

ARTHUR G. APPEL

Affiliation: Professor of Entomology, Department of Entomology and Plant Pathology, Auburn University, Auburn, Alabama

Expertise: Research in areas of urban entomology, insect physiology, and development of integrated pest management (IPM) programs for household and structural pests

Education: PhD in Urban Entomology and Insect Physiology, University of California, Riverside, California
MS in Urban Entomology and Insect Physiology, University of California, Riverside, California
BA in Biology, University of California, Los Angeles, California

Experience Summary: Dr. Arthur Appel is a Professor of Entomology at Auburn University with 34 years of teaching and research experience in urban entomology and insect physiology. He is a Fellow of the American Association for the Advancement of Science and the Royal Entomological Society. He is a member of the editorial boards for the journals *Physiological Entomology* and *Insects*; and is a subject editor for the *Journal of Economic Entomology*. Dr. Appel has served as a department chair (2005–2013) and as interim Associate Dean of Research for the College of Agriculture and as Interim Dean and Director for the College and the Alabama Agricultural Experiment Station. His research includes development of IPM programs for cockroach and millipede management as well as developing trapping and sampling protocols for indoor and outdoor cockroaches. He has published nearly 150-refereed articles on all aspects of the biology, behavior, physiology, and management of urban pests.

Panel Experience: Dr. Appel was a member of US EPA Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel (2018) for *Review of Methods for Efficacy Testing of Pesticides Used for Premise Treatments for Invertebrate Pests and Fire Ants*. Dr. Appel has also served on numerous state, foundation, and Alabama Agricultural Experiment Station peer review grant panels and committees.

MICHAEL JOSEPH DANIELS

Affiliation: Professor, Chair, and Andrew Banks Family Endowed Chair in the Department of Statistics, University of Florida, Gainesville, Florida

Expertise: Statistical methods

Education: ScD in Biostatistics, Harvard University, Massachusetts
AB in Applied Mathematics, Brown University, Rhode Island

Experience Summary: Dr. Michael Daniels is currently a tenured full professor, Andrew Banks Family Endowed Chair, and chair in the Department of Statistics at the University of Florida with over 20 years of teaching and research experience. His areas of expertise are the development of methods for the analysis of longitudinal data and missing data, (Bayesian) causal inference, hierarchical modelling, spatial models, and estimation of dependence. He has worked in various application areas including cancer, nutrition, health services, the environment, and infectious diseases. He is currently the Principal Investigator on a National Institutes of Health research grant entitled “Bayesian methods for missingness and causality in cancer and behavior studies” and is involved as co-investigator in numerous funded grants. He has served as co-editor of *Biometrics* and is currently president-elect of the Eastern North American Region of the International Biometrics Society.

Panel Experience: Dr. Daniels is currently a member of the National Academies of Science Committee on Applied and Theoretical Statistics (CATS) (since 2015). He also served as Member of Nextran Microbiologic Safety Board for Xenotransplantation (1999–2001); Member of EPA Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel (1999); Consultant for EPA Science Advisory Board (SAB) on water quality (2001); Member, NIH AIDS & Clinical Epidemiology Study Section (2012–2016); Member, Board Advisory Group for MRC Biostatistics Unit (Cambridge, England) (2012–2013); Member, National Academies, Panel on *Review of the Compliance, Safety, Accountability Program of the Federal Motor Carrier Safety Administration* (2016–2017); External Reviewer, Undergraduate Program in Statistics, Actuarial Science, and Mathematical Finance, University of Waterloo (2016); Site visit team, Division of Intramural Population Health Research, National Institute of Child Health and Human Development (2017); Chair of External Review Committee, Department of Applied Mathematics and Statistics, UC-Santa Cruz (2017).

PHILIP M. DIXON

Affiliation: University Professor, Department of Statistics, Iowa State University, Ames, Iowa

Expertise: Research developing and evaluating statistical models for ecological, environmental, and toxicological data. Consulting with subject-matter researchers on the appropriate use of statistical methods and interpretation of statistical results.

Education: PhD in Ecology and Systematics, Cornell University, New York
MS in Statistics, Cornell University, New York
AB in Biology, University of California, Berkeley, California

Experience Summary: Dr. Philip Dixon is University Professor of Statistics at Iowa State University with nearly 40 years of teaching and research on statistical methods for ecological, environmental, and toxicological applications. He is a Fellow of the American Statistical Association, an Accredited Professional Statistician (American Statistical Association), a Chartered Statistician (Royal Statistical Society), and an Associate Editor for *Biometrics* (2017–2021). His current research interests are in modeling species composition data, choice of random effects in ecological and agronomic models, and inference for derived quantities from dose-response models.

