

Biography

Dr. Jan T. Andersson finished his Ph.D. in organic chemistry at the University of Lund, Sweden, in 1976. Following two postdoc years in the USA, he has held faculty positions in Germany and is now professor of analytical chemistry at the University of Münster. Major research interests are polycyclic aromatic sulfur compounds in petroleum and the environment, including high-molecular-weight compounds in fossil materials. The development of analytical methods, from new uses of the atomic emission detector in gas chromatography to novel stationary phases in HPLC, is central to such studies. E-mail: anderss@uni-muenster.de.

Silvana Maria Barbanti is a research scientist focusing on application of biomarkers as parameters of age, source, depositional environment, thermal maturity, and biodegradation to petroleum exploration; and application of diamondoids as indicators of oil cracking and for identification of origins of spilled oils. Ms. Barbanti has an Sc.D. and a master's degree in organic chemistry from Federal University of Rio de Janeiro and a B.S. in pharmacy and biochemistry from University of São Paulo. She has devoted the last 13 years of her life to biomarker research. Dr. Barbanti is a member of the editorial board of *Environmental Forensics*. E-mail: barbanti.ufrj@petrobras.com.br.

Dr. A. Edward Bence has recently retired as senior research advisor from ExxonMobil Upstream Research Company, where his research included compositional kinetics of hydrocarbon generation and the application of petroleum geochemistry to basin exploration. Dr. A. Edward Bence is a former professor of Earth and Space Sciences, from 1968 to 1980, at SUNY Stony Brook, principal investigator

NASA Apollo Program, and NSF DSDP and Ocean Crustal Drilling Programs. He has over 150 refereed publications on petroleum geochemistry, planetary basaltic volcanism, electron probe microanalysis, and hydrothermal ore deposits. He earned degrees from the University of Saskatchewan (B.E., geological engineering), the University of Texas at Austin (M.A., geology), and the Massachusetts Institute of Technology (Ph.D., geochemistry). E-mail: tedbence@shaw.ca.

Dr. Paul D. Boehm is group vice president and principal scientist at Exponent, Inc. He has devoted his 30 years of consulting experience on environmental and forensic chemical aspects of aquatic and terrestrial contamination with an emphasis on petroleum and petrochemicals. He has specifically practiced in the areas of environmental forensics, natural resource damage assessment (NRDA), fate and transport of chemicals, contaminated sediments assessments, and environmental impact assessment for new capital projects. Dr. Boehm specializes in chemical baseline issues, reconstruction of historical releases, and technical apportionment of responsibility for petroleum, coal tar, PAH, PCB, and other contamination of aquatic sediments and wildlife. E-mail: pboehm@exponent.com.

Carl E. Brown is a researcher focusing on the detection of oil spills in the marine and terrestrial environments. Dr. Brown has a Ph.D. in physical chemistry from McMaster University and a bachelor of technology degree from Ryerson Polytechnical University. He has been in the oil spill remote sensing field for 14 years and has published over 130 papers and publications in the fields of chemistry and remote sensing. E-mail: carl.brown@ec.gc.ca.

Jan H. Christensen is assistant professor at the Department of Natural Sciences, The Royal Veterinary and Agricultural University, Copenhagen, Denmark. His specialities and primary research interests include oil spills in the marine and terrestrial environment, oil spill identification, transport and transformation of petroleum hydrocarbon mixtures, chemical analysis of complex mixtures of contaminants in the environment (environmental profiling) using modern analytical techniques, development of novel tools for automated chemometric data analysis, and risk assessment of pollutant mixtures. He is responsible for a new bachelor/master course in analytical chemistry and partly responsible for the daily operation of two research-grade analytical instruments: an ion-trap gas chromatograph — mass spectrometer (GC-MS) (Finnigan Polaris/GCQ) and a hybrid quadrupole-orthogonal — time-of-flight mass spectrometer (Q-TOF). Dr. Christensen has started a new laboratory at The Royal Veterinary and Agricultural University, Denmark, and has already authored 36 academic publications, including 13 peer-reviewed articles in highly respected journals within environmental science and analytical chemistry. E-mail: jch@kvl.dk

Per Daling has an M.Sc. in organic analytical chemistry from the Institute of Chemistry, University of Trondheim. He is a senior research scientist at the Marine Environmental Technology Dept. at SINTEF in Trondheim, Norway.

He has 25 years of experience within the field of oil pollution and has been the project manager and scientist responsible for many research programs within

- Weathering and behavior of oil at sea/in ice/on shore
- Oil analysis and oil spill identification (fingerprinting)
- Field and laboratory testing of oil spill dispersants and countermeasure techniques
- Oil spill contingency planning and net environmental benefit analysis

Since 1999, Per S. Daling has been a convenor for the European Committee for

Standardisation (CEN) for establishing standardized methