN. Board member. (July)

Industrial Microbiology and Biotechnology Meeting. Anaheim, CA. Invited speaker. "Whole cells as components in micro- and nanoscale devices and systems" (July)

32<sup>nd</sup> Annual Meeting of the American Society for Photobiology. Invited participation. Seattle, WA. "A Yeast Reporter Strain Expressing Bacterial Bioluminescence for Rapid, Sensitive Detection of Estrogenic Compounds." (July).

American Society for Microbiology Conference on the New Phage Biology. Key Biscayne, FL. Invited attendee. (August).

Environmental Protection Agency's (EPA), Board of Scientific Counselors (BOSC) Executive  
Committee. Washington D.C. Committee member. (September).

U.S. Department of Energy (DOE) Biological and Environmental Research advisory Committee  
(BERAC) Committee of Visitors (COV). Germantown, Maryland. Committee member. (October).

#### **2003**

Society for Applied Microbiology Symposium "Lab on a Chip." Birmingham, England. Invited presentation. (January)

EU-US Short Course in Environmental Biotechnology. Madrid, SPAIN, Invited presentation.

"Implementation of Bioluminescent Bioreporter Technology for On-line Real-time Environmental Sensing and Strategies for Gene Expression Analysis in Biodegradation Process Monitoring and Control" (February).

NSF Workshop to expand understanding of modern microbial identification technologies in environmental settings. Kenitra, Morocco. Invited participation. "BioMicroElectronic Sensors for Monitoring Environmental Pollutants *In Situ*" (April).

US-Egypt Workshop on Genetic Engineering and Genomics. Cairo, Egypt. Invited participation.  
Bioluminescent Bioreporter Genetic Engineering Strategies for Sensing Environmental Chemicals" (December).

#### **2002**

East Tennessee Economic Council. Oak Ridge, Tennessee. Invited speaker. (March)

DARPA Biofilms/Seedling Meeting. Jackson Hole, Wyoming. Invited presentation. (May)

Brookhaven National Laboratory Review Program, Environmental Sciences Department. Upton, NY.

Invited reviewer. (July)

**2001**

Infectious Disease Seminar Series, St. Jude Hospital. Memphis, TN. Invited talk. (January).  
College of Medicine, The University of Tennessee, Memphis. Health Science Center. Memphis, TN.  
Invited talk. (January)  
King Saud University, Saudi Arabia. “Environmental Biotechnology: Principles and Practices” and  
“Application of Biotechnology in Monitoring and Bioremediation of Contaminated Environments.”  
Riyadh, Saudi Arabia. Invited seminars. (February)  
Workshop on the Use of Genetically Modified Organisms for the Bioremediation of Pollutants. “Field  
release of *P. fluorescens* HK44: Long term persistence and field performance of a bioremediation  
bioluminescent bioreporter.”, England. Invited seminar. (March)  
WS Atkins Environment, Center for Ecology and Hydrology. , England. Invited seminar. (March)  
NIH Review Panel, Center for Scientific Review Special Emphasis Panel, SBIR/STTR Study Section.  
Washington, DC. Invited participant. (March)  
First International Conference on Biotechnology Applications for the Arid Regions (ICBAAR),  
“Microbial Biodegradation and Bioelectronic Sensing of Polyaromatic Hydrocarbons in the  
Environment.” Kuwait. Invited presentation. (April)  
American Society for Microbiology Annual Meeting. “Population Monitoring in Bioaugmentation and  
Waste Treatment.” Orlando, FL. Invited presentation. (May)  
DOW Chemical. “Sensing Chemicals in the Environment with Living Cells and Integrated Circuits.”  
Midland, MI. Invited seminar. (June)  
Biochemical Engineering XII Conference. “Bioluminescent Bioreporter Integrated Circuits: Sensing  
Analytes and Organics with Living Organisms.” Sonoma, CA. Invited talk. (June)  
Air Force. “Bioluminescent Bioreporter Integrated Circuits: Sensing Analytes and Organisms with  
Living Microorganism.” Tyndall AFB, FL. Invited seminar. (July)  
Biofilms Workshop, DARPA. Arlington, VA. Invited presentation. (August)  
International Symposium on New Aspects of Environmental Biotechnology to Clean Up Contaminated  
Soil and Groundwater and Roundtable on Future Direction of Environmental Microbiology and  
Biotechnology. “Environmental Biotechnology at the MicroElectronic Interface.” Tokyo, Japan. Invited  
keynote speaker. (September)  
ASM Conference on Biodegradation, Biotransformation, and Biocatalysis (B3). San Juan, Puerto Rico.  
Conference organizer. (October)

**2000**

BIOY2K Millennium Meeting, South African Society for Microbiology. “Engineering Microorganisms  
and Process Technology for PCB Bioremediation,” Grahamstown, South Africa. Invited presentation  
(January)  
Latin American Congress of Microbiology Conference. “Gene Expression Analysis in Environmental  
Samples,” Merida, Mexico. Invited presentation (April)  
American Society for Microbiology Annual Meeting. “Practical Advances for Real Time Analysis,” Los  
Angeles, CA. Invited presentation. (May)  
ISEB 2000 Fifth International Symposium on Environmental Biotechnology. “GEM Field Release  
Investigations for Bioremediation Process Monitoring and Control,” Kyoto, Japan. Invited presentation.  
(July)  
11<sup>th</sup> International Symposium on Bioluminescence and Chemiluminescence. “Development and Field  
Use of Bioluminescent Bioreporter Strains for Chemical Sensing. Asilomar, CA. Invited presentation.  
(September).

**1999**

ACS National Meeting, “Whole-cell environmental monitoring devices: Bioluminescent bioreporter  
integrated circuits (BBICs),” Anaheim, CA, Invited presentation (March)  
Arab International Conference and Exhibition on Environmental Biotechnology, “Bioluminescent  
Bioreporters: Moving toward smart systems in bioremediation process monitoring and control,” United



Arab Emirates, Invited presentation (March)  
Battelle In Situ and On Site Bioremediation Fifth International Symposium, Session “Genetically Engineered Microorganisms,” Session Chair, San Diego, CA.  
American Society for Microbiology Annual Meeting, “Application of molecular techniques and recombinant organisms in environmental studies,” Chicago, IL, Invited presentation (May)  
Canadian Society of Microbiology, “Developments for chip based bioluminescent biosensor technologies,” Montreal, Invited seminar (June)  
SIM Annual Meeting, Biodeterioration and Biodegradation Symposium, “Field evaluation of a genetically engineered microorganism for bioremediation process monitoring and control,” Arlington, VA, Invited presentation (August)  
ASM Centennial Conference: Microbial Diversity, “New opportunities to evaluate gene expression in complex environmental systems,” Chicago, IL, Invited presentation (August)  
AACC Annual Meeting, “Whole cell bioluminescent biosensors for on-line processing,” Seattle, Invited seminar (October)  
Biotechnology Research Institute of Canada, Invited Biosensor Seminar, Montreal, Canada.  
US Army Center for Environmental Health Resource, Invited seminar, Fort Detrick, MD.  
NIEHS-Review Panel for Superfund Research Centers, Research Triangle Park, NC.

### **1998**

Society for Industrial Microbiology, Conference on Bioremediation for Industry, Notre Dame, IN., Invited presentation, (March).  
14<sup>th</sup> Australian Biotechnology Conference, Adelaide, Australia, Plenary seminar presentation, (April).  
Bioremediation Workshop, Flinders University of South Australia, Invited participant, (April).  
42<sup>nd</sup> OHOLO Conference on Novel Approaches for Bioremediation of Organic Pollution, Eilat, Israel, Chair Roundtable Session and Plenary presentation, (May).  
1<sup>st</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA., Session Chair, (May).  
BioExpo 98 and 6<sup>th</sup> Pacific Ring Biotechnology Conference, Hong Kong, Roundtable Chair Platform Lecture, (June).  
Rutgers, The State University of New Jersey, New Jersey, Invited seminar. (June)  
Biosorption and Bioremediation II International Symposium, Czech Republic, Invited presentation. (July)  
INTECOL, Symposium for Microbial Ecology, Italy, Invited presentation. (July)  
141<sup>st</sup> Ordinary Meeting of the SGM-University of East Anglia, Invited participation. (September)  
71<sup>st</sup> Annual WEF Conference and Exposition, Florida, AEEP Lecture. (October)  
Basic Research Needs to Achieve Sustainability: The Carbon Problem, Invited participation. (October)  
University of Illinois at Chicago, “Molecular Environmental Diagnostics: Gene Distributions and Their Expressions in Bioremediation Research,” Invited seminar (November)  
The University of Tennessee at Chattanooga, “Molecular Approaches in Bioremediation Research,” Invited Seminar (December)  
WEFTEC98 National Meeting – AEEP Lecture, “Molecular probes and biosensors in the analysis of waste treatment and bioremediation,” Invited presentation, Orlando, FL. (December)

### **1997**

Biotechnology Research Institute of the National Research Council of Canada, Research Advisory Committee, Invited reviewer, (January)  
Second Zia Symposium on Molecular and Cellular Biology, New Mexico State University, Invited seminar, (January)  
1997 AAAS Annual Meeting and Science Innovation Exposition, Seattle, WA., Invited seminar, (February)  
National Institute for Environmental Studies, Japan Environment Agency, Tsukuba, Japan, Invited visiting scientist, (March)  
CANON Research Center, Atsugi, Japan, Invited seminar and research review, (March)  
Battelle Bioremediation Symposium, New Orleans, LA, Invited Paper and Session Chair, (April)

National Academy of Science, NRC, Waste Isolation Pilot Program, Guest Reviewer Committee Member (May)

ASM Conference Committee, Washington, DC., Committee Member (May)

ASM Environmental Microbiology Subcommittee, Public and Scientific Affairs Board, Miami, FL., Committee Member, (May)

NEPI, Washington, DC., Invited Seminar (June)

NSF, Arlington, VA., LEXEN, Invited Review Panel (June).

Society for Industrial Microbiology Annual Meeting, Reno, NV, Invited speaker (July).

ASM Conference Committee, Snowbird, UT, Committee Member (October).

American Society of Agronomy Annual Meeting, Anaheim, CA, Invited speaker (October).

Foster Wheeler Development Corporation, Invited seminar, (August).

Neogen, Lansing, MI., Invited seminar, (October).