Panel Experience: Dr. Dixon has served on federal panels, including: the EPA Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel (2004, on roster of available members, 2000–2019); National Science Foundation (NSF) Ecology review panels (2002, 2008, 2016); and National Institute of Occupational Safety and Health (NIOSH) Study Sections (2017, 2018). He has been an ad-hoc reviewer for multiple NSF programs and NIOSH (multiple years, not recorded).

MARION FIEDLER EHRICH

Affiliation: Professor of Pharmacology/Toxicology, Virginia-Maryland College of Veterinary Medicine, Blacksburg, Virginia

Expertise: Toxicology; veterinary medicine; pharmacology

Education: PhD in Pharmacology/Toxicology, University of Connecticut, Storrs, Connecticut

MS in Pharmacology/Toxicology, University of Chicago, Illinois

BS in Pharmacy, South Dakota State University, South Dakota

Experience Summary: Dr. Marion Ehrich is a professor at Virginia-Maryland College of Veterinary Medicine (VMCVM) in Blacksburg, Virginia. In addition to teaching pharmacology and toxicology to veterinary, medical and graduate students, her professional responsibilities include serving as relief pharmacist in the Veterinary Medical Teaching Hospital Pharmacy as well as consultant in the Veterinary Toxicology Diagnostic Laboratory. She has been teaching at VMCVM since 1980, the year in which she became a member of the Society of Toxicology (SOT) and a Diplomate of the American Board of Toxicology (DABT). From 2010–2017, Dr. Ehrich taught pharmacology in the medical school. She was elected a fellow of the Academy of Toxicological Sciences (ATS) in 1999 and received the Society of Toxicology Merit Award in 2010. She served on the SOT Council from 1991–1994 and 2001–2005; and served as SOT Secretary from 1992–1994; Vice-President from 2002–2003; and President from 2003–2004. She has been active in SOT specialty sections both before election to Council and afterwards including Counselor for the Comparative & Veterinary Specialty Section and President of the Neurotoxicology Specialty Section from 2008–2009. She has served on multiple SOT committees including as the Coordinator for Minority Programs from 1994–2001 and received Special Education Awards from SOT related to her service in 1997 and 2009. She was elected as a fellow of the Academy of Toxicological Sciences (ATS) in 1999. In addition, she has received teaching awards both at the local and national level.

Panel Experience: Dr. Ehrich has served on the United States Pharmacopeia Committee on Toxicology, and as an associate editor for the journals *Neurotoxicology*, *International Journal of Toxicology*, and *Toxicology*. She also served on the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) Scientific Advisory Panel from 2008–2018.

EMILY-JEAN K. FUERST

Affiliation: Director of Research and Development, Kemin Crop Technologies, Des Moines, Iowa

Expertise: Biochemistry and molecular biology; entomology; microbiology

Education: MS in Entomology, Iowa State University, Iowa
Executive MBA, University of Iowa, Iowa
BS in Biochemistry, University of Nevada, Reno, Nevada

Experience Summary: Ms. Emily-Jean Fuerst is the Director of Research and Development at Kemin Crop Technologies, a division of Kemin Industries, and is responsible for developing new and innovative solutions to protect specialty crops from pests while improving plant nutrient utilization. Her earlier work included bark beetle pheromone identification, insect trapping and rearing, and collaboration with a team to identify the first pheromone biosynthesis activating neuropeptide receptor in the moth *Helicoverpa zea*. In addition to her expertise in entomology, Ms. Fuerst has a robust and diverse scientific background, including experience in the areas of microorganism engineering, enzyme development, encapsulation technologies, and formulation chemistry.

Panel Experience: Ms. Fuerst is currently a member of the Iowa Governor's Science, Technology, Engineering, and Math (STEM) Advisory Board (2017–present) and has served as a peer reviewer of Kemin internal scientific publications for nine years (2010–present).

JOLENE C. HENDRIX

Affiliation: Pesticide Training and Development Specialist, Montana Department of Agriculture, Helena, Montana

Expertise: Environmental science and ecological studies focused on pesticide health and safety and environmental fate and transport of chemicals.

Education: Masters of Teaching, Jacksonville University, Florida
BS in Environmental Science/Marine Science, Jacksonville University,
Florida

Experience Summary: Ms. Jolene Hendrix is the training and development specialist for the pesticide program with the Montana Department of Agriculture. She has 20 years of experience in hazardous material environmental assessment review, analytical data report development, and instructional material development. She served as a pesticide safety consultant, educator, and higher education program developer through Winrock International for the Samaru College of Agriculture in Zaria, Nigeria, in 2017 and 2018. Ms. Hendrix currently serves on the Pesticide Education Resources Collaborative (PERC) Advisory Board, the Rocky Mountain Certified Crop Advisor (RMCCA) Board and is the Western Region representative for the American Association of Pesticide Safety Educators (AAPSE). Previous positions include environmental assessment specialist for the Florida Department of Environmental Protection (2002–2013), science teacher (2006–2011), and she has extensive analytical laboratory experience and data evaluation focused on environmental chemistry, microbiology and field sampling at Advanced Environmental Laboratories (1996–2002).

Panel Experience: Ms. Hendrix has not served on any federal review panels or committees previously but has served on several state and local review committees.

JEROME A. HOGSETTE

Affiliation: Lead Scientist and Research Entomologist, Center for Medical, Agricultural and Veterinary Entomology, United States Department of Agriculture, Gainesville, Florida

Expertise: Research on the biology, ecology and management of nuisance flies around humans, livestock, poultry, and exotic animals.

Education: PhD in Veterinary Entomology, University of Florida, Florida
MS in Poultry Science, University of Florida, Florida
BS in Poultry Science/Animal Science, University of Florida, Florida

Experience Summary: Dr. Jerome Hogsette is the Lead Scientist and Research Entomologist with the Mosquito and Fly Research Unit at the Center for Medical, Agricultural and Veterinary Entomology on the University of Florida campus, Gainesville, Florida. He has 39 years of experience in research, teaching, and mentoring graduate students. He has attended numerous scientific meetings, both nationally and internationally, organizing symposia and making presentations at essentially all of them. He was a subject editor at the Georgia Entomological Society, and reviews 10 to 15 manuscripts annually. He has organized meetings, such as the Livestock Insects Workers Conference, 1980 and 2000, and workshops, such as S-1060 Multistate Project Meeting, 2016, 2018, and 2020. His primary research interests are the biology, ecology, and management of nuisance flies, particularly house flies and stable flies, in any situation where they are found.

Panel Experience: Dr. Hogsette currently serves on the Equipment Committee, the Medical Entomology Committee, and the Pesticide Committee of the Armed Forces Pest Management Board. He served on a Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel for the review of new guidelines on *Efficacy Testing of Pesticides used for Premise Treatments for Invertebrate Pests and Treatments for Fire Ants* in 2018.

RICHARD L. KAMMERLING

Affiliation: President and Pest Management Consultant; RK Chemical Systems and RK Pest Management Services, Huntington Station, New York

Expertise: Pesticide formulations; pesticide safety; pesticide labels; pesticide usage and methods of application, primarily to food manufacturing and food distribution operations. Training and education and troubleshooting pest problems to ensure conformity to pest management guidelines.

Education: BS in Business and marketing - Fairleigh Dickinson University, New Jersey

Experience Summary: Mr. Richard Kammerling has more than 45 years of experience working with food processing plants, food distribution, pharmaceutical facilities and retail operations with special emphasis on integrated pest management and pest prevention programs; pest management training and inspections; troubleshooting pest problems; knowledge and experience of insect monitoring systems; stored products pests, cockroaches and occasional invaders; insect, rodent and bird management; pesticides and methods of application, documentation and record keeping procedures; extensive work with the pest control industry, service technicians, food safety managers and quality assurance personnel; and served as an expert witness. He regularly lectures at meetings organized by AIB International, National Pest Management Association, pest control companies, colleges and universities (i.e., Rutgers, Cornell, Penn State, Purdue, Univ. of Maryland, Univ. of Delaware, etc.), as well as conducting training programs and seminars for federal and state agencies.

Panel Experience: Mr. Kammerling has no previous panel experience.

VIJAYAVEL "VIJAY" KANNAPPAN

Affiliation: Manager, Regulatory Toxicology & Stewardship, Georgia Pacific LLC., Neenah, Wisconsin

Expertise: Toxicological risk assessment for both human and environmental health; Bio-compatibility risk evaluation on degradants, leachables, extractables & residuals; the US Food and Drug Administration's Generally Recognized as Safe (GRAS) evaluation for food contact materials; and consumer product safety & stewardship compliance along with post-marketing surveillance.

Education: Postdoc Research in Environmental Toxicology, University of Hawaii, Hawaii
PhD in Environmental Toxicology, University of Madras, India
MS in Environmental Toxicology, University of Madras, India
BS in Microbiology, University of Madras, India

Experience Summary: Dr. Vijayavel Kannappan is a Board-Certified Toxicologist (European Registered Toxicologist) with over 15 years of experience in conducting toxicological risk assessment for both human and environmental health. He is currently a Manager of Regulatory Toxicology & Stewardship with Georgia Pacific LLC., where he oversees toxicological risk assessment programs to ensure the safety of consumer products. Prior to his current position, he was employed with Mary Kay Inc. as a Senior Product Safety Toxicologist, where he was accountable for the safety of raw materials used in cosmetic products. He is author/co-author of 100+ publications (peer-reviewed and non-refereed) with a track record of 1150+ citations in the field of human and environmental health sciences. Dr. Kannappan is an active member with the Society of Toxicology (SOT) and the Society of Environmental Toxicology and Chemistry. He has served as the Vice President-Elect with the Dermal Toxicology Specialty Section and a Vice President-Elect by the Food Safety Specialty Section of the SOT.

Panel Experience: Dr. Kannappan is a subject matter expert in Toxicology and serves and/or served on various ad hoc committees. He is currently a grant proposal reviewer for the National Oceanic Atmospheric Administration-Sea-Grant and the US Environmental Protection Agency National Center for Environmental Research. In 2018, he served as a Steering Committee Member of the Ecological Risk Assessment World Interest Group of Society of Environmental Toxicology & Chemistry; in 2016, he was a Task Force member with the Safety and Regulatory Toxicology Committee and Environmental Safety Committee with Personal Care Products Council; in 2013 he was a Toxicology Steering Committee Member of the Michigan Department of Environmental Quality; and from 2011–2012, he served as a Steering Committee Member for the Macatawa Area Coordinating Council in Michigan.

ERIC S.C. KWOK

Affiliation: Senior Toxicologist of the Exposure Assessment Section and the Human Exposure & Health Effect Modeling Section, California Department of Pesticide Regulation

Expertise: Data analysis of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) guideline mammalian toxicology studies and human exposure studies, pesticide exposure assessment in humans, and pesticide human health risk assessments

Education: PhD in Environmental Toxicology, University of California, Riverside, California
MPhil in Biology, The Chinese University of Hong Kong, Hong Kong
BSc (Hons) in Zoology (major) and Botany (minor), University of Hong Kong, Hong Kong

Experience Summary: Dr. Eric Kwok is a Senior Toxicologist of both the Exposure Assessment Section and Human Exposure & Health Effect Modeling Section at the California Department of Pesticide Regulation, where he supervises a team of modelers and toxicologists to conduct pesticide exposure assessments on agricultural handlers, reentry workers, and bystanders. He has a combined 18 years of experience in performing statistical analyses on data derived from the FIFRA guideline toxicology and exposure studies and conducting human exposure and health risk assessments of pesticides using different computational tools including stochastic human exposure assessment models and physiological based pharmacokinetic models. He has been a Diplomate of the American Board of Toxicology since 2006. His research focuses include applying 21st century computational techniques for characterizing pesticide exposures in humans based on human activities, product formulations, and use patterns. He has published 28 scientific papers in peer-reviewed scientific journals and authored multiple research reports on pesticide health risk assessments and mitigation measures. He also received three Superior Accomplish Awards from the California Environmental Protection Agency in recognition of his exceptional contributions and services to state government.

Panel Experience: Dr. Kwok has no previous panel experience.

LISA A. MURPHY

Affiliation: Associate Professor of Toxicology, University of Pennsylvania School of Veterinary Medicine, Kennett Square, Pennsylvania

Expertise: Development, validation, and interpretation of chemical analyses related to diagnostic veterinary toxicology with a focus on environmental health and food and water safety

Education: VMD, University of Pennsylvania School of Veterinary Medicine, Pennsylvania
BS in Biological Sciences, Stanford University, California

Experience Summary: Dr. Lisa Murphy is an Associate Professor of Toxicology at the University of Pennsylvania School of Veterinary Medicine. After receiving her Veterinariae Medicinae Doctoris (VMD) from the University of Pennsylvania School of Veterinary Medicine she practiced small animal medicine for three years (1997–2000). She joined the American Society for the Prevention of Cruelty to Animals (ASPCA) Animal Poison Control Center in Urbana, Illinois, (2000–2004), and became a diplomate of the American Board of Toxicology in 2003. She worked as an Area Emergency Coordinator for US Department of Agriculture's Animal and Plant Health Inspection Service in New England from 2004–2005. She is a past president of the Pennsylvania Veterinary Medical Association and the International Association for Aquatic Animal Medicine and currently serves as an appointed member of the Governor's Invasive Species Council of Pennsylvania and on the Board of Directors for Tri-State Bird Rescue and Research Inc. The laboratory also provides diagnostic services and expertise to various zoos, aquariums, wildlife rehabilitation center, and other exotic and aquatic animal professionals. She is recognized for her expertise in toxicological issues of concern for animals associated with natural and man-made disasters and her current research focuses on diagnostic veterinary toxicology, including environmental health and food and water safety.

Panel Experience: Dr. Murphy served as a Food Quality Protection Act (FQPA) Science Review Board member of the US EPA Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel that met to review the Scientific Conclusions Supporting EPA's FIFRA Section 6(b) *Notice of Intent to Cancel Twenty Homeowner Rodenticide Bait Products* (2011).

WESTE OSBRINK

Affiliation: Research Entomologist, US Department of Agriculture-Agricultural Research Service, Knipling-Bushland U.S. Livestock Insect Research Lab, Kerrville, Texas

Expertise: Urban medical veterinary entomology

Education: PhD in Urban Entomology, University of California, Riverside, California
MS in Biology, California State College, Los Angeles, California
BS in Biology, California State College, Los Angeles, California

Experience Summary: Dr. Weste Osbrink has 34 years of research experience, including 10 years in industry. He was the first to document the effectiveness of insect growth regulators (juvenoids) for flea control, which rapidly became the international state-of-the-art approach. His research has been cited in seven patents; two flea trap patents, three insecticidal composition patents including a juvenoid IGR patent and two *Bacillus thuringiensis* (Bt) patents and a bioassay system for arthropods patent. His fumigation research led to labeling and re-registration of sulfuryl fluoride (Vikane) for termite control, which has a global impact because methyl bromide is being phased out. He is a pioneer in research of global warming and its impact on food production with 51 referred publications and 56 presentations. His invitations to consult, participate as an adjunct faculty member, and a graduate committee member reflect his entomological status. Dr. Osbrink's recognition is reflected in invitations to present at multiple venues including: international symposia, US Environmental Protection Agency, Department of Defense, various universities, several to pest control organizations, and chemical industries. He has 438 publications including: 334 termite research journals and 79 flea research journals.

Panel Experience: Dr. Osbrink was invited as a member of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Science Advisory Panel in 2012.

THOMAS L. POTTER

Affiliation: President and Principal Scientist, Innovative Systems for Education and Environmental Technology, Valdosta, Georgia

Expertise: Chemistry; risk and exposure assessment; environmental fate modeling

Education: PhD in Environmental Chemistry, University of Massachusetts-Amherst, Massachusetts
MS in Soil Chemistry, Cornell University-Ithaca, New York
BS in Chemistry, University of Maine-Orono, Maine

Experience Summary: Dr. Thomas Potter has more than 40 years of experience as a researcher, research manager, teacher, and scientific consultant. This includes 19+ years (1998–2017) with the US Department of Agriculture-Agricultural Research Service (USDA-ARS) Southeast Watershed Laboratory, Georgia, where he led a multidisciplinary team evaluating how conservation practices and agronomic management control the fate and transport of pesticides and other agrochemicals at field, farm, and watershed scales. Currently (2017–present), he is the Principal Scientist and President of Innovative Systems for Education and Environmental Technology (ISET), a consulting group focusing on environmental chemistry, risk assessment, simulation modeling, and on-line education. He was a graduate faculty member (1992–1998) at the University of Massachusetts (UMASS) and held adjunct faculty appointments in the UMASS School of Public Health and Entomology Departments. During his career he has authored more than 110 journal publications, book chapters, and government reports and edited two books. His research interests include human and ecological risk assessment of pesticides and their fate and transport modeling.

Panel Experience: Dr. Potter served as an ad hoc member on 12 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panels (1999–2015) and was an appointed member of the US Environmental Protection Agency Endocrine Disruptor Methods Validation Subcommittee (2001–2003).

MICHAEL K. RUST

Affiliation: Distinguished Professor of Entomology and the Graduate Division, University of California Riverside, Riverside, California

Expertise: Research on the biological and behavioral factors that influence the control of urban insects such as ants, cockroaches, fleas, termites, and yellowjackets with an emphasis on the least toxic insecticides

Education: PhD in Entomology, University of Kansas, Kansas
MA in Entomology, University of Kansas, Kansas
BA in Biology, Hiram College, Ohio

Experience Summary: Dr. Michael Rust is a retired Distinguished Professor of Entomology and the Graduate Division with a special research appointment. He is a University of California, Presidential Scholar in Entomology, Fellow of the Entomological Society of America (2001) and a Fellow of American Association for the Advancement of Science (2002). Dr. Rust served as the Head of the Division of Economic Entomology from 1983–1990. He has served as the Vice Chairman and Chairman of the Department of Entomology from 1990–1997. He was the Director for the Center for Exotic Pest Research and Associate Director, University of California Integrated Pest Management Program from 2000–2005. He has served as the Household and Structural Pests subject area expert for the *Journal of Economic Entomology* and the *Journal of Medical Entomology*. His research interests focus on the use of insecticides in urban integrated pest management programs.

Panel Experience: Dr. Rust served on the University of California Mosquito Program review panel from 1983–1999. He served on a US Department of Agriculture panel to review cockroach research proposals for three years.

JEFFREY G. SCOTT

Affiliation: Professor of Pesticide Toxicology, Cornell University, Ithaca, New York

Expertise: Insecticide Toxicology, Evolution and Population Genetics of Insecticide Resistance, Cytochrome P450s (CYPs) of Insects, Insect Molecular Biology

Education: PhD in Entomology University of California, Riverside, California
MS in Entomology, Michigan State University, Michigan
BS in Biochemistry, Michigan State University, Michigan

Experience Summary: Dr. Jeffrey Scott is a Professor of Entomology at Cornell University, New York. He is a Fellow of the Entomological Society of America and was President of the Physiology, Biochemistry and Toxicology Section of Entomological Society of America in 2011. He has >35 years of teaching and research on pesticides. Primary areas of research have included insecticide mechanisms of action, metabolism, RNAi for pest control, and the evolution, mechanisms and genetics of insecticide resistance.

Panel Experience: Dr. Scott has experience on the following federal panels: US Department of Agriculture Competitive Grants Review Panel (1992, 1995, 2005, 2006 Panel Manager, and 2016); National Institute of Allergy and Infectious Diseases (1994–1996, 1998–2001); Military Infectious Diseases Research Program (2015–2019); Foundation for the National Institutes of Health (Gates Foundation Grand Challenges (2003), Grand Challenges in Global Health VCTR (2011) (Panel Manager and Reviewer)); and the US Environmental Protection Agency Science To Achieve Results (STAR) Program (2002). He has also provided several grant reviews for foundations and international grant programs.

KEITH R. SHOCKLEY

Affiliation: Staff Scientist at the National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina

Expertise: Statistical support and advice for the analysis of toxicology studies conducted in the National Toxicology Program

Education: PhD in Chemical Engineering, North Carolina State University, North Carolina
MS in Chemical Engineering, North Carolina State University, North Carolina
BS in Chemical Engineering, New Mexico State University, New Mexico

Experience Summary: Dr. Keith Shockley is a staff scientist in the Biostatistics and Computational Biology Branch at the National Institute of Environmental Health Sciences (NIEHS) and serves as the Principal Statistician for the National Toxicology Program. He has over 10 years of experience conducting multidisciplinary research to identify potentially harmful environmental effects in rodents and other model systems (2008–2019). Before arriving at NIEHS, Dr. Shockley was a postdoctoral associate at The Jackson Laboratory in Bar Harbor, Maine, where he applied and extended statistical approaches to analyze high dimensional data sets generated from animal model systems (2004–2008). He was an invited panelist for the NIEHS workshop "Advancing Research on Mixtures: New Perspectives and Approaches for Predicting Adverse Human Health Effects" (2011). He is currently an Editorial Board Member of the journal *Toxicologic Pathology* (2018–2019). His research includes the development of methods to make activity calls, rank compounds, and estimate potency in quantitative high throughput screening data.

Panel Experience: Dr. Shockley has served on internal peer review panels within the National Institute of Environmental Health Sciences, including the Technical Review Committee for Statistical Contracts (2010, 2016) and the Technical Evaluation Panel for Bioinformatics Support in DIR and DNTP (2016). He has also served on the Technical Qualifications Board at the Environmental Protection Agency (2016).

REBECCA LEE SMITH

Affiliation: Assistant Professor of Epidemiology at the University of Illinois Urbana Champaign, Urbana, Illinois

Expertise: Epidemiological research on longitudinal data analysis and mathematical modeling of diseases for purposes of prediction and control, with a focus on One Health

Education: PhD in Epidemiology, Cornell University, New York
MS in Biosecurity and Risk Analysis, Kansas State University, Kansas
DVM, Cornell University, New York
BA in Biology, Gustavus Adolphus College, Minnesota

Experience Summary: Dr. Rebecca Smith is Assistant Professor of Epidemiology at the University of Illinois Urbana-Champaign. She is an affiliate of the Carl Woese Institute for Genomic Biology and the National Center for Supercomputing Applications and a partner in the Midwest Center of Excellence for Vector-Borne Disease. She has served as a member of the Board of Directors for the Association for Veterinary Epidemiology and Preventive Medicine (2016–2019). Her research focuses on using simulation and statistical modeling for the prediction and control of infectious diseases, with concentrations in vector-borne diseases, mycobacterial diseases of animals, and water-borne pathogens of livestock origin.

Panel Experience: Dr. Smith's experience on federal panels includes service as an ad hoc reviewer for a US Department of Agriculture-National Institute of Food and Agriculture conference proposal (2018) and for National Institute of Allergy and Infectious Diseases for National Institutes of Health Support for Conferences and Scientific Meetings (R13). She has also served on numerous local review panels at the University of Illinois.

