Invitation for Public Comment on the List of Candidates for the Environmental Protection Agency's Science Advisory Board Radiation Advisory Committee

September 18, 2017

The U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Staff Office announced in a Federal Register Notice on June 27, 2017 (82 FR 29077 - 29078) that it was inviting nominations of experts to be considered for the Administrator's appointment to the Science Advisory Board (SAB) Radiation Advisory Committee (RAC). The SAB provides independent advice and peer review to EPA's Administrator on the scientific and technical aspects of environmental issues. The SAB Staff Office sought nominations of experts to serve on the SAB RAC. Members should have demonstrated expertise in one or more of the following disciplines: radiation carcinogenesis; radiation epidemiology; radiation exposure; radiation health and safety; radiological risk assessment; uncertainty analysis; and radionuclide fate and transport. The SAB Staff Office identified 15 candidates based on their expertise, willingness and ability to serve. We hereby invite public comments on the attached List of Candidates for appointment to the SAB RAC for consideration by the SAB Staff Office. Comments should be submitted to Mr. Edward Hanlon, Designated Federal Officer, no later than October 9, 2017, at hanlon.edward@epa.gov. E-mail is the preferred mode of receipt. Please be advised that public comments are subject to release under the Freedom of Information Act.

2017 Candidates for the EPA Science Advisory Board Radiation Advisory Committee

Amundson, Sally A.

Columbia University

Dr. Sally A. Amundson is an Associate Professor of Radiation Oncology in the Center for Radiological Research at the Columbia University Medical Center in New York. She received her Ph.D. in Radiation Biology and Cancer Biology from the Harvard School of Public Health, and did postdoctoral work at the Los Alamos National Laboratory and in the Laboratory of Molecular Pharmacology at the National Cancer Institute (NCI), where she was an adjunct investigator in the National Cancer Institute's Radiation Epidemiology Branch. Her current research uses functional genomics approaches to study low dose radiation and bystander effects, unique effects of space radiation, and the development of gene expression approaches for radiation biodosimetry. Dr. Amundson is also co-director of the Center for High-Throughput Minimally-Invasive Radiation Biodosimetry. She is currently funded by the National Institutes of Health (NIH), and has also received funding in the past from the Department of Energy, NASA, and the Biomedical Advanced Research and Development Authority. She has served on study sections for several NIH institutes, and as ad hoc reviewer for NIH, NASA, Health Canada, and the Welcome Trust (UK). Dr. Amundson has been a member of the National Council on Radiation Protection and Measurements (NCRP) since 2004, and has served on two National Academy of Science studies. She also served on the Science Advisory Committee of the Radiation Effects Research Foundation (RERF) in Hiroshima from 2009-2014, chairing the RERF scientific review for 2012. Dr. Amundson is an associate editor of Radiation Research. She is a recipient of the Michael Fry Research Award from the Radiation Research Society (RRS), and has served as a member of the RRS Council.

Bernthal, Frederick

Universities Research Association

Dr. Fred Bernthal was President of Universities Research Association for 17 years and now serves as Senior Advisor to the Board of Trustees. The URA consortium has for 50 years been contractor to the U.S. Department of Energy (DOE) for management of Fermi National Accelerator Laboratory. URA is also part of the three-member Honeywell-led team recently awarded the DOE contract for management of Sandia National Laboratories. From 1990-94, Dr. Bernthal was Deputy Director of the National Science Foundation, where he was for one year acting Director and a member of the National Science Board. From 1988-90, he was Assistant Secretary of State for Oceans, Environment and Science, where he chaired the 50-nation Response Strategies Working Group of the U.N. Intergovernmental Panel on Climate Change and led negotiations for the 1990 US-USSR Agreement for Cooperation in Basic Sciences. He also spearheaded initiatives which banned the export of U.S. hazardous wastes and prohibited the import of elephant ivory. From 1983-88 he was a Member of the U.S. Nuclear Regulatory Commission, where he gained approval for the Commission's first Advanced Reactor Policy Statement. In the wake of the Chernobyl disaster, he led a delegation to the Soviet Union where in 1987 he negotiated and signed the first US-USSR nuclear safety protocol. From 1970-80, he was a professor of chemistry and physics at Michigan State University and was granted tenure. In 1978 he joined the staff of U.S. Senator Howard Baker as a Congressional Science Fellow, and he served as Chief Legislative Assistant to Majority Leader Baker from 1980-83. Dr. Bernthal holds a B.S. in chemistry from Valparaiso University and a Ph.D. in nuclear chemistry from the University of California at Berkeley. He did postdoctoral study at Yale University and was a NATO Senior Scientist Fellow at the Niels Bohr Institute in Copenhagen in 1977. He was a director of PPL Corporation for 18 years, and subsequently of the PPL spin-off Talen Energy Corporation, until Talen was sold in late 2016. From 2001-2008 he was a director of the Society for Science and the Public. The author of more than 40 peer-reviewed scientific publications, he is a Fellow of the American Physical Society and of the American Association for the Advancement of Science.