### **1996**

Bioremediation of Surface and Subsurface Contamination, Engineering Foundation, Palm Coast, FL, Invited speaker, (January)

University of Arizona, "Bioremediation with Engineered Microbes Molecular Approaches in the Field," Tucson, AZ, Invited Speaker, (February)

Krost Symposium, Texas Lutheran, "Genetic Engineering Applied to Bioremediation," Seguin, TX, Invited Speaker, (February)

Rutgers University, "Molecular Diagnostics in Bioremediation Process Monitoring and Control," New Brunswick, NJ, Invited Speaker, (February)

American Academy of Microbiology, Colloquium on Basic Research for the Future: Opportunities in Microbiology for the Coming Decade, Washington, DC, Invited participant, (May)

American Society for Microbiology Annual Meeting, New Orleans, LA, Invited speaker, (May)

Biotechnology Industry Organization Environmental Biotechnology Conference, Philadelphia, PA, Invited summary address, (June)

US Department of Energy's Natural and Accelerated Bioremediation Research Program Review Meeting, Chantilly, VA, Invited speaker, (June)

SPIE Conference on Advanced Technologies for Environmental Monitoring and Remediation, Denver, CO, Co-Chair, (August)

University of California, Berkeley and Lawrence Berkeley National Laboratory, "Molecular Approaches in Site Assessment and Bioremediation," Berkeley, CA, Invited seminar, (August)

IUMS 8<sup>th</sup> International Congress of Bacteriology and Applied Microbiology Division, "Field Release of Recombinant Strains for Bioremediation of PCB and PAH," Jerusalem, Israel, Invited speaker, (August)

Appalachian State University, "Molecular Approaches in Site Assessment and Bioremediation," Boone, NC, Invited Seminar, (September)

Jackson State University, "Bioremediation of Hazardous Waste Applications for Molecular Biology," Jackson, MS, Invited Seminar, (September)

World Environmental Congress, "Biomolecular Diagnostics: Environmental Assessment and Monitoring," Cincinnati, OH, Invited Speaker, (October)

9<sup>th</sup> International Symposium on Bioluminescence and Chemiluminescence, "Bioluminescent Reporters for Toxicant Detection, Bioavailability and Biodegradation Assessment," Woods Hole, MA, Invited Speaker, (October)

Joint EC-USA Meeting on Environmental Biotechnology, "Microbial Interactions and Degradation of Hydrophobic Organic Compounds," Granada, Spain, Invited speaker, (November)

2<sup>nd</sup> Annual International Symposium on Intrinsic Bioremediation: Natural Attenuation, "Molecular Environmental Monitoring During Intrinsic Bioremediation of Fuel Hydrocarbons," Annapolis, MD, Invited speaker, (December)

ASM Conference Committee, Washington, DC, Committee Member, (December)

### **1995**

Workshop on Evaluation of the Feasibility and Potential of TCE Bioremediation, USAF, Tyndall Air

Force Base, FL, Invited Participant. (January)  
 University of Texas Medical Branch, Environmental Diagnostics: National Science Foundation, National Institute of Science and Technology, Galveston, Texas, Invited Speaker. (February)  
 American Society for Microbiology- Missouri Valley Branch Annual Meeting, Norman, Oklahoma, Foundation Lecturer. (March)  
 University of Arizona, "Molecular Toolbox: Applications in Bioremediation Research," Tucson, Arizona, Invited Speaker. (April)  
 Association of Southern Biologists, Knoxville, TN, Plenary Speaker. (April)  
 Stanford University, "Bioluminescent Reporters in Molecular Diagnostics for Hazardous Waste Remediation," Department of Microbiology and Immunology, Palo Alto, California, Seminar Speaker. (April)  
 Center of Marine Biotechnology, "Microscale Solutions to Macroscale Environmental Contamination Problems," Baltimore, Maryland, Invited Speaker. (May)  
 Cornell University, "Molecular Approaches to Studying Microbial Ecology," Ithaca, New York, Invited Speaker. (May)  
 Department of the Navy, Mesocosm Scientific Advisory Board Meeting, Washington, D.C., Invited Board Member. (May)  
 National Research Council, "Necessities for Molecular Diagnostics in Bioremediation," Montreal, Canada, Invited Speaker. (May)  
 Meeting with Congressional Staffers regarding Environmental Research, Washington, D.C., Invited Participant. (May)  
 Mesocosm Scientific Advisory Board, "In Situ Bioremediation and Efficacy Monitoring of Fuel Hydrocarbons," Edgewood, MD, Invited Board Member. (May)  
 American Society for Microbiology Annual Meeting, "Maximizing Degradative Gene Expression in Reactors and in Controlled Environmental Simulations," Washington D.C., Invited Speaker. (May)  
 European Environmental Research Organization Workshop (EERO), "Enzymatic and Genetic Aspects of Environmental Biotechnology," Pushchino, Russia, Invited Participant. (June)  
 Biotechnology Risk Assessment Symposium, "Towards Field Release of Engineered Strains for Bioremediation," Gulf Breeze, FL, Invited Speaker. (June)  
 Alumni Summer College, Knoxville, TN, Invited Presentation. (July)  
 Society for Industrial Microbiology, "Conflicts and Applications in Probing for Degradative Gene Abundance and Distribution," San Jose, CA, Invited Speaker. (August)  
 Environmental Best Manufacturing Practices (EBMP) Meeting, "Environmentally Conscious Manufacturing and Pollution Prevention," Chattanooga, TN, Invited Speaker. (August)  
 7<sup>th</sup> International Symposium on Microbial Ecology, "A Species Invasion Paradigm for Managing Biodegradative Microbial Communities," Santos, Brazil, Invited Participant. (August)  
 World Environmental Congress, "Biotechnology on Environmental Protection and Restoration," London, Ontario, Invited lecture. (September)  
 American Society for Microbiology Foundation Lecture, Duquesne University, "Molecular approaches in biodegradation research," Pittsburgh, PA, Invited lecture. (October)  
 Organization for Economic Cooperation and Development, "Wider Application and Diffusion of Bioremediation Technologies," Amsterdam, The Netherlands, Invited paper. (November)  
 8<sup>th</sup> International IGT Symposium, "Gas, Oil, and Environmental Biotechnology," Colorado Springs, CO, (December)

#### **1994**

University of South Carolina, "Molecular Technology in Hazardous Waste Site Characterization and Bioremediation," Columbia, SC, Invited seminar. (February)  
 Universidad Interamericana de Puerto Rico, "Integrating Molecular Biology in Environmental Analysis: Hazardous Waste Site Characterization and Remediation", San Juan, Puerto Rico, Invited Speaker. (February)  
 Vanderbilt University, Department of Biochemistry, "Molecular Approaches in Hazardous Waste

Biodegradation Research”, Nashville, TN, Invited Seminar. (February)

Engelbrecht Symposium, “Molecular Probes and Biosensors for Bioremediation Process Monitoring and Control”, Urbana, IL Invited Presentation. (March)

XVIII Congress of Scientific Research, “Bioluminescent Reporter Technology: Genetic Engineering for Chemical and Microbial Process Sensing”, San German, Puerto Rico Invited Presentation. (March)

University of Nebraska Biotechnology Seminar, “Molecular Probes and Biosensors in Bioremediation Process Monitoring and Optimization”, Lincoln, NE Invited Speaker. (March)

University of Minnesota Microbial Ecology Minors Program Seminar Series, “Molecular Approaches in Assessing Soil and Subsurface Soil Hazardous Waste Remediation”, St. Paul, MN Invited Seminar. (May)

American Society for Microbiology Annual Meeting, “PAH Transformations,” Las Vegas, NV Invited Presentation. (May)

JASON Summer Experience, Bioremediation 101, “Molecular Diagnostics: Probes and Reporters in Bioremediation Process Monitoring and Control,” U.S. DOE, LaJolla, CA, Invited Presentation (June)

7th International Symposium on the Genetics of Industrial Microorganisms (GIM94), “Bioluminescent Reporter Fusions to Monitor Organic Chemical Biodegradation,” Montreal Canada, Invited Presentation (June)

GIM94 Satellite Workshop: Plasmid Diversity, “Plasmids Associated with PAH Biodegradation,” Montreal Canada, Invited Presentation (July)

DOE Fallen Leaf Lake Conference, “Biodegradative Gene Abundance and Expression in Contaminated Environments”, South Lake Tahoe, CA Invited Speaker (September)

7th Annual Colorado Biotechnology Symposium, “Molecular Environmental Diagnostics of Biodegradative Microbial Community Structure and Activity”, Denver, CO Invited Speaker (September)

White House, Executive Office of the President OSTP, Technology for a Sustainable Future - Environmental Remediation Workshop, Pasco, WA Invited Participant (September)

Miami University, “Molecular Environmental Diagnostics in Biodegradation Research and Bioremediation”, , OH Distinguished Lecturer (October)

FASEB, Joint U.S.-European Commission Workshop on Environmental Biotechnology, “Biodegradation Process Analysis: Molecular Application in Simulations and Environmental Verification,” Brussels, Belgium, Invited Lecture (October)

Rhone-Poulenc, Meeting on Biodegradability and Formulation, “Genetic and molecular models in biodegradation assessment and monitoring,” Research Triangle Park, NC, Invited Lecture (October)

RTDF Workshop on Microbial Characterization of *In Situ* Chlorinated Solvent Biodegradation, Cincinnati, OH, Invited Lecture, (November)

ASM Foundation Lecture, Georgia-South Carolina Branch ASM Meeting, Athens, GA, (November)

OECD Workshop Tokyo ‘94 on Bioremediation, “Reporter Genes for Monitoring Biodegradative Activities” and “Risk Assessment for Recombinant Pseudomonads Released into the Environment for Hazardous Waste Degradation” Tokyo, Japan, Invited Speaker (November)

### **1993**

AICHE Engineering Foundation, Recombinant DNA Technology II Conference, "Molecular Diagnostic Monitoring for Polychlorinated Biphenyl's Biotransformation in Power Plant Substation Contaminated Soils" Palm Coast, FL. Invited participant. (January)

American Academy of Microbiology, Strategies and Mechanisms for Field Research in Environmental Remediation, San Antonio, TX. Invited participant and discussion leader. (January)

Department of Microbiology and Cell Biology, Oklahoma State University, Stillwater, OK. "Environmental Molecular Diagnostics," Invited Seminar. (January)

"Natural Attenuation Study" USAF/Tyndall AFB. Invited Program Member.

University of Chicago Review Panel, Environmental Research Division, Argonne National Lab. Chicago, IL. Chairman. (June)

CSMA Biodegradability Forum, Chicago, IL., Panelist. (May)

TOCOEN Toxic Organic Compounds in the Environment, "Molecular Technologies Applied to PCB and

PAH Biodegradation Analysis", Znojmo, Czech Republic, Invited participant. (June)  
University of Washington, Department of Microbiology, "Molecular Approach in Biodegradation Assessment", Seattle, WA. Invited seminar. (May)  
NIEHS Biodegradation Workshop, "Molecular Approaches for Biodegradation Assessment", Research Triangle Park, NC. Invited seminar. (April)  
American Society of Microbiology Annual Meeting, "Application of Gene Fusions in Monitoring Gene Expression in Degradative Bacteria *In situ*", Atlanta, GA., Invited speaker. (May)  
In situ and on-site Bioreclamation Second International Symposium, "Molecular Environmental Diagnostics of TCE Contaminated Subsurface Environments" San Diego, CA, Invited participant. (April)  
General Motors Research Laboratories, "Biodegradation of Manufacturing Organic Wastes" Warren, MI., Invited seminar. (April)  
Celgene Corporation, "Microbial and Molecular Monitoring of Biodegradation Processes", Warren, NJ, Invited seminar. (April)  
Keystone Molecular Biology Symposium, Environmental Bioremediation and Biodegradation, "Molecular Strategies in Biodegradation Process Monitoring and Optimization" Tahoe City, CA., Invited participant. (March)  
Oak Ridge Associated Universities, Department of Energy, Experimental Program to Stimulate Competitive Research, Arlington, VA. Invited reviewer. (October)  
Oklahoma State University, Department of Microbiology, "Environmental Molecular Diagnostics" Invited Seminar. (January)  
American Chemical Society Southeast Regional Meeting, "Bioluminescent Reporter Technology: Genetic Engineering for Chemical and Microbial Process Sensing" Johnson City, TN Invited Presentation. (October)  
Masaryk University, Toxic Organic Compounds in the Environment, Brno, Czech Republic, Invited lecturer. (May)  
Environmental Protection Agency, Bioremediation Risk Assessment Workshop, Duluth, MN, Working Group Chairman, Invited. (June)  
U.S. Air Force/National Center for Manufacturing Sciences on Natural Restoration, Ann Arbor, MI, Invited Participant. (July)  
Environmental Protection Agency, Frontiers in Bioprocessing III, "Molecular Site Assessment and Process Monitoring in Bioremediation and Natural Attenuation", Boulder, CO, Invited Lecturer. (September)  
Environmental Protection Agency, TOSCA/OTC Biotechnology Regulation, Field Releases of Engineered Strains, Washington, D.C., Invited Presentation.  
Chilean Association of Microbiology, Symposium on Biodegradation of Industrial Wastes and Pesticides, "Application of Molecular Biology in Measuring Microbial Biodegradation of Organic Pollutants", Santiago, Chile, Invited Participant. (September)  
ONR/NRL Environmental Quality Seminar Series, "Lux-Gene Fusions: Bioluminescent Reports for Environmental Biodegradation and Biosynthesis", Arlington, VA, Invited Lecturer. (October)  
Department of Energy, Bioremediation Technical Support Group Meeting, Atlanta, GA, Invited Participant. (October)