DANIEL E. SNYDER

Affiliation: Daniel E. Snyder DVM, Ph.D. Consulting LLC. Owner and Managing Principal, Indianapolis, Indiana

Expertise: Experienced R&D Scientist with a history of working in the regulated animal health pharmaceutical industry. Skilled in R&D, conduct of pivotal parasiticide efficacy and clinical field studies, Good Clinical Practice (GCP)/Good Laboratory Practice (GLP) expertise, all with a focus in veterinary parasitology

Education: DVM, University of Illinois, Illinois
PhD in Veterinary Medicine Science, University of Illinois, Illinois
MS in Biology, Western Illinois University, Illinois
BS in Biology, Western Illinois University, Illinois
BS in Veterinary Medicine, University of Illinois, Illinois

Experience Summary: Dr. Daniel Snyder has held several different positions of increasing responsibility in pharmaceutical and parasiticide research and development with Pfizer Animal Health and Elanco Animal Health, with the last 25 years being with Elanco before retiring in 2017 and establishing a private consulting business. At Elanco, he held positions as a lead scientist in discovery research, clinical development of food animal parasiticides, and lastly companion animal product development conducting pivotal clinical (laboratory and field studies) parasiticide effectiveness and field safety studies for submission to global regulatory agencies during his tenure to date. Recent examples include the approval of several successful parasiticides (Comfortis, Trifexis, Credelio, Cheristen) approved by the US Food and Drug Administration and US Environmental Protection Agency and other global regulatory agencies for use in dogs and/or cats to control endo- and ectoparasites. Expertise in the practical application of scientific principles and having extensive knowledge of VICH and global regulatory and parasiticide guidelines for the development of parasiticides is part of his core expertise. Additionally, he is triple board certified, is licensed to practice veterinary medicine in the states of Illinois and Indiana, holds several issued patents, and has published extensively in peer-reviewed scientific journals. He was co-author of "World Association for the Advancement of Veterinary Parasitology (W.A.A.V.P.) second edition: guidelines for evaluating the efficacy of parasiticides for the treatment, prevention and control of flea and tick infestations on dogs and cats" (2013) and peer reviewer of multiple entomology and parasitology journal articles.

Panel Experience: Dr. Snyder has served as Editorial Board Member, Veterinary Parasitology (1994–2016).

VERONICA STANLEY

Affiliation: Adjunct Faculty, Division of Workforce Development, Harrisburg Area Community College, Pennsylvania. Transitioning to a position accepted with the Department of Energy as a General Engineer

Expertise: Broad industrial hygienist experience; worked in a variety of environments, including: biomedical and medical, food production, in support of construction and renovation projects, and in support of facility services implementing integrated pest management

Education: MS in Occupational and Environmental Hygiene, The Johns Hopkins University, Bloomberg School of Public Health, Maryland
BS in Occupational Safety and Environmental Health, Minor in Environmental Hazards and Emergency Management, Millersville University of Pennsylvania, Pennsylvania

Experience Summary: Ms. Veronica Stanley is a member of the American Industrial Hygiene Association (AIHA) (2012–present) and the American Society of Safety Professionals (2008–present), where she served as the student chapter secretary in the 2008–2009 academic year. She was a hazardous materials volunteer, responding to various emergencies (2009–2010), serving as the secretary to the volunteer organization, and received the “HazMat Rookie of the Year” award in 2009. She received an acknowledgment award for providing education and support as subject matter expert, presented by the Commanding General of U.S. Army Research, Development, and Engineering Command, Aberdeen Proving Ground in 2017. Ms. Stanley has written multiple articles for AIHA's *Synergist Magazine*, including discussing pesticide regulation in "Sources of Confusion: Compliance Pitfalls for Common Workplace Chemicals under Multiagency Jurisdiction" (2018). For this article she was invited to speak to the National Aeronautics and Space Administration's safety and industrial hygiene staff in 2019 and to Navy personnel in 2019 at a professional development symposium. She has presented at conferences and been a part of the volunteer group teaching the next generation of Certified Industrial Hygienists. She has worked as an industrial hygienist out of an Army medical clinic tasked with assessing workplace exposures to individuals who reported to the medical clinic for exposures to a variety of hazards, including to pesticides. She also has experience as a 3rd party auditor for compliance purposes. She has performed numerous workplace chemical exposure investigations and managed teams tasked with workplace chemical exposure investigations, including to pesticides. She has also been responsible for assisting with managing workplace pest management programs and to manage those programs herself, along with the health and safety of the associated workers.