Dauer, Lawrence T.

Memorial Sloan-Kettering Cancer Center

Dr. Lawrence T. Dauer is a medical health physicist specializing in radiation protection at Memorial Sloan Kettering Cancer Center. He holds appointments as Associate Attending Physicist in both the Department of Medical Physics and the Department Radiology, and serves as the Radiation Safety Manager and Chair of the Emergency Management Committee. Dr. Dauer had almost three decades of experience in the field of radiation protection and health physics, including radiation protection programs for the energy and industrial sectors and operations and research in medical health physics. His current research interests are associated with low-level radiation risks, worker protection, and radiation protection in medicine. His research activities focus on radiation dosimetry, epidemiology, and novel techniques utilizing radioactive materials and radiation producing devices aimed at facilitating the translation of results into improved radiation protection practices that maximize medical benefits to patients while enabling the expansion of successful clinical and protection programs. Dr. Dauer earned a B.S. in Biology and Chemistry from Mount St. Mary College in NY, an M.S. in Health Physics from the Georgia Institute of Technology, and a Ph.D. in Adult Education from Capella University. He is a Diplomat of the American Board of Health Physics certified in comprehensive health physics and a Licensed Medical Physicist in New York State. He served as Chair of the Radiation Safety Committee of the American Association of Physicists in Medicine, President and Executive Council Member of the Medical Physics Section of the Health Physics Society, President of the Greater NY Chapter of the Health Physics Society, and Board Member of the Radiological and Medical Physics Society of NY. He served as member of the Institute of Medicine/National Academies Committee on Research Directions in Human Biological Effects of Low Level Ionizing Radiation and has served as a consultant to the International Atomic Energy Agency (IAEA). He served as a member of the International Commission on Radiological Protection (ICRP) Committee 3–Radiation Protection in Medicine. He is currently a member of the Board of Directors and a Council member of the National Council on Radiation Protection and Measurements (NCRP), and a member of the Science Committee of the International Organization for Medical Physics (IOMP). To date, Dr. Dauer has received no external research funding from government agencies, private companies, or foundations.

Hamrick, Barbara L.

University of California, Irvine Medical Center

Barbara L. Hamrick, JD, CHP, is the Radiation Safety Officer at the University of California (UC), Irvine Medical Center. Her responsibilities include oversight of all radiation use in both the medical and research settings. Ms. Hamrick received a B.S. and an M.S. in Physics from UC Irvine. She earned a law degree from Loyola Law School in Los Angeles and is an active member of the California State Bar. In 2002, Ms. Hamrick was certified by the American Board of Health Physics. Prior to joining the UC Irvine Medical Center team, Ms. Hamrick spent nearly 20 years as a health physicist in regulatory programs at the federal, state, and local levels, inspecting, investigating, developing policy and guidance, and making technical assessments of a wide variety of exposure, contamination, or other events resulting from the loss or misuse of radiation sources. During that time, she served as Chair of the Organization of Agreement States (OAS) (2005-06), as well as on numerous committees and working groups convened by the OAS, the U.S. Nuclear Regulatory Commission or the Conference of Radiation Control Program Directors related to the control and safe use of radiation sources. Ms. Hamrick served as a member of the National Academies of Sciences Committee on Lessons Learned from Fukushima (2012-16). Ms. Hamrick also provides peer review for papers submitted for publication to Health Physics, and to the Journal of Endourology. Ms. Hamrick does not engage in funded research.

Hoel, David G.