### **1992**

Virginia Tech and State University, Department of Biology, Blacksburg, VA. Invited seminar.  
Sigma XI - Southern Appalachia Regional Lecture, ETSU, Johnson City, TN. Invited lecture.  
EPA - Environmental Biology Peer Review Panel Meeting, Crystal City, VA. Chairman.  
University of North Carolina Charlotte, Department of Biology, Environmental Biotechnology Lecture. Invited lecture.  
ASM - Public and Scientific Affairs Board, Subcommittee on Environmental Microbiology, New Orleans, LA. Committee member.  
Rensselaer Polytechnic Institute, Department of Biology, Troy, NY. Invited Bray lecture.  
EPA Cincinnati, Environmental Research Laboratory, Biotechnology Lecture, Invited lecture.

"Scientific Foundations of Bioremediation: Current Status and Future Needs" Colloquium, Iowa City, Iowa. American Academy of Microbiology Co-chair.

EPA - Bioremediation Action Committee Meeting, Washington, DC. Committee member.

DOE - TCE Integrated Bioremediation Demonstration Project, Program Review, Savannah, SC.

DOE/OHER Molecular Clocks Workshop, Microbial Evolution in the Subsurface, Annapolis, MA. Program Planning Committee.

Third Pacific Rim Biotechnology Conference, Taipei, Taiwan. Invited lecturer.

American Society of Agronomy. Minneapolis, Minnesota. Invited lecturer.

U.S./Israel Bioremediation Workshop, Tel Aviv, Israel. Invited lecturer.

S.C. Johnson Wax, Racine, WI. Research Seminar on Molecular Diagnostics. Invited seminar.

### **1991**

Molecular Biology Workshop, American Society for Microbiology, New Orleans, Invited participant.

DOE/ORNL Walker Branch Watershed Review, DOE/ORNL; Review panel.

Gulf Coast Hazardous Substance Research Center, Hazardous Waste Conference, Lamar University, Beaumont, TX. Invited lecture.

Argonne National Laboratory, University of Chicago, Environmental Research Division, Scientific Review Panel Member.

EPA/OER Environmental Biology Peer Review Panel, Knoxville, TN. Chair.

Gordon Research Conference, Applied and Environmental Microbiology, New London, NH, Invited lecture.

International Scientific Committee for Biotechnology, Environmental Biotechnology training course, University of Puerto Rico, Puerto Rico. Invited lecture.

Subsurface Microbial Culture Collection Workshop, DOE/OHER Oak Ridge Associated Universities, March, Rockville, Maryland, Invited review.

Annual meeting of the American Chemical Society, April, Atlanta, Georgia, Invited Seminar.

Annual meeting of the American Society for Microbiology, May, Dallas, Texas, Invited Seminar.

Biotechnology of Fossil Fuels, DOE/OER, Consultec Review Committee Member, Knoxville, TN.

Oakland University, Department of Biology, Rochester, MI, Invited seminar.

University of Mississippi, , MS Invited seminar.

REGEM II, Release of Genetically Engineered Microorganisms, Society for General Microbiology, Nottingham England, Roundtable Organizer and Chair.

Texas Higher Education Commission, Environmental Science and Engineering Research and Technology, Grants Program, Austin, TX, Peer Review Panel Member.

NEDO Conference, Joint Japan/U.S. Symposium, Knoxville, TN. Invited lecture.

Celgene Corporation, Warren, NJ. Invited seminar.

I.E. DuPont Corporation, Wilmington, DE, Molecular Biology and Environmental Research Division, Invited seminar.

DOE/OHER, Subsurface Science Program Review, Gaithersburg, MD, Invited seminar.

EPA/OER Environmental Biology Peer Review Panel, Sarasota, FL, Chair.

### **1990**

Society for General Microbiology, 115th Ordinary Meeting, University College of Swansea. Invited Plenary Symposium Speaker. Swansea, UK

ETH, Microbiology Institute and EAAG Inst. for Aquatic Science. Invited Seminar Speaker. Zurich and Dubendorf, Switzerland.

NETAC/EPA, Bioremediation Technology Evaluation Panel for the Alaskan Oil Spill. Review Panel Member.

American Chemical Society, Spring Meeting, Environmental Chemistry Division Symposium, Boston, MA. Invited paper.

GBF Braunschweig Federal Republic of Germany, European Environmental Research Organization, Molecular Microbial Ecology Workshop. Konigslutter, West Germany. Invited Closing Address.

American Society for Microbiology Annual Meeting. Anaheim, California. Invited Seminar. Chair

Elect.

Inter American University of Puerto Rico, Developments in Environmental Biotechnology for Hazardous Wastes. Puerto Rico. Invited Lecture.

Woods Hole Oceanographic Institute. Molecular Microbial Ecology Symposium, Invited lecture.

NETAC/EPA Oil Bioremediation Evaluation Panel. Cincinnati, OH. Panel Member.

DOE Subsurface Science Advisory Panel, Gaithersburg, Maryland. Panel Member.

Society of Professional Engineers, Oak Ridge, Tennessee; Invited Seminar.

EPA Bioremediation Action Committee, Subcommittee member on Research Identification Workshop. Washington, D.C.

Workshop on Bioscience Society, Berlin, Germany; Invited panel member.

11th Annual Meeting of SETAC, Arlington, Va.; Invited symposium paper.

Environmental Biotechnology, International Symposium, Knoxville, TN. Organizer and Editor.

### **1989**

U.S. EPA Microcosm Workshop, "Application of Microcosms to Risk Assessment Research", Baltimore, Maryland, Invited Consultant.

U.S.A.F., Symposium: Biotechnology for Aerospace Applications, Colorado Springs, Colorado, Participant.

WATTEC, Interdisciplinary Technical Conference, Global Competitiveness: Maximizing Our Resources, Knoxville, Tennessee, Invited Seminar.

Gas Research Institute, Project Advisory Group Meeting on Bioengineering, Oak Ridge, Tennessee, Invited Seminar.

Department of Energy, Licensing of Waste Management Technologies Forum, Oak Ridge, Tennessee, Invited Seminar.

University of Tennessee, College of Veterinary Medicine, Knoxville, Tennessee, Invited Seminar.

Vanderbilt University, Department of Civil Engineering, Nashville, Tennessee, Invited Seminar.

Division of Solid Waste Management, Tennessee Department of Health and Environment,

Solid/Hazardous Waste Conference, Gatlinburg, Tennessee, Invited Seminar.

American Chemical Society Annual Summer Meeting, Dallas, Texas, Invited symposium address.

U.S. EPA Oil Spill Bioremediation, "Oil Degradation Workshop", Arlington, Virginia, Invited Reviewer.

U.S. EPA and Electric Power Research Institute, Environmental Research Conference, "Groundwater Quality and Waste Disposal", Washington, D.C., Invited Paper.

WMREI, Hazardous Waste Workshop, Gatlinburg, TN, Invited Participant.

American Society of Microbiology Annual Meeting, New Orleans, Louisiana, Invited Seminar.

U.S. Department of Energy Subsurface Science Program, June, Gaithersburg, Maryland, Peer Review Panel Chairman.

American Society for Microbiology Biotechnology Symposium. Invited symposium paper. Orlando, Florida.

Fifth International Symposium on Microbial Ecology (ISME 5). Invited paper. Kyoto, Japan.

American Center for International Leadership. US/USSR Emerging Leaders Program. UNESCO Conference on Biotechnology, Moscow and COBIOTECH, Kiev. Elected delegate.

Tennessee Academy of Science. 99th Annual Meeting. "Environmental Engineering: Impact on Ecology." Invited address. Nashville, Tennessee.

National Environmental Technology Applications Corporation (NETAC). NETAC's Bioremediation Technology Panel. Invited panel participant. Pittsburgh, PA.

### **1988**

State-of-the-Art in Biology Symposium. Georgia Center for Continuing Education, Athens, Ga. Invited Lecturer

REGEM 1, International Conference on Release of Genetically Engineered Microorganisms. Cardiff, Wales Invited presentation and Rapporteur of Methods Symposium.

Risk Analysis Methods symposium, Society for Risk Analysis, Oak Ridge, Tennessee, Invited Seminar on Genetic Engineering.

Tenth Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, Tennessee, Invited Symposium Seminar.  
American Society for Microbiology, Annual Meeting, Miami Beach, Florida, Invited Symposium Seminar, Co-Convener.  
The Biotechnology Club, Cincinnati, Ohio, Invited Seminar.  
The University of Minnesota, Gray Freshwater Biological Institute, "Nucleic Acid Hybridization Course, Navarre, Minnesota, Coordinator and Instructor.  
Electric Power Research Institute, "Environmental Biotechnology", Palo Alto, California, Invited Seminar.  
U.S. EPA Biotechnology Research Program Plan Workshop, CERL, Corvallis, Oregon, Program Reviewer.  
American Institute of Chemical Engineers, Summer Meeting, Denver, Colorado, Invited Tutorial Lecture.  
Procter and Gamble Company, Corporate Research Seminar on Environmental Biotechnology, Cincinnati, Ohio, Invited Seminar.  
U.S. EPA Biotechnology Research Program Workshop, 5-Year Research Plan Committee, Corvallis, Oregon, Invited participant.  
American Chemical Society, East Tennessee Regional, Environmental Biotechnology, Knoxville, Tennessee, Keynote Address.  
Nuclear Regulatory Commission, Research Program Review, DOE/ORNL, Environmental Biotechnology, Oak Ridge, Tennessee, Invited Seminar.  
American Center for International Leadership, US/USSR Emerging Leaders Summit Conference, Philadelphia, Pennsylvania, Elected Biotechnology Delegate.  
Department of Energy Peer Review Panel Member, Sub-surface Microbiology Panel. Gaithersburg, Maryland.

### **1987**

National Meeting American Society for Microbiology, Atlanta, GA. Invited seminar, Invited Symposium Address,  
Session Chair, Convener Invited Workshop, "Non-medical Applications of Nucleic Acid Probes", Board of Continuing Education, ASM. Atlanta, GA.  
National Research Council, Water Science Board Workshop on "Biological Aspects of the National Water Quality Assessment Program", USGS. Invited seminar.  
Gas Research Institute, "Biosensors Workshop" Invited Seminar, Jacksonville, FL.  
U.S. Army Corp of Engineers, "Biotechnology Meeting on Aquatic Plant Control" Invited Seminar and Program Reviewer. Vicksburg, Miss.  
University of Minnesota, Gray Freshwater Institute, Field Workshop on "Environmental Applications of DNA Probes", Convener.  
"Biotechnology of Agricultural Wastewater" Symposium, Scripps Institution Invited Address. La Jolla, CA  
"Environmental Biotechnology Symposium "Society for Industrial Microbiology". Invited Seminar, Baltimore, MD.  
Gordon Research Conference on "Population Biology and Evolution of Microorganisms". Invited Seminar, Plymouth State College, NH.  
BSAC Subcommittee Meeting, Monsanto EUP. U.S. EPA, Washington D.C. Subcommittee Member.  
Research Planning Workshop on Environmental Biotechnology of Hazardous Wastes, NSF Workshop, Gatlinburg, TN. Organizer and Convener.

### **1986**

ASM National Meeting, Environmental Considerations for Genetically Engineered Microorganisms. Washington, D.C. Invited seminar.  
EPA/OTS Pollution Control Biotechnology Workshop. Bethesda, MD. Invited member.  
Science Advisory Panel, sub-panel member FIFRA/EPA.OPP. Monsanto Experimental Use Permit Meeting. Arlington, VA.



NSF Workshop on Microbial Ecology and the issue of Genetically Engineered Organisms in the Environment. Scottsdale, AZ Invited participant.

"Southeastern Symposium on *In situ* Treatment and Immobilization of Hazardous and Radioactive Wastes." Knoxville, TN Steering Committee and Convener of Biotechnological Applications Session.

"Environmental Insult and Recovery of Stressed Systems" CSM-ASM joint meeting, Toronto, Canada, Invited participant and co-convener of Aromatic Biodegradation and Microbial Genetics Session.

"Fourth International Symposium on Microbial Ecology." Ljubljana, Yugoslavia. Invited participant and co-convener of symposium on Genetic Elements in the Environment.

"EMBO International *Pseudomonas* Workshop." Geneva, Switzerland. Invited participant and round table discussant.

American Geophysical Union. Chapman Conference on Microbial Processes in the Transport, fate and *in situ* treatment of subsurface contaminants". Snowbird, Utah. Invited paper and session chair. American Geophysical Union.

### **1985**

EPA Biotechnology, Biodegradation Review Workshop. Gulf Breeze, FL. Invited reviewer.

Risk Analysis Methods for Environmental Applications of Biotechnology Workshop. OSTP/NSF/Arthur D. Little Inc. Washington, DC. Invited reviewer.

R.S. Kerr Environmental Research Laboratory Research Seminar Symposium. U.S.EPA, Oklahoma City, OK. Invited Seminar.

U.S. EPA/OPP Review Workshop on the Release of Genetically Engineered Microbial Pesticides. Washington, D.C. Invited reviewer.

ASM Symposium, Engineered Organisms in the Environment. Philadelphia, PA. Invited participant.

Expert group on Natural Genetic Exchange among microorganisms EPA/OTS, Arthur D. Little Workshop. Washington, D.C. Invited reviewer.

SIM, Biotechnology and Safety of Microbial Processes for Degradation of Hazardous Wastes Symposium. Boston, MA. Invited seminar.

Gordon Research Conference on Applied and Environmental Microbiology. Colby Sawyer College, New London, NH. Invited lecture.

EPA/HWERL; Review Panel, Biotechnology Workshop. Cincinnati, Oh. Invited reviewer.

South Carolina - Southeastern Regional Joint ASM Meeting, Symposium on toxic chemicals in the Environment. Savannah, GA. Invited lecture.

Biotech 85, International Conference, Symposium on Regulatory Issues. Washington, DC. Invited paper.

Society of Environmental Toxicology and Chemistry, 6th Annual Meeting. St. Louis, MO. Invited Symposium paper.

### **1984**

"Freshwater Environmental Symposium." Memphis, TN. Invited seminar.

Biotechnology Program Plan Review Workshop. AAAS/EPA. Coolfont, WV. Invited reviewer.

ASM Subcommittee on Textbook Publication. St. Louis, MO.

"Plasmid Biology Conference." Urbana, IL.

EPA Biotechnology Program Plan Review Committee. Atlanta, GA. Invited reviewer.

EPA Environmental Biology Review Panel. Corvallis, OR. Invited reviewer.

"DNA/DNA Probes Conference." Rensselaer, NY.

Southeast Regional Society of Toxicology Meeting. Knoxville, TN. Invited lecturer.

### **1983**

International Gold Metal Conference on Environment and Lung Diseases. Taromina, Italy. Invited paper.

House Committee on Science and Technology. Washington, DC. Invited testimony.

Governor's Committee on PCB Management. State of North Carolina. Raleigh, NC. Invited seminar.

"Genetic Control of Environmental Pollutants." NSF/EPA Conference. Seattle, WA. Invited paper.

"Mixed Microbial Populations Symposium." S.E. Branch ASM. Tuscaloosa, AL. Invited lecturer.

### **1981**

Annual Meeting, American Society for Microbiology, Councilors' Colloquium. Dallas, TX. Invited lecturer.

Gordon Research Conference on Biodegradation. Invited seminar. Wolfeboro, NH.1982

Coal Conference and Expo VII. Louisville, KY.

Co-Chairman, "Biodegradation" Annual Meeting ASM. Atlanta, GA.

**1980**

Chairman, "Aquatic Microbiology" Annual Meeting ASLO. Knoxville, TN.

2nd International Symposium on Microbial Ecology. Invited seminar. Warwick, England.

Co-Chairman, "Electron Transport and Energetics", Annual Meeting ASM. Miami Beach, FL.

**1979**

Aquatic Microbial Ecology Conference. ASM/EPA. Clearwater Beach, FL. Microbial aspects of aquatic pollution: Environmental Symposium. South Carolina Branch ASM. Invited lecturer.

Coal Conference and Expo V. Louisville, KY.

Co-Chairman, "Stressed Systems" Annual Meeting, ASM. Los Angeles, CA.

**1978**

Closed Ecological Life Support Systems. NASA/AMES Review Workshop. Moffet Field, CA Invited reviewer.

## PATENTS

17. Ripp, S.A., G.S. Sayler, D.M. Close, M. Connolly, T.B. Henry. 2013 "Autonomous lux reporter system and methods of use" *Patent pending.*
16. Simpson, M.L., M.J. Paulus, G.S. Sayler, B.M. Applegate, S.A. Ripp. 2008. "Microluminometer chip and method to measure bioluminescence" *Patent #7,371,538.*
15. Gupta, R K, S. S. Patterson, G. S. Sayler, S. A. Ripp. 2007. "Lux expression in eukaryotic cells" *Patent #7,300,792.*
14. Allen, M.S., G. Rakesh, G.S. Sayler. 2007. "Destabilized bioluminescent proteins" *Patent #7,250,284.*
13. Simpson, M., M.J. Paulus, G.S. Sayler, B.M. Applegate, S.A. Ripp. 2007. "Bioluminescent bioreporter integrated circuit devices and methods for detecting ammonia." *Patent #7,208,286.*
12. Simpson; M. L., Paulus; M. J., Sayler; G.S., Applegate; B. M., Ripp; S. A., 2006. "Bioluminescent bioreporter integrated circuit devices and methods for detecting estrogen" *Patent# 7,090,992*
11. Sayler; Gary S., Fleming; J.T., Applegate; B., Simpson; M. L. 2006. "Methods for cell-based combinatorial logic" *Patent #7,020,560*
10. Simpson, M., M.J. Paulus, G.S. Sayler, B.M. Applegate, S.A. Ripp. 2005. "Bioluminescent bioreporter integrated circuit detection methods." *Patent # 6,905,834.*
9. Sayler, G.S., Simpson; M.L., Applegate; B. M., and Ripp, S. A., 2004. "In Vivo Biosensor Apparatus and Method of Use" *Patent #6,673,596.*
8. Sayler, G.S., S.A. Ripp, and B. Applegate. 2003. "Bioluminescent Biosensor Device" *Patent #6,544,729.*
7. Laroussi, M., G.S. Sayler, and B.B. Glascock. 2001. "Electrodeless Discharge at Atmospheric Pressure" *Patent #6,204,605.*
6. Simpson, M., G.S. Sayler and M.J. Paulus. 2000."Bioluminescent Bioreporter Integrated Circuit (BBIC)" *Patent #6,117,643.*
5. Lajoie, C.A., C.J. Kelly, A.C. Layton and G.S. Sayler. 2000. "Bioluminescent Reporter Bacterium" *Patent #6,110,661.*
4. Fleming, J.T. and G.S. Sayler. 2000. "Isolation of Expressed Genes in Microorganisms." *Patent #6,090,593.*
3. Lajoie, C.A., C.J. Kelly, A.C. Layton, G.S. Sayler, and R. Stapleton. 2000. "Zoogloea and *Hyphomicrobium* spp. Nucleic Acids." *Patent #6,124,094.*
2. Lajoie, C., A. Layton, and G.S. Sayler. 1997. "Bioremediation Process Design Utilizing In Situ Soil Washing." *Patent #5618727.*

1. Blackburn, J.W. and G.S. Sayler. 1988. "Method for the Monitoring and Control of Microbial Populations." *Patent #4792519*.