Panel Experience: Ms. Stanley does not have experience on an EPA Science Advisory panel. Ms. Stanley has been part of workplace review panels, such as to review workers compensation records related to exposure and has been part of investigative teams.

LARISA K. VREDEVOE

Affiliation: Professor, Biological Sciences Department, California Polytechnic State University, San Luis Obispo, California

Expertise: Medical entomology; parasitology; tick biology; tick-host interactions; tick-borne disease agents

Education: PhD in Entomology, University of California, Davis, California
BS in Entomology, University of California, Davis, California

Experience Summary: Dr. Larisa Vredevoe is a professor of medical entomology with expertise in public health microbiology and parasitology. She has taught courses in microbiology, parasitology and entomology for 20 years and serves as curator of the Biological Sciences Entomology collection at Cal Poly State University. Her primary research interests include the biology of tick-host interactions and their impacts on host health and life history, the ecology and dynamics of pathogen transmission by ticks at the wildlife-human interface, and host consequences of parasitism by endoparasites (hemoparasites and helminths). She is also engaged in science education, serving on the science advisory committee at an elementary school. She has developed and implemented numerous school science lab projects in microbiology and entomology, spanning investigations of antibiotic production by soil bacteria to sampling of monarchs for protozoan parasites. Previously, she served as an American Society for Microbiology/National Center for Infectious Diseases Fellow (1998–1999) to conduct research in tick-borne infectious disease and public health microbiology at the Centers for Disease Control, Division of Vector-Borne Infectious Diseases, Fort Collins, Colorado.

Panel Experience: Dr. Vredevoe has no previous panel experience.

BILL A. WILLIAMS

Affiliation: Independent consultant for pesticide/herbicide projects for public and private entities.

Expertise: Human and ecological risk and toxicology; research scientist and consultant specializing in human and ecological risk, toxicology, and support to clients in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Natural Resource Damage Assessment (NRDA), and Superfund cleanup projects. Former US Environmental Protection Agency (EPA) Scientist, Corvallis, Oregon, Wildlife Toxicology Research Laboratory

Education: National Academy of Sciences Post-Doctoral in Biophysics
PhD in Biophysics and Physiology, University of Illinois, Urbana, Illinois
MS in Biophysics and Physiology, University of Illinois, Urbana, Illinois
BA in Biophysics and Physiology, University of California, Berkeley, California

Experience Summary: Dr. Bill Williams has more than 35 years of experience and expertise in environmental risk assessment and toxicology including CERCLA, NRDA, and NEPA projects ranging from upland to sediment to freshwater/marine projects. After leaving the National Aeronautics and Space Administration (NASA) in 1986, he joined EPA, as head of the Wildlife Toxicology Research Laboratory (WTRL), Corvallis, Oregon. At WTRL, he and his team conducted tests on dozens of pesticides and herbicides in line for registration reviews (1986–1992). In 1992, he became vice president of Ecological Planning and Toxicology (EP&T) in Corvallis where he continued laboratory and field tests on products. In 1997 he joined ENTRIX (later Cardno) in Walnut Creek, California, where he served as senior scientist providing environmental risk assessment and toxicology for CERCLA, NRDA, and National Environmental Policy Act (NEPA) ranging from upland to sediment to freshwater/marine projects. These projects included avian and mammalian test protocols working with EPA regulators in several EPA Regions. In 1999, he joined Kennedy-Jenks in Portland Oregon, as leader for risk assessments for the Portland Harbor. He joined Weston and Newfields to provide risk assessments for the Columbia River, Passaic River and numerous other clean-up sites, specializing in the impacts of pesticides. In 2010, he returned to Portland for NRDA as Trustee/BP liaison for the Deepwater Horizon mitigation. He provided senior support to Cardno until 2016 and became a consultant to Cardno and to Infinity Solutions, Seattle, Washington.

Panel Experience: Dr. Williams has served on numerous EPA and state review committees and panels, to include:

- RESOLVE: World Wildlife Fund. Chair and member, Sponsored by The Conservation Foundation, 1) Pesticides and Birds. Assessing Pesticide Impacts on Birds; and 2) Pesticides and Birds: Improving Impact Assessment, (1989–1992).
- SETAC Pelston Workshops: 1) Evaluation of Persistence and Long-Range Transport of Organic Chemicals in the Environment (1998); 2) Ecological Risk Assessment of Contaminated Sediments (1997); and 3) Uncertainty Analysis in Ecological Risk

Assessment (1998).

- Charter member of the US EPA's *Framework for Ecological Risk Assessment; Testing Guideline Harmonization*; risk assessment of 2,3,7,8 TCDD; laboratory to field extrapolations; uncertainty in risk assessments; and endocrine disruptors (1982–1998).