Medical University of South Carolina

Dr. David G. Hoel is a Distinguished University Professor in the College of Medicine at the Medical University of South Carolina in Charleston. He received an A.B. in both mathematics and statistics from University of California at Berkeley, a Ph.D. in mathematical statistics from University of North Carolina in Chapel Hill and was a post-doctoral fellow in preventive medicine at Stanford University. Prior to joining the Medical University of South Carolina he was Division Director for Risk Assessment at National Institute of Health's (NIH) Institute National Institute of Environmental Health Sciences (NIEHS) in N.C. Dr. Hoel is a Fellow of the American Association for the Advancement of Science (AAAS), a member of the National Academy of Medicine and a National Associate of the National Academies. His awards include the Spiegleman Gold Medal in Public Health and the Ramazzini Award in Environmental and Occupational Health. He has served on 30 National Academy committees and also numerous governmental committees including the Environmental Health Committee and Radiation Advisory Committee of EPA's Science Advisory Board. Specifically on radiation he was a member of the BEIR V committee of the National Academy of Sciences and the World Health Organization's International Agency for Research on Cancer (IARC)'s cancer monograph committee 100D on radiation and also he was a contributing member of the United Nation's UNSCEAR 2008 report on radiation health effects. Dr. Hoel's research has focused on risk assessment methods with particular interest in low-dose radiation exposures and cancer. This work has resulted in stays for several years in Hiroshima as a Director at the Radiation Effects Research Foundation (RERF) and recently a RERF Scientific Counselor. Dr. Hoel does not currently have any research grants although previously he has had grant support from both the Department of Energy and from the National Aeronautics and Space Administration (NASA).

Honeyman, Bruce D.

Colorado School of Mines

Dr. Bruce D. Honeyman is an Emeritus Professor of Environmental Science and Engineering at the Colorado School of Mines. He holds a B.S. in Applied Earth Science, and an M.S. and Ph.D. in Civil/Environmental Engineering from Stanford University. In his 35-year career, Dr. Honeyman's research and teaching have focused on the particle water interface and processes that control the behavior of metals and organic compounds in marine systems and the subsurface. A substantial portion of Dr. Honeyman's research has emphasized the chemistry and transport of uranium-series isotopes. At the Colorado School of Mines, Dr. Honeyman also established a radioisotope laboratory licensed for the use of plutonium isotopes and the last 15 years of his and his students' work have emphasized the role of bacterial exudates on the subsurface behavior of plutonium and its decay products. Dr. Honeyman has received grants for research from the National Science Foundation, the U.S. Geological Survey and a variety of U.S. Department of Energy programs. Over his career, Dr. Honeyman has served on a number of advisory panels reviewing licensing and siting of nuclear waste repositories and radioactive waste remediation actions.

Kersting, Annie B.

Lawrence Berkeley National Laboratory

Dr. Annie Kersting is Director of University Relations and Science Education at the Laurence Livermore National Laboratory (LLNL). She holds a B.S. in Geology and Geophysics from the University of California, Berkeley, and an M.S. and Ph.D. in Geology and Geophysics from the University of Michigan. Dr. Kersting previously served as the Director of the Glenn T. Seaborg Institute in the Physical and Life Sciences Directorate, where she focused together with her deputies, Ian Hutcheon and Dawn Shaughessy, on collaborative research between LLNL and the academic community in nuclear forensics, super heavy element discovery and environmental radiochemistry. Dr. Kersting's research interests include the fields of radiochemistry, isotope geochemistry, and environmental chemistry. Her current research focuses on the geochemical mechanisms that control actinide transport in the soil and groundwater, and on identifying the dominant bio-geo-chemical processes and the underlying mechanisms that control actinide (U, Pu, Np, Am) transport. In particular, she is interested in understanding how nanoparticles facilitate transport of contaminants in both the saturated and unsaturated environment. Dr. Kersting was a Board member of the Nuclear and Radiation Studies Board, National Research Council 2010-2012, and a Committee member on the National Academy Sciences National Research Council, Nuclear and Radiation Studies Board Committee from 2006-2007. She served on the Environmental Management Sciences Program Review Panel of the U.S. Department of Energy's Office of Science in 2006, and served as a scientific advisor on the Actinide Migration Committee for Rocky Flats from 2000-2003. Her current research funding comes from the Department of Energy's Office of Science, Biological & Environmental Research. As University of Relations Director, she reports to the Director of Science & Technology in the Director's office.

Kleinman, Michael T.

University of California, Irvine

Dr. Michael T. Kleinman is an Adjunct Professor of Toxicology in the Department of Medicine's Occupational and Environmental Medicine Division at the University of California, Irvine (UCI), with a joint appointment in the Program in Public Health. He was previously employed by the U.S. Atomic Energy Commission (AEC) as an environmental scientist and he directed the Aerosol Exposure and Analytical Laboratory at Rancho Los Amigos Hospital in Downey, CA. He has more than 40 years of experience researching the health effects of environmental contaminants. He holds a M.S. in Chemistry (Biochemistry) from the Polytechnic Institute of Brooklyn and a Ph.D. in Environmental Health Sciences from New York University. He is the Co-Director of the Air Pollution Health Effects Laboratory at UCI. He has published more than 115 peer-reviewed journal articles on effects of environmental contaminants on cardiopulmonary and immunological systems and on global and regional distribution of environmental contaminants including heavy metals and radioactive contaminants from nuclear weapons testing. He has directed more than 50 controlled exposure studies of human volunteers and laboratory animals to ozone and other photochemical oxidants, carbon monoxide, ambient particulate matter (PM) and laboratory-generated aerosols containing chemically or biologically reactive metals such as lead, cadmium, iron and manganese. He has served on two National Academy committees to examine issues in protecting deployed U.S. Forces from the effects of chemical and biological weapons. Dr. Kleinman's current research focuses on neurological and cardiopulmonary effects of inhaled particles, including nanomaterials and ultrafine, fine and coarse ambient particles in humans and laboratory animals. His recent health effects studies have the role of inhaled combustion-generated particles on the promotion of airway allergies and acceleration of development of cardiovascular disease and how these effects are mediated by organic and elemental carbon components of PM. Dr. Kleinman's current research grants and contracts include a grant to examine the effects of inhaled particles on brain stem cells related to tumor development from the California Brain and Lung Tumor Foundation, a contract from the California Environmental Protection Agency to study the role of semi-volatile components of fine and ultrafine PM on cardiac function and atherosclerosis, and a contract to examine the effects of long term inhalation exposure to concentrated fine particles on brain inflammation. Dr. Kleinman has previously served on the U.S. EPA Clean Air Scientific Advisory Committee (CASAC) Ozone, PM and NO2 panels and was appointed to Chair the Scientific Review Panel for Toxic Substances for the state of California. Dr. Kleinman's current research focuses on neurological and cardiopulmonary effects of inhaled particles, including nanomaterials and ultrafine, fine and coarse ambient particles in humans and laboratory animals. His recent health effects studies have the role of inhaled combustion-generated particles on the promotion of airway allergies and acceleration of development of cardiovascular disease and how these effects are mediated by organic and elemental carbon components of PM. Dr. Kleinman is a co-Investigator on grants from NIH and NSF as well as contracts from the California Brain and Lung Tumor Foundation and from the California Environmental

Protection Agency to study the role of semi-volatile components of fine and ultrafine PM on cardiac function, atherosclerosis, and effects of subchronic and chronic inhalation exposures to concentrated fine particles on brain inflammation.

Kronenberg, Amy

Lawrence Berkeley National Laboratory

Dr. Amy Kronenberg is a Staff Biophysicist at the Lawrence Berkeley National Laboratory. Her research interests include radiation biology, cancer biology, charged particle radiation biophysics and mutagenesis. She has conducted extensive research on molecular mechanisms of mutagenesis and aspects of genomic instability. She is a Council Member of the National Council on Radiation Protection and Measurements (NCRP). Dr. Kronenberg is very active in national and international professional societies and institutions. She is currently a Senior Editor for the journal Radiation Research and is also a member of the editorial board of the Journal of Radiation Research (Japan). She was an invited speaker at a symposium on radiation carcinogenesis at the Radiation Effects Research Foundation (RERF) in Hiroshima, Japan. She was co-organizer of the American Statistical Association Conference on Radiation and Health (2006), in addition to many other venues. Dr. Kronenberg serves as a member of the External Advisory Board for the National Space Biomedical Research Institute, and as a member of an international review panel for the GSI Helmholtzentrum in Germany. Her research has been supported by Federal funding sources. Dr. Kronenberg received her A.B. in Biology at Brown University, and her Sc.D. in Cancer Biology from the Harvard School of Public Health.

Maher, Edward F.

Dade Moeller & Associates

Dr. Edward F. Maher is a Senior Health Physicist and Associate with NV5 Company. He is also an adjunct faculty member in the Environmental Health Department of the Harvard T. H. Chan School of Public Health and subject matter expert in environmental health physics, aerosol technology and dose reconstruction. Dr. Maher holds a B.S.E.E. from Lowell Technological Institute, M.S. in Biomedical Engineering from Worcester Polytechnic Institute and a Sc.D. in Radiation Protection and Health from the Harvard T. H. Chan School of Public Health. Dr. Maher was certified for comprehensive practice by the American Board of Health Physics (ABHP) in June 1986, and has since recertified in 1990, 1994, 1998, 2002, 2006, 2010 and 2014. Dr. Maher has more than 40 years of experience conducting and managing radiological, safety, and environmental protection programs applicable to commercial clients and Federal agencies such as the U.S. Departments of Energy (DOE) and Defense (DOD). He is a retired U.S. Air Force (USAF) Colonel with extensive experience in managed and directed comprehensive environmental and occupational health services support to USAF installations worldwide. Specialty service areas included air and water quality; medical, environmental, and occupational health physics; hazardous waste and material management; and environmental noise research. Dr. Maher has published more than 35 peer-reviewed articles, two book chapters, and more than 50 published abstracts, presentations and guest speaking appearances. His current research efforts are radiological dose reconstruction methodologies for occupationally exposed member of the DOE weapons community. Dr. Maher's company (NV5) receives Federal funding from National Institute for Occupational Safety and Health (NIOSH) under the Energy Employees Occupational Illness and Compensation Program Act (EEOICPA) and he directs all dose reconstruction efforts under this program. His past research activities included radon mitigation and air treatment under a U.S. Environmental Protection Agency's grant to the Harvard T. H. Chan School of Public Health. Dr. Maher's service to science includes contributions through a variety of activities including but not limited to: Past President of the national Health Physics Society; President of the American Academy of Health Physics; member of Scientific Committee 82 of the National Council of Radiation Protection and Measurements (NCRP); Past President of the New England Chapter of the Health Physics Society; Board Member of the ABHP and Board Chairperson in 2000. Dr. Maher served on the ABHP Panel of Examiners for the Part II Comprehensive Examination from 1989-1993 and was the Panel Chairperson in the 1992 exam year. He was a member of the Committee on Research Directions in Human Biological Effects of the National Academies.

Richardson, David B.

University of North Carolina

Dr. David B. Richardson is Associate Professor of Epidemiology in the School of Public Health at the University of North Carolina at Chapel Hill. His research focuses on the health effects of occupational and environmental exposures, particularly with regards to ionizing radiation. Dr. Richardson has a strong

background in occupational epidemiology, with specific training and expertise in occupational cancer studies, radiation epidemiology, and epidemiological methods. He has conducted research on strengthening epidemiological methods for cohort studies, and laid the groundwork for the proposed research through a history of research on workers employed at U.S. Department of Energy (DOE) facilities, including prior cohort and case-control studies of workers employed at DOE's Oak Ridge, Savannah River, and Hanford facilities, as well as participation in large international collaborative studies of nuclear workers. Dr. Richardson has conducted studies of cancer among nuclear workers at several U.S. Department of Energy facilities, as well as studied cancer among the Japanese survivors of the atomic bombings of Hiroshima and Nagasaki. He has served as a visiting scientist at the World Health Organization's International Agency for Research on Cancer in Lyon, France and at the Radiation Effects Research Foundation in Hiroshima, Japan. Since 2007, he has served as Director of the National Institute of Occupational Safety and Health-funded training program in occupational epidemiology at the University of North Carolina-Chapel Hill. In addition, he is a core faculty member at the Injury Prevention Research Center at the University of North Carolina, and a member of the Exposure and Biomarkers Research Core at the University's Center for Environmental Health and Susceptibility. He is an Associate Editor of the journals Occupational and Environmental Medicine, American Journal of Epidemiology and Environmental Health Perspectives, is a member of the President's Advisory Board on Radiation and Worker Health, and recently served on the Institute of Medicine's Committee on Review of the Department of Labor's Site Exposure Matrix Database. Dr. Richardson's current research includes studies of mortality among workers in the nuclear industry and development of innovative methods for occupational cancer studies. These research activities are supported by grants from the National Institute for Occupational Safety and Health, and the National Cancer Institute. Dr. Richardson received a Ph.D. and M.S.P.H., both in epidemiology, from the University of North Carolina.

Saiers, James

Yale University

Dr. James Saiers is a Professor of Hydrology and Associate Dean of Academic Affairs at Yale University's School of Forestry and Environmental Studies. He holds a B.S. in Geology from Indiana University of Pennsylvania, and an M.S. and Ph.D. in Environmental Sciences from the University of Virginia. Dr. Saiers' research focuses on the movement of water and waterborne constituents on and below the earth's surface. This research relies on laboratory-scale and field-scale experimentation and focuses on complex systems governed by coupled hydrological and geochemical processes. He uses data collected from these experiments to test and refine mathematical models that quantify fluid flow, mass transport, and chemical reactions. Dr. Saiers' overarching goal is to generate new experimental observations and to develop predictive approaches that can be used to inform water-resource management decisions and to guide restoration plans for sites impacted by polluted groundwater or surface water. Dr. Saiers has published extensively on factors affecting groundwater and surface-water flow and on the role of coupled hydrological and geochemical processes in governing the migration of contaminants in soils, aquifers, streams, and wetlands. This research has been supported by numerous grants from federal agencies, including the National Science Foundation, the U.S. Department of Energy, the Army Research Office, and the United States Geological Survey. Dr. Saiers has served on the editorial boards of Water Resources Research and Geophysical Research Letters and is a member of the National Research Council Committee on Scientific Review of Everglades Restoration Progress.

Story, Michael D.

University of Texas Southwestern Medical Center

Dr. Michael D Story is a Professor in the Department of Radiation Oncology at the University of Texas Southwestern Medical Center, Dallas, TX. He is the Chief of the Division of Molecular Radiation Biology and the vice-Chair of the Department of Radiation Oncology. Dr. Story also holds the David M. Pistenmaa M.D., Ph.D. Distinguished Chair in Radiation Oncology. Dr. Story serves on the National Council of Radiation Protection, a federally chartered advisory organization. Dr. Story also chairs the Biology sub-committee for the Particle Therapy Co-operative Group, an organization that is focused on the use of charged particles for radiotherapy. Dr. Story took his Bachelor of Science in Biology and Ph.D. in Cellular and Molecular Radiation Biology from Colorado State University. Dr. Story's expertise is in the areas of cellular and molecular responses to ionizing radiation, including the response to heavy charged particles like those found in the deep space environment or now used for radiation therapy. Indeed, Dr. Story is an advocate for the use of charged particles in radiotherapy. His laboratory is determining biomarkers for carcinogenesis in lung and liver tissues after such radiation exposures as well as building biomarkers of therapeutic response in head and neck cancer through the integration of a number of omics technologies. Dr. Story is also leading a

group examining chemical, biologic or other modifiers of radiation response for therapeutic benefit. This includes identifying and examining agents that either sensitize tumors to radiation or conversely, limits the adverse response of normal tissue from radiation exposure. Dr. Story's research is currently funded by the National Aeronautics and Space Agency, the National Cancer Institute, The Cancer Prevention and Research Institute of Texas and private industry. Dr. Story holds one US Patent and serves of the Scientific Advisory Board for two commercial firms. Dr. Story is also an Editor for three scientific journals and serves on the publication board for the Congress of Space Research.

Wang, Wei-Hsung

Louisiana State University

Dr. Wei-Hsung Wang is a professor of the Center for Energy Studies at Louisiana State University (LSU), an adjunct faculty member in the Departments of Environmental Sciences and Physics & Astronomy at LSU as well as the Pennington Biomedical Research Center, and a clinical professor of radiology at LSU Health Sciences Center New Orleans. He teaches Radiation Protection and Exposure Evaluation, Environmental Radiological Evaluation and Remediation, and Nuclear Facility Safety courses. He is also Director of Radiation Safety Office at LSU and administers a comprehensive radiological control program under a broad scope radioactive material license. Dr. Wang received his B.S. in geology from National Taiwan University, M.S. in environmental health engineering from Northwestern University, and Ph.D. in health physics from Purdue University. He is certified by the American Board of Health Physics (ABHP) and the Board of Certified Safety Professionals. He is a member of the ABHP Part II Panel of Examiners (Vice Chair 2015; Chair 2016), the Health Physics Society (HPS), and Sigma Xi and served as a co-academic dean of the 2014 HPS Professional Development School on Radiation Safety in Medicine. Dr. Wang's research interests center on the development of feasible solutions to practical radiological protection, radiation detection, and environmental impact issues, through the application of a diverse background in bionucleonics, environmental health engineering, industrial hygiene, non-ionizing radiation, radiation instrumentation, and radiochemistry. The majority of his work has emphasized operational radiation safety, radiation detection instrumentation, air monitoring methodology, radioactive waste management, gamma-ray spectroscopy, radiation dosimetry, environmental radiation, and radiological emergency response planning and preparedness. He is a Fellow of the HPS and was the Herman Cember Memorial Lecturer at the 2013 American Industrial Hygiene Conference and Exhibition in Montreal, Canada. He has served as a reviewer for Health Physics, Medical Physics, Nuclear Instruments and Methods in Physics Research, and Nuclear Science and Techniques. He also holds a U.S. patent on a real-time video radiation exposure monitoring system. Dr. Wang is a technical advisor to the Secretary of the Louisiana Department of Health. He was selected to participate in the 2016 Nuclear Tour de France to promote and develop exchanges about the status and knowledge of nuclear development and achievements in France and in the U.S. in different technical fields. After the Fukushima nuclear incident in Japan, he served as a radiological expert on the U.S. National Oceanic and Atmospheric Administration Radiological Ideas Workshop. He was also an invited panelist on the U.S. Nuclear Regulatory Commission (NRC) Radiation Protection Standards Workshop to discuss the potential changes to the NRC's radiation protection regulations and guidance in light of recommendations in ICRP Publication 103. Dr. Wang's current and recent research is not supported by extramural funding.

Zhu, Chen

Indiana University

Dr. Chen Zhu is a Fulbright Scholar, a Professor of Geological Sciences (College of Arts and Sciences), and an Adjunct Professor of Environmental Sciences (School of Public and Environmental Affairs) and Environmental Health (School of Public Health) at Indiana University. He holds a Ph.D. from The Johns Hopkins University, an MSc from the University of Toronto, a BS from the Chengdu University of Technology, and a postdoctoral fellowship at the Woods Hole Oceanographic Institution. Zhu specializes in the reactions of water with minerals, soils, sediments, and rocks, and its control on water chemistry and water quality. Recent research includes geological carbon sequestration, arsenic and antimony contamination of surface and groundwater, selenium contamination or deficiency in soils, and kinetics of water-rock reactions. His knowledge on environmental issues was broadened by five years' experience working in the environmental consulting industry and reflected with his textbook "Environmental Applications of Geochemical Modeling", published by Cambridge University Press. Dr. Zhu's research has been funded by grants from the National Science Foundation, the Department of Energy, and American Chemical Society/Petroleum Research Fund. He has served on numerous committees for the Geochemical

Society, the National Ground Water Association, and the Marie Curie Research Training Network in the European Union, and as an Associate Editor for Geochimica et Cosmochimica Acta—the flagship journal in the field of geochemistry, since 2005. He gave an invited public presentation before Advisory Committee on Nuclear Waste at U.S. Nuclear Regulatory Commission, and 112 invited colloquia at universities around the world. He also consulted for the US Nuclear Regulatory Commission and US EPA. Zhu has received numerous recognitions, including a Fulbright Scholarship in Norway in 2008-09, the 2006 recipient of the John Hem Award from the National Ground Water Association in recognition of his significant contributions in modeling the chemical evolution of water, and a senior associate award from the National Research Council. He was elected a Fellow of the Geological Society of America in 2005 and a Fellow of the Mineralogical Society of America in 2016.