#### ABSTRACTS AND PAPERS PRESENTED

213. Barham, L., S. Baek, J. Fleming, and G. Sayler. 2012. Short-term direct electric current exposure decreases caspase-3 activity in colon cancer cells, Comparative & Experimental Medicine and Public Health Research Symposium, University of Tennessee - Knoxville.
212. Eldridge, M., F. M. Menn, and G. Sayler. 2012. Do plastic bottles leach substances that interfere with human hormones?, Comparative & Experimental Medicine and Public Health Research Symposium, University of Tennessee - Knoxville.
211. Smartt, A., A. Layton, E. Fozo, S. Ripp, A. Chauhan, and G. Sayler. 2012. How a PAH-degrading microbial community is affected by temperature change, Comparative & Experimental Medicine and Public Health Research Symposium, University of Tennessee - Knoxville.
210. Wang, J., M. Eldridge, F. M. Menn, and G. Sayler. 2012. Active compounds in effluents from Hallsdale-Powell wastewater treatment facility at Knoxville, TN, Comparative & Experimental Medicine and Public Health Research Symposium, University of Tennessee - Knoxville.
209. Webb, J., D. Close, and G. Sayler. 2012. Monitoring the metabolic dynamics of human cells grown in 2-D vs. 3-D culture environments, Comparative & Experimental Medicine and Public Health Research Symposium, University of Tennessee - Knoxville.
208. Xu, T., D. Close, S. Ripp, and G. Sayler. 2012. Improving bacterial bioluminescence in human cells for novel imaging applications, Comparative & Experimental Medicine and Public Health Research Symposium, University of Tennessee - Knoxville.
207. Close, D., S. Ripp, S. Patterson, and G. Sayler. 2012. Autobioluminescent human cell lines as biomarkers for localization and toxicology screening, High Content Analysis Live Cell Imaging Conference, San Francisco, CA.
206. Close, D., S. Ripp, S. Patterson, and G. Sayler. 2012. The use of autonomously bioluminescent human cell lines for detection of bacterial contamination, International Society for Bioluminescence and Chemiluminescence, Canada.
205. Close, D., S. Ripp, and G. Sayler. 2012. Tracking human cell exposure to *E. coli* O157:H7 using an autobioluminescent cell line expressing the bacterial luciferase gene cassette, American Society for Microbiology Annual Meeting, San Francisco, CA.
204. Close, D., J. Webb, S. Ripp, S. Patterson, and G. Sayler. 2012. Remote detection of human toxicants in real time using a human optimized bioluminescent bacterial luciferase gene cassette bioreporter, SPIE - Sensing Technologies for Global Health, Military Medicine, Disaster Response and Environmental Monitoring, Baltimore, MD.
203. Xu, T., D. Close, S. Ripp, and G. Sayler. 2012. Optimization of bacterial bioluminescence (*lux*) expression in mammalian cells and its application as a bioreporter, American Society for Microbiology annual meeting, San Francisco, CA.
202. Carswell, J., P. Jegier, K. Sen, C. Beasley, A. Smartt, A. Layton, G. Sayler, and S. Ripp. 2012. Bacteriophage amplified bioluminescent sensing of enterohemorrhagic *Escherichia coli*, American Society for Microbiology annual meeting, San Francisco, CA.
201. Smartt, A., A. Layton, E. Fozo, S. Ripp, A. Chauhan, W. Burton, and G. Sayler. 2012. Genome annotation and molecular evidence of cold shock response in *Pseudomonas fluorescens* HK44, American Society for Microbiology annual meeting, San Francisco, CA.
200. Xu, T., D. Close, S. Ripp and G. Sayler. 2011. Development of a Novel High Throughput Screening Method for Estrogenic Compounds. Comparative and Experimental Medicine and Public Health Research Symposium, Knoxville, TN. June.
199. Xu, T., D. Close, S. Ripp and G. Sayler. 2011. Using a Lux-Mammalian Reporter Cell to Detect Estrogenic Activity. American Society For Microbiology General Meeting, New Orleans, LA. May.
198. Close, D., R. Hahn, S. Ripp, S. Baek, and G. Sayler. 2011 Comparison of the Human Optimized

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85. Jimenez, L., I. Rosario, C. Werner, S. Koh, and G.S. Sayler. 1992. "Molecular Environmental Diagnostics in Contaminated Subsurface Sites." ASM Annual Meeting, New Orleans, LA.
84. Johnston, W. and G.S. Sayler. 1992. "Maintenance and Stability of *nah-lux* Bioluminescent Reporter Strains and Plasmids." ASM Annual Meeting, New Orleans, LA.
83. Sayler, G.S. 1991. "Report of the University of Chicago Review Committee Environmental Research Division Argonne National Laboratory." Chicago, IL.
82. Sayler, G.S., A. Layton, and F.W. Larimer. 1991. Bacterial bioluminescence and gene probes in optimizing the maintenance and expression of biodegradative plasmids in groundwater. USGS/G-1482; 64pp.
81. Koh, S., I. Rosario, C. Werner, A. Heitzer, L. Jimenez, and G. Sayler. 1991. "Comparative molecular analysis of deep subsurface environments." ASM Annual Meeting. Dallas, TX.
80. Jimenez, L., A. Breen, N. Thomas, T.W. Federle, and G.S. Sayler. 1991. "Mineralization of LAS by a four member aerobic bacterial consortium. ASM Annual Meeting. Dallas, TX.

79. White, D.C., D.E. Nivens, M.W. Mittleman, and G.S. Saylor. 1991. Non-destructive on-line monitoring of MIC #114. National Association of Corrosion Engineers. Corrosion 91', Cincinnati, OH.
78. Johnston, W., H. King, R. Burlage, and G. Saylor. 1990. "Competition and Simultaneous Maintenance of PAH and Chlorobiphenyl Degrading Bacteria in Continuous Culture. ASM Annual Meeting. CA.
77. DiGrazia, P.M., J.W. Blackburn, P.R. Bienkowski, D.J. Rosine, G.D. Reed, J.M.H. King, and G.S. Saylor. 1989. Development of a Protocol for the Evaluation of Microbial Decontamination of Soil Matrices Containing Hazardous Waste. American Institute of Chemical Engineers Annual Meeting, San Francisco, CA.
76. Saylor, G.S., J. Fleming, B. Applegate, C. Werner, and K. Nikbakht. 1989. Microbial Community Analysis Using Environmental Nucleic Acid Extracts. The Fifth International Symposium on Microbial Ecology (ISEM 5), Kyoto, Japan.
75. Kokjohn, T.A., G.S. Saylor, R.V. Miller. 1989. Bacteriophages: Lack of Dependency on Host-Cell Density. ASM Annual Meeting, New Orleans, LA.
74. DiGrazia, P.M., J.M.H. King, B.L. Hilton, B.M. Applegate, J.W. Blackburn, P.R. Bienkowski and G.S. Saylor. 1989. Evaluation of naphthalene biodegradation in soil using systems analysis. Presented at the 89th Annual Meeting of the American Society for Microbiology, New Orleans, LA.
73. Saylor, G.S. and J.W. Blackburn. 1989. Methods for the Analysis and Optimization of Biodegradative Microbial Communities. ACS Annual Summer Meeting, Dallas, Texas.
72. DiGrazia, P., J.W. Blackburn, P.R. Bienkowski, B. Hilton, G. Reed, J.M.H. King, G.S. Saylor. 1989. Development of a Systems Analysis Approach for Resolving the Structure of Biodegrading Soil Systems. 11th Annual Meeting-Biotechnology for Fuels and Chemicals, Boulder, Co.
71. Ogram, A. and G.S. Saylor. 1988. A Comparison of the Genetic Sequences in Extracellular and Intracellular DNA Isolated from Sediment. Annual Meeting, American Society for Microbiology, Miami, Florida.
70. Pettigrew, C.A. and G.S. Saylor. 1988. Isolation and Characterization of Bacterial Consortia that Degrade 4-Chlorobiphenyl and 4,4'-Dichlorobiphenyl. Annual Meeting, American Society for Microbiology, Miami, Florida.
69. Dockendorff, T.C., R.S. Burlage and G.S. Saylor. 1988. Restriction Mapping and Transposon Mutagenesis of the 4-chlorobiphenyl Mineralizing Plasmid pSS50. Annual Meeting, American Society for Microbiology, Miami, Florida.
68. Burlage, R. and G.S. Saylor. 1988. Use of a *lux* Transcriptional Fusion Vector in a Study of Degradative Plasmids. Annual Meeting, American Society for Microbiology, Miami, Florida.
67. Breen, A., B. Reynolds, L. Burtis, B. Bellew and G.S. Saylor. 1988. Introduction and Effects of the pSS50 Degradative Genotype in 4-Chlorobiphenyl Lake water Microcosms. Annual Meeting, American Society for Microbiology, Miami, Florida.
66. Saylor, G.S. and J.W. Blackburn. 1987. Modern Biology: The Role of Biotechnology. Proc. of the Symposium on "The Applications of Biotechnology in Agricultural Wastewater". Scripps Institution of Oceanography, La Jolla, CA.
65. Ogram, A. and G.S. Saylor. 1987. The use of gene probes in the rapid analysis of natural microbial populations. Annual Meeting, Society for Industrial Microbiology. Baltimore, MD.
64. Saylor, G.S., J.W. Blackburn and T.L. Donaldson. 1987. The Role of Biotechnology in Biodegradation Research. Annual Meeting, Society for Industrial Microbiology. Baltimore, MD.
63. Saylor, G.S. 1987. Genetic complexity analysis of natural microbial communities. Gordon Conference on "Population Biology and Evolution of Microorganisms". Plymouth State College, Plymouth, NH.
62. Saylor, G.S. 1987. Nucleic acid probes and immunofluorescence. Workshop on: "Biological Aspects of the National Water Quality Assessment Program". National Research Council, Water Science and Technology Board. Washington, DC.

61. Sayler, G.S. 1987. Enumeration and isolation: example for catabolic genotypes. Workshop, "Non-medical applications for nucleic acid probes". Board of Continuing Education, ASM, Atlanta, GA.
60. O'Morchoe, S. D.J. Saye, O. Ogunseitan, G.S. Sayler, and R.V. Miller. 1987. Gene transfer in *Pseudomonas aeruginosa* in a freshwater environment. 87th Annual Meeting American Society for Microbiology, Atlanta, GA.
59. Blackburn, J.W., G.S. Sayler, and R.K. Jain. 1987. The molecular microbial ecology of a catabolic genotype in a biological treatment process. 87th Annual Meeting American Society for Microbiology, Atlanta, GA.
58. Breen, A., D. Stahl, D. Flesher, and G.S. Sayler. 1987. Molecular characterization of the groundwater bacterium ABS10. 87th Annual Meeting American Society for Microbiology, Atlanta, GA.
57. Sayler, G.S. 1987. Application for DNA probes in biodegradation research: Practical considerations and interpretations. 87th Annual Meeting American Society for Microbiology, Atlanta, GA.
56. Sayler, G.S. 1987. Future approaches to application of genetic engineering to waste treatment. 87th Annual Meeting, American Society for Microbiology, Atlanta, GA.
55. Sayler, G.S. 1986. Fate of genetically engineered microorganisms in groundwater. Chapman Conference, American Geophysical Union. Snowbird, Utah.
54. Hooper, S.W. and G.S. Sayler. 1986. Molecular characterization of pSS50 and expression in *Pseudomonas*. EMBO *Pseudomonas* Workshop. Geneva, Switzerland.
53. Miller, R.V. and G.S. Sayler. 1986. Gene Transfer in Aquatic Environment. EMBO *Pseudomonas* Workshop. Geneva, Switzerland.
52. Hooper, S.W. and G.S. Sayler. 1986. Structural Analysis of the 4-chlorobiphenyl mineralization plasmid, pSS50. 4th International Symposium on Microbial Ecology. Ljubljana, Yugoslavia.
51. Sayler, G.S., R.K. Jain, A. Ogram, C.A. Pettigrew, J.W. Blackburn, and W.S. Riggsby. 1986. Applications for gene probes in biodegradation research. 4th International Symposium on Microbial Ecology. Ljubljana, Yugoslavia.
50. Hooper, S.W., L.S. Houston, and G.S. Sayler. 1986. Further characterization of the 4-chlorobiphenyl mineralization plasmid pSS50. 86th Annual Meeting, American Society for Microbiology, Washington, DC.
49. Houston, L., G.S. Sayler, and R. Jain. 1986. Maintenance of introduced species and plasmid DNA in groundwater aquifer material. 86th Annual Meeting, American Society for Microbiology, Washington, DC.
48. Ogram, A., D. Gustin, and G.S. Sayler. 1986. Sorption of DNA to selected soils. 86th Annual Meeting, American Society for Microbiology, Washington, DC.
47. Miller, R.V. and G.S. Sayler. 1986. Genetic transfer in the aquatic environment. Seminar on Environmental Considerations for Genetically Engineered Microorganisms. 86th Annual Meeting, American Society for Microbiology, Washington, DC.
46. Sayler, G.S. 1986. Plasmid occurrence and maintenance in groundwater aquifer. Seminar on Predicting Microbial Behavior in Groundwater. 86th Annual Meeting, American Society for Microbiology, Washington, DC.
45. Sayler, G.S. 1985. The use of DNA probes in environmental studies. 6th Annual Meeting, Society of Environmental Toxicology and Chemistry, Symposium on fate of genetically engineered microorganisms. St. Louis, MO.
44. Sayler, G.S. 1985. Consequences of environmental release of genetically engineered microorganisms. Symposium on Issues Concerning Environmental Release. Biotech 85 Conference. Washington, DC.
43. Sayler, G.S. 1985. PCB biodegradation - Application for DNA Probes. Joint meeting South Carolina - Southeastern Regional Branch ASM Symposium on Toxic Chemicals. Savannah, GA.

42. Sayler, G.S. 1985. Environmental fate of genetically modified biodegradative strains. Gordon Research Conference. Colby Sawyer College. New London, NH.
41. Sayler, G.S. 1985. Evaluating the maintenance and effects of genetically engineered microorganisms. 42nd Annual Meeting for Industrial Microbiology. Boston, MA.
40. Sayler, G.S. 1985. Feasibility and safety of enhancing *in situ* biodegradation of contaminants in ground water by genetic engineering. R.S. Kerr Environmental Research Laboratory, Ground water Research Symposium. Oklahoma City, OK.
39. Hooper, S.W., M.S. Shields and G.S. Sayler. 1985. Molecular characterization of the 4-chlorobiphenyl mineralizing plasmid pSS50. 85th Annual Meeting, American Society for Microbiology. Las Vegas, NV.
38. Rockhind, M.L., G.S. Sayler and J.W. Blackburn. 1985. Convergence of microbial pathways of chlorinated aromatic compound dissimilation. 85th Annual Meeting, American Society for Microbiology. Las Vegas, NV.
37. Perkins, R.E., J.W. Elwood and G.S. Sayler. 1984. Phosphorus cycling in a stream detrital microbial community. 84th Annual Meeting, American Society for Microbiology. St. Louis, MO.
36. Davis, J.W. and G.S. Sayler. 1984. Removal of dissolved organic carbon from coal slurry wastewater by activated sludge. 84th Annual Meeting, American Society for Microbiology. St. Louis, MO.
35. Kong, H.-L. and G.S. Sayler. 1984. Microbial degradation and mineralization of brominated biphenyls and brominated benzoates. 84th Annual Meeting, American Society for Microbiology. St. Louis, MO.
34. Sayler, G.S. 1984. "Integrating approaches to biodegradation." Round table Discussion. 84th Annual Meeting Society for Microbiology. St. Louis, MO.
33. Sayler, G.S., R.W. Beck, R.A. Minear, O. Yagi and A. Breen. 1983. "Development of a Bio-oxidation predictive fate methods." In prediction of the fates of organic chemicals in activated sludge wastewater treatment processes. Final Report U.S. EPA, I.E.R.L. Project 68-03-3027.
32. Sayler, G.S. 1983. Plasmid mediated biodegradation of PCB congeners in freshwater sediments. Invited paper for the mixed Microbial Populations Symposium, Annual Meeting Southeastern Branch, American Society for Microbiology. Tuscaloosa, AL.
31. Kong, H.-L., C.M. Swindoll and G.S. Sayler. 1983. Bacterial accumulation of clay adsorbed hexachlorobiphenyl. Presented at the Annual Meeting of the Environmental Chemistry Division, American Chemical Society. Washington, DC.
30. Sayler, G.S. 1983. Developments and the potential for the biological treatment of hazardous wastes. Invited expert testimony before the Committee on Science and Technology and Sub-Committee on Investigations and oversight. U.S. House of Representatives. Washington, DC.
29. Sayler, G.S. 1983. Biodegradation of PCB's. Invited report to Governor John Hunt's Intergovernmental Task Force on PCB contamination. State of North Carolina. Raleigh, NC.
28. Kong, H.-L., G.S. Sayler and M.S. Shields. 1983. Kinetic study of microbial degradation and mineralization of monohalogenated biphenyls. 83rd Annual Meeting, American Society for Microbiology. New Orleans.
27. Shields, M.S., G.S. Sayler and H.-L. Kong. 1983. Plasmid mediated 4-chlorobiphenyl biodegradation by a freshwater sediment bacterial isolate. 83rd Annual Meeting, American Society for Microbiology. New Orleans, LA.
26. Sayler, G.S., R. Pagni, H.-L. Kong and M.S. Shields. 1983. Effect of environmental variables on PCB biodegradation. 3rd Annual Symposium on Environmental Biology. Seattle, WA EPA/ORD Review.
25. Reid, M.C., G.S. Sayler and R.A. Minear. 1982. Characterization of organic contaminants in residual coal slurry transport water. 3rd Annual Meeting, Society for Environmental Toxicology and Chemistry. Arlington, VA.

24. Kong, H.-L. and G.S. Saylor. 1982. Biodegradation and mineralization of monohalogenated biphenyls. 3rd Annual Meeting, Society for Environmental Toxicology and Chemistry. Arlington, VA.
23. Sherrill, T.W. and G.S. Saylor. 1982. Enhancement of polyaromatic hydrocarbon mineralization rates by polyaromatic hydrocarbon and synthetic oil contamination of freshwater sediments. 82nd Annual Meeting, American Society for Microbiology. Atlanta, GA.
22. Saylor, G.S. 1982. Impact of coal conversion and shale oil contaminants on the microbial activity of aquatic environments. Final Report. Union Carbide sub-contract 7685. Oak Ridge National Laboratory.
21. Blackburn, J.W., J.L. Fleming, W.L. Troxler, G.S. Saylor and M.W. Cantrell. 1982. Treatability of organic chemicals. Final Report. U.S. EPA. I.E.R.L. 68--03-3027.
20. Saylor, G.S. 1981. Environmental biotransformations of chlorinated biphenyls: Model Recalcitrant contaminants. Councilors Colloquium, invited paper. 81st Annual Meeting, American Society for Microbiology. Dallas, TX.
19. Saylor, G.S. and S.E. Herbes. 1980. Impact of a coal coking effluent on microbial sediment communities: A multivariate approach. 2nd Annual International Symposium on Microbial Ecology. Warwick, England.
18. Perkins, R.E. and G.S. Saylor. 1980. Glucose mineralization in freshwater sediments. 45th Annual Meeting, American Society for Limnology and Oceanography. Knoxville, TN.
17. Perkins, R.E. and G.S. Saylor. 1980. Effects of environmental contaminants of glucose mineralization in aquatic sediments. 80th Annual Meeting, American Society for Microbiology. Miami Beach, FL.
16. Saylor, G.S. 1980. Impact of a coking effluent discharge of the microbial communities of freshwater sediments. Final report, Union Carbide sub-contract, 7182 Oak Ridge National Laboratory.
15. Shiaris, M.P. and G.S. Saylor. 1980. Biodegradation of polychlorinated biphenyls by naturally occurring aquatic microorganisms. 80th Annual Meeting, American Society for Microbiology. Miami Beach, FL.
14. Mallory, L.M. and G.S. Saylor. 1980. Numerical taxonomy and fatty acid analysis of phenanthracene resistant bacteria. 80th Annual Meeting, American Society for Microbiology. Miami, FL.
13. Saylor, G.S. 1979. Interaction of environmental toxicants and microbial populations. Environmental Symposium: "The Microbial Aspects of Aquatic Pollution." South Carolina Branch, American Society for Microbiology. Greenville, SC.
12. Saylor, G.S. and T.W. Sherrill. 1979. Studies on the biodegradative fate of polyaromatic hydrocarbons in freshwater environments. Union Carbide Corporation, Oak Ridge National Laboratory. DOE review.
11. Saylor, G.S. 1979. Impact of polyaromatic hydrocarbons on the microbial activity of aquatic environments. Union Carbide Corp. ORNL, DOE review.
10. Mallory, L.M., W. Beck and G.S. Saylor. 1979. Numerical taxonomy of polychlorinated biphenyl and phenanthracene resistant bacteria isolated from the aquatic environment. 79th Annual Meeting, American Society for Microbiology. Los Angeles, CA.
9. Shiaris, M.P., W.C. Holt and G.S. Saylor. 1979. Effect of polychlorinated biphenyl on nitrogen transformation by aquatic microorganisms. 79th Annual Meeting, American Society for Microbiology. Los Angeles, CA.
8. Shiaris, M.P., L.C. Lund and G.S. Saylor. 1978. Degradation of PCB by naturally occurring aquatic bacterial populations. 78th Annual Meeting, American Society for Microbiology. Las Vegas, NV.
7. Sherrill, T.W. and G.S. Saylor. 1978. Microbial degradation of phenanthracene in a freshwater environment. 78th Annual Meeting, American Society for Microbiology. Las Vegas, NV.

6. Sayler, G.S., J. Kaper, M. Baldini and R.R. Colwell. 1976. Primary Non-Selective Isolation of Salmonella from Chesapeake Bay. 76th Annual Meeting, American Society for Microbiology. Las Vegas, NV.
5. Sayler, G.S. and R.R. Colwell. 1975. Isolation of Polychlorinated Biphenyl (PCB) Utilizing Bacteria from Marine and Estuarine Environments. 75th Annual Meeting, American Society for Microbiology. New York, NY.
4. Sayler, G.S. 1975. Some Observations of the Effects of Pesticide Residues on Upper Chesapeake Bay Microflora. Joint Washington, DC - Maryland Regional ASM Meeting, Fort Detrick. Frederick, MD.
3. Sayler, G.S. and C.M. Gilmour. 1974. Heterotrophic Utilization of Organic carbon in Aquatic Environments. 74th Annual Meeting, American Society for Microbiology. Chicago, IL.
2. Sayler, G.S. and C.M. Gilmour. 1974. Bacterial Response to Aquatic Carbon Levels. 33rd Annual Meeting, Northwest Regional Branch, American Society for Microbiology. Chicago, IL.
1. Sayler, G.S. and C.M. Gilmour. 1972. Microbial Respiration as an Index of Aquatic Pollution. 32nd Annual Meeting, Northwest Regional Branch, American Society for Microbiology. Vancouver, B.C.

#### **RESEARCH SUPPORT AWARDED**

141. "From luc to GFP to lux: Evolving an improved zebrafish model for the screening of endocrine disruptor chemicals" NIH, 4/1/14-3/31/17, \$372,500.
140. "Investigation of the effects of ingested nanoparticles on endogenous microbiota in rainbow trout with consequences on overall fish health and resistance to the pathogen *Yersinia ruckeri*" NSF, 1/1/15-12/31/17, \$113,941.
139. "Injectable magnetic field microinductors for osteoarthritic articular cartilage engineering" PMERF, 5/1/14-4/30/17, \$7,416.
138. "Editorship for ACS Journal, Environmental Science & Technology" ACS, 1/1/14-12/31/15, \$85,759.
137. "Implantable biosensors for real-time in vivo interrogation of biological phenomena" NSF, 9/1/12-8/31/15, \$299,996.
136. "Expressing bacterial luciferase in zebrafish as an innovative new tool for data-intensive, higher-throughput drug discovery" UTRF, 12/10/13-9/13/14, \$15,000.
135. "Expressing bacterial luciferase in zebrafish" NSF, 1/1/14-6/30/14, \$7,363.
134. "Chemical analysis of trout otoliths as a measure of age-dependent deposition of aqueous aluminum in an Appalachian stream" Carlos C. Campbell Memorial Fellowship, 3/1/13-2/28/14, \$5,000.
133. "FY2013 WRRIP Application for TN Water Resources Center" USGS, 3/1/13-2/28/14, \$92,335.
132. "Leaching of potential trace organic contaminants from land-applied biosolids – A field and greenhouse study" Hampton Roads Sanitation District, 8/1/11-12/31/14, \$413,037.
131. "Expressing bacterial bioluminescence in human cell lines: Engineering autobioluminescent reporter cells to screen for oxidative stress" Alternatives Research & Development Foundation, 8/1/13-7/31/14, \$40,000.
130. "Biogeochemical and molecular mechanisms controlling contaminant transformation in the environment" DOE UT-Battelle, 1/18/13-1/17/14, \$70,132.
129. "Integrated Watershed Management in Oostanuala Creek Watershed, Tennessee" USDA, 9/1/12-8/31/15, \$148,412.
128. "Computational Analyses and Interpretation of Genomic Sequencing Data" DOE, 10/1/12-9/30/14, \$7,499.
127. "Study the prevalence and concentration of pharmaceutical compounds in wastewater treatment plants" TN Dept Environment Conservation, 9/1/12-12/31/13, \$128,699.
126. "Technical support for environmental projects" DOE UT-Battelle, 10/1/11-3/31/13, \$21,883.
125. "Assessing the prevalence and concentration of pharmaceutical compounds in drinking water"

- TDEC11/1/11-8/31/13, \$128,700.
124. "Assessing the prevalence and concentration of pharmaceutical compounds in drinking water (continuation)" TDEC, 4/25/13-8/31/13, \$53,100.
  123. "Editorship for ACS Journal, Environmental Science & Technology" ACS, 1/1/12-12/31/13, \$78,579.
  122. "The impact of global warming on the carbon cycle of arctic permafrost: An experimental and field based study" Princeton University, 7/15/11-7/14/13, \$681,373.
  121. "Exiguobacterium psychrotrophic and thermophilic lifestyle: an example of genome evolution or genome adaptation" DOE, 7/11/12-7/10/13, \$0.
  120. "IDBR: The LuxArray Scanner: Surveying the environment with biomicroelectronic cellular bioreporter arrays" NSF, 8/1/10-7/31/13, \$129,999.
  119. "Metaproteomics identifies the protein machinery involved in metal and radionuclide reduction in subsurface microbiomes and elucidates mechanisms and U(VI) reduction biomarkers" DOE, 7/1/10-6/30/13, \$940,698.
  118. "Technical Support of Environmental projects" DOE UT-Battelle, 10/1/12-12/31/12, \$3,076.
  117. "Technical Support of Environmental projects" DOE UT-Battelle, 7/1/13-9/30/13, \$15,431.
  116. "Technical Support of Environmental projects" DOE UT-Battelle, 10/1/12-12/31/12, \$19,149.
  115. "A Phylochip microbial survey analysis of a soil ecosystem impacted by the release of a genetically engineered microorganism" UT M-CERV, 01/01/11-06/30/11, \$20,000.
  114. "Metaproteomics identifies the protein machinery involved in metal and radionuclide reduction in subsurface microbiomes," DOE ERSP, 09/01/2010-08/31/2013, \$997,400
  113. "Persistence and fundamental characterization of a recombinant microorganism 13 years after its field release". US Department of Agriculture, 09/01/2009-08/31/2011, \$99,624.
  112. "China-US Joint Workshop on Climate-Energy Nexus" DOE, 09/01/2009-04/31/2011 \$49,860.
  111. "Editorial Work for American Chemical Society" ACS, 09/01/1997-12/31/2011, \$70,480
  110. "China-US Joint Workshop on Climate-Energy Nexus" NSF 08/15/2009-07/31/2011 \$47,860.
  109. "Real-time bioreporter sensor and therapeutic effector loop for monitoring physiological fluctuations" NSF, 06/15/2009-05/31/2012, \$299,980
  108. "Cellulosic Biomass Deconstruction, Characterization and Modeling". UT/ORNL Joint Institute for Biological Sciences (JIBS), 12/01/07-11/30/12, \$6.4 Million. Part of the DOE BioEnergy Services Center, \$125 Million, 6 investigators, Lead PI.
  107. "Development of Noninvasive Bioluminescence Imaging for Cancer Diagnosis and Therapeutic Testing," National Cancer Institute NIH, 05/01/07- 04/30/08, \$291,943.00.
  106. "IVIS Lumina Biophotonic Imaging System," Army, 4/15/07-4/14/08, \$126,100.
  105. "Ecotoxicology of underivatized Fullerenes (C60) in fish," EPA, 5/7/07-5/6/10 , \$396,807, (Co-PI)
  104. "Determination of Sources and Concentrations of Fecal Bacteria In Selected Watersheds in TN," TN Department of Environment and Conservation, 6/1/07-12/31/08, \$60,000.
  103. "Development of Bioluminescent Bioreporter for Saxitoxin Detection in the Indian River Lagoon," National Aeronautics and Space, 8/1/05-7/31/06, \$24,000.00.
  102. "Biophotonic Biosensors for Water Quality Assessment." Office of Naval Research, 8/1/05-8/14/07, \$475,008.00.
  101. "Prototype Biophotonic Biosensor for Monitoring VOC Contaminants in Spacecraft Habitats" NASA, 5/1/04-1/31/07, \$1,480,972.00.
  100. "Biosurveillance, agricultural and environmental security: A coordinated, innovative initiative" US ARMY MEDICAL RES, MCMR-A, 4/1/05-3/31/07, \$333,333.00.
  99. "Development and application of bioluminescent yeast-reporter for screening chemicals.U.S. EPA, 10/1/03-9/30/06, \$391,506.00.
  98. "Biological Information Technology System – BITS: Hybrid Testbed for Evaluation of Cell-Cell Communication Models in Prokaryotes." NSF, 10/1/02-2/28/06, \$1,049,886.00 (Co-PI)
  97. "A nanostructured biosensor for the detection of microbial pathogens," USDA, 1/1/07-12/31/07, \$100,000.00,



96. "Investigating chronic toxicity and bioaccumulation of microcystins in freshwater fishes using toxicogenomics and histopathology," EPA, 09/01/06-08/31/09, \$436,967 (Co-PI)
95. "Integrated Microfluidic System for Bioluminescent Bioreporting, Separations, Vibrational Spectroscopic, and Microcantilever Transducer Evaluation of Endocrine Disrupting Chemicals," EPA, 11/1/05-10/31/08, \$590,240 (Co-PI)
94. "Development of Bioluminescent Bioreporter for Saxitoxin Detection in the Indian River Lagoon," National Aeronautics and Space, 8/18/05-8/17/07, \$48,000
93. "Integrated Microfluidic System for Bioluminescent Bioreporting, Separations, Vibrational Spectroscopic, and Microcantilever Transducer Evaluation of Endocrine Disrupting Chemicals," EPA, 11/1/05-10/31/08, \$590,240.00. (Co-PI)
92. "Biosurveillance, agricultural and environmental security: A coordinated, innovative initiative," Army, 12/01/04-11/30/05, \$1,000,000 (\$333,333.00 to Saylor Co-PI).
91. "Prototype biophotonic biosensor for monitoring VOC contaminants in spacecraft habitats," NASA, 5/1/04-6/30/08, \$1,480,972.
90. "Development and application of a bioluminescent yeast-reporter for screening chemicals," US EPA, 10/1/03-9/30/06, \$391,506.
89. "Nanoscale systems for cellular interfacing," UT Battelle-ORNL, 10/1/03-9/18/04, \$39,159.
88. "Neutron diffraction analysis of DNA binding and regulatory proteins useful in design of nanoarchitecture analysis," UT Battelle-ORNL, 2/21/03-9/30/04, \$116,000. (Co-PI)
87. "Biological Information Technology Systems-BITS: Hybrid Testbed for Evaluation of Cell-Cell Communication Models in Prokaryotes," C. Cox PI, Mike Simpson, Greg Peterson, NSF, 10/1/02-9/30/05, \$1,049,886.
86. "Construction of a genetically modified biosensor to monitor nitrite toxicity in biological wastewater treatment plants," US Egypt Joint Science and Technology Board, 7/1/02-6/30/05, \$22,500.
85. "Bioluminescent monitoring of opportunistic pathogens in spacecraft environment," NASA, 6/1/02-5/31/05, \$558,182.
84. "Nanoscale architecture and control of biofilm-based micro-electronic biosensors for biological and chemical agents," DARPA, 7/1/02-6/30/03, \$342,895.
83. "A novel whole-cell bioreporter model for foodborne toxin monitoring," USDA, 12/15/01-12/31/03, \$227,000.
82. "Acquisition of imaging equipment for biomicroelectronics and nanobiotechnology," NSF, 9/1/01-8/31/03, \$247,689.
81. "Bioluminescent Bioreporter Chips for real-time surfactant monitoring in closed-loop graywater," Dynamac KSC, 6/1/00-12/31/01, \$69,834.
80. "Product Development of Rapid Analytical Methods for Toxic Chemicals Using Reporter Microorganisms," Dynamac, Sanseverino/Saylor, 8/15/00-8/14/01, \$182,750.
79. "Early Detection of Chemical and Biological Warfare Agents Using Bioluminescent Bioreporter Integrated Circuits," Dynamac, Nivens/Saylor, 4/1/00-3/31/04, \$726,346.
78. DOW Foundation SPHERE Program, \$50,000. 1998-2000.
77. "Strategies for Reactor Design, Configuration and Operating Regimes for Improved Bioprocessing," Eastman, Frymier/Saylor, 9/97-9/00, \$271,164.
76. "Genosensor Based Ecotoxicity Response Assessment," Lockheed Martin Energy System, Fleming/Saylor, 3/9/98-11/6/00, \$327,457.
75. "Construction of a Novel Whole-Cell Bioreporter for the Detection of Nonionic Surfactants in Gray Water," Dynamac, Saylor, 12/1/99-6/30/00, \$62,577.
74. "Towards Intelligent Distributed Bioluminescence Detection of Biological Contamination and Stressors," NASA, Simpson/Saylor, 9/1/99-8/31/01, \$381,960.
73. "Quantifying and Minimizing 17 $\beta$ -Estradiol Discharges from Dairy and Swine Waste," USDA, Layton/Saylor, 11/15/99-11/30/01, \$69,000.

72. Lockheed Martin Energy Systems, Instrumentation and Control, Saylor/Simpson, 1/21/99-1/20/01, \$300,000.
71. "Bioluminescent Bioreporter Integrated Circuits for Monitoring Spacecraft Environments," NASA, Simpson/Saylor, 10/98-9/01, \$193,066.
70. "Eukaryotic Bioluminescent Integrated Circuit Sensors," NIH, Applegate/Saylor, 9/98-9/00, \$213,242.
69. "Bioreporter Development for Wireless Integrated Sensors," Perkin Elmer, Applegate/Saylor, 6/98-8/00, \$150,000.
68. "Molecular Analysis of Nitrifying Bacteria During Activated Sludge Treatment," Water Environment Research Foundation, Robinson/Saylor, 6/98-5/01, \$398,422.
67. "Toxicity Screening Using Bioluminescent Reporter Technology," Water Environment Research Foundation, Frymier/Saylor, 6/98-5/00, \$295,334.
66. "Degradation of Natural Estrogens in Wastewater Treatment Facilities," University of Mississippi, Schultz/Saylor, 5/98-9/99, \$40,000.
65. "The Role of Bioavailability in Determining Environmentally Acceptable Endpoints for the Bioremediation of Polychlorinated Biphenyls (PCBs)," DOE, Saylor/Ghosh PI, 2/97-5/00, \$442,260.
64. "Purification and Characterization of the Enzyme(s) that Involve the Degradation of Copolyester," Eastman, Saylor PI, 10/95-12/96, \$50,000.
63. "DNA Extraction and Gene Probe Analysis of Soils from Dover Air force Base," Lockheed, Saylor PI, 1/96-5/97, \$30,000.
62. "Optimization of RNA Fingerprinting with Soil Extracted Messenger RNA," USAF, Fleming PI, 8/1/95-7/31/98, \$75,000.
61. "Production and Activated Sludge Bulking *Zoogloea* Sp. Identification and Enumeration, Exopolysaccharide," Eastman, Lajoie PI, 1/95-12/97, \$200,000.
60. "Molecular Analysis for PAH Degradation in Waste Treatment and Remediation," ECOVA, Saylor PI, 6/94-12/95, \$50,000.
59. "Molecular Probes and Bioluminescent Reporters in Ecological Optimization and Biodegradation," USAF, Saylor PI, 8/95-7/98, \$75,000.
58. "Study of Toluene/TCE Degradation Using Plasmid and Chromosomal Based *Tod-Lux* Bioluminescent Reporters," TVA, Saylor PI, 11/94-9/95, \$24,500.
57. "Visiting Scientist Appointment for Mr. Kinya Kato, Canon Inc.," CANON, Saylor PI, 11/94-10/95, \$46,428.
56. "Environmental Genome Analysis: Polymerase Chain Reaction Fingerprinting on *In Situ* Extracted Bacterial Messenger RNA from Contaminated Soil," USAF, Fleming PI, 5/94-12/97, \$449,507.
55. "Bioluminescent Genetically Engineered Microorganisms for the Study of Biofilms," ONR, Saylor PI, \$75,000.
54. "Field Release of Genetically Engineered Bioluminescent Reporter Bacteria for PAH Bioremediation in Subsurface Soil," Department of Energy, Saylor PI, 6/94-5/98, \$1,946,343.
53. "Natural In Situ Attenuation of Hydrocarbon Contaminants," USAF, Saylor PI, 6/1/94-12/31/97, \$526,535.
52. "Comparative Use of Phenolic Resins as Hybridization Supports for Environmental Analysis of DNA and Genosensor Development," HARC, Saylor PI, 12/1/93-5/31/94, \$31,880.
51. "Bioluminescent Genetically Engineered Microorganisms for the Study of Biofilms," ONR, Saylor/White PI, 9/1/93-8/31/96, \$75,000.
50. "Natural Bioremediation Study," Tyndall AFB/TVA, Saylor PI, 7/93-9/94, \$75,000.
49. "Development of Copper Tolerant, Constitutive Mutants of sMMO-Producing Methanotrophs for Application in TCE Bioremediation," Battelle, Saylor PI, 7/93-6/95, \$45,000.
48. "Molecular Ecology of Bacterial Populations in Environmental Hazardous Chemical Control, USAF, Saylor, PI, 6/1/92-5/30/94, \$72,613.

47. "Analysis and optimization of methanotrophic TCE biodegradation," Martin Marietta, Sayler PI, 2/1/92-12/31/92. \$187,000.
46. "Analysis and optimization of methanotrophic TCE biodegradation: Reactor monitoring," Martin Marietta. Sayler PI, 8/1/91-12/31/91. \$15,000.
45. "Innovative bioreactor development for methanotrophic TCE biodegradation process optimization," ORNL/ESD. Sayler PI, Bienkowski Co-PI, 2/1/92-1/31/94. \$179,575.
44. "Molecular ecology of bacterial populations in environmental hazardous chemical control," U.S. Air Force, Sayler PI, 1/15/92-1/14/95. \$447,191.
43. "Microbial evaluation and optimization of PCB biodegradation in contaminated soils," EPRI/TVA. Sayler PI, 2/1/92-1/31/97. \$475,706.
42. "On-line monitoring of aerobic bioremediation with bioluminescent probes." Department of Energy, Sayler and White, Co-PI's three years \$575,000, 06/01/91-5/30/94.
41. "Monitoring Biofilm Ecology with Bioluminescent Bacteria," Office of Naval Research, White and Sayler Co. PI's. 04/01/91-03/31/92 \$231,000. Total grant \$691,000 for 3 years.
40. "Environmental Biotechnology of Hazardous Waste Management," \$336,718. Hazardous Waste Institute-Tennessee. 7/1/90-6/30/91.
39. "Optimization of Methanotrophic TCE Biodegradation" Martin Marietta. DOE/Savannah River/ORNL. G. Sayler P.I. \$421,292. 7/1/90-6/30/92.
38. "Genetic Ecology of Biofilms and Microbially Influenced Corrosion". Electric Power Research Institute. D.C. White Co. P.I. \$939,731. 7/12/90-6/30/94.
37. "Gene probe development for PAH-bioremediation". Gas Research Institute. \$354,723. 3 years. 11/1/90-9/31/92.
36. "Bacterial population dynamics in response to transient upsets in wastewater treatment". Chevron Research Corporation. \$49,500. 7/1/90-6/31/91.
35. "Quantitative relationship between catabolic gene frequency and expression". Electric Power Research Institute. \$178,614. 10/1/88-6/30/91.
34. "Molecular Microbial Ecology of Biodegradation Microbial Communities". U.S. Air Force, Engineering Support Services Center. 3 years. \$450,000. 12/1/88-9/30/91. F. Larimer Co-PI.
33. "Plasmid Distributions in Relationship to LAS Contamination". Procter and Gamble Co. \$60,000. 7/1/90-6/30/91.
32. "Environmental Biotechnology of Hazardous Waste Management," \$336,718. Hazardous Waste Institute-Tennessee. 7/1/89-6/30/90.
31. "Plasmid Distributions in Relationship to LAS Contamination". Procter and Gamble Co. \$59,000. 7/1/89-6/30/90.
30. "Environmental Biotechnology of Hazardous Waste Management", \$450,000. Hazardous Waste Institute, Tennessee. 7/1/87-6/30/89.
29. "Towards Reliable Environmental Biotechnology", Gas Research Institute. \$343,000. J.W. Blackburn, PI. 87-90.
28. "Plasmid Distributions in Relationship to LAS Contamination". Procter and Gamble Co. \$59,000. 8/1/88-6/31/89.
27. "Research Planning Workshop on Environmental Biotechnology". NSF. \$15,000. 9/1/87-2/2/88.
26. "Development and Application of DNA probes and bioluminescence to measure catabolic bacterial activity in groundwater". USGS, 3 years. \$393,000. Water Research Matching Grant Program, F. Larimer, Co-PI. 9/1/87-8/31/90.
25. "Plasmid Distributions in Relationship to LAS Contamination". Procter and Gamble Co. \$54,000. 7/1/87-6/30/88.
24. "Genetic control technology for hazardous waste management." Tennessee Hazardous Waste Institute. \$50,000. 7/01/85-6/30/87.
23. "Laboratory equipment for education and research in environmental biotechnology" U.S. Dept. Education. \$978,306 (Matching Grant Program). 4/1/86-3/30/88.

22. "Genetic transfer in aquatic environments." U.S. EPA Cooperative Agreement ERL/GB. 3 years, \$302,000. R.V. Miller, Loyola University, PI. 7/01/85-6/30/88.
21. "Genetic approaches for determining persistence and effects of introduced species." U.S. EPA Cooperative Agreement ERL/GB. 3 years, \$252,771. W.S. Riggsby, Co-PI. 7/01/85-6/30/88.
20. "Water quality characteristics of coal cleaning and coal slurry transport waste waters." Electric power Research Institute. \$20,000. R.A. Minear, P.I. 6/1/83-12/31/83.
19. "Enhanced reuse potential of coal slurry transport water: Toxic organic assessment and removal." U.S. Department of Interior, Bureau of Reclamation/O.W.R.T. \$242,000. 9/1/81-9/25/84.
18. "Frequency and transmissibility of plasmid DNA in ground water bacteria." U.S. EPA. \$206,069. K.M. Sirotkin, Co-PI. 9/1/83-2/28/86.
17. "Treatise on the bacterial degradation of chlorinated aromatics." U.S. EPA \$40,000. 9/1/83-8/31/84.
16. "Bio-oxidation predictive fate methods development." Personal Services Consulting contract. I.T. Enviroscience. 7/1/82-9/30/83.
15. "Contributions of bacterial population and enzyme dynamics to bio-oxidation predictive fate methods development." I.T. Enviroscience, U.S. EPA, subcontract, \$35,000. R.W. Beck and R.A. Minear, Co-PI's. 7/23/82-9/31/83.
14. "The role of synthetic oil contamination on enhanced PAH and nitrogen containing aromatic, biotransformation rates in aquatic environments." Union Carbide Sub-contract 7685, Oak Ridge National Laboratory. \$61,457. 10/1/81-9/30/82.
13. "Effect of environmental variables on PCB biodegradation." U.S. Environmental Protection Agency. \$227,078. R. Pagni; Co-PI. 5/1/81-4/30/84.
12. "Bacterial degradation of PCB: Consequences and Effects." Research Career Development Award. National Institute for Environmental Health Sciences. U.S. Public Health Service. \$210,000. 9/1/80-8/31/85.
11. "Impact of coal conversion and shale oil contaminants on the microbial activity of aquatic sediments." Union Carbide subcontract 7685, Oak Ridge National Laboratory. \$92,834. 10/1/79-9/30/81.
10. "Distribution and fate of PCB during domestic and industrial waste water treatment." Personal services contract; Knox County Waste Management Division, Knoxville, TN. 9/1/78-3/1/79.
9. "Bacterial degradation of coal conversion by-products (Polycyclic aromatic hydrocarbons) in aquatic environments." U.S. Department of Interior, Office of Water Research and Technology. \$45,416. 10/1/78-7/31/81.
8. "Studies on the impact of coal conversion wastes on microbial activity of sediments." Union Carbide, sub-contract, Oak Ridge National Laboratories. \$48,042. 10/1/78-9/30/79.
7. "Polycyclic aromatic hydrocarbon degradation and ecological effects at the microbial level." Union Carbide, Sub-contract, Oak Ridge National Laboratories. \$20,000. 10/1/78-9/30/79.
6. "Multi-user application for specialized research equipment." National Science Foundation. \$17,679. W.O. Smith, PI. 9/1/78-8/31/80.
5. "Bacterial degradation of PCB: consequences and effects." National Institute of Environmental Health Sciences, Grant. \$158,000. R.V. Miller, Co-PI. 1/1/77-12/30/79.
4. "Assessment of the microbial degradation of polynuclear aromatic hydrocarbon contaminants arising from coal conversion processes." Union Carbide, sub-contract, Oak Ridge National Laboratories. \$20,000. 11/1/76-9/30/77.
3. "Surveillance of bacterial pathogens in aquatic environments." NIH Biomedical Sciences Support Grant. \$1,600. 10/1/75-3/31/77.
2. "Factors affecting the survival and physiology of *Salmonella* spp. in aquatic environments." NIH Biomedical Sciences Support Grant. \$1,600. 1/1/76-3/31/77.
1. "Environmental stress as a determinant in the physiological development of *Salmonella* spp. in aquatic environments." National Institute of Health, Biomedical Sciences Support Grant. 11/12/76-3/31/78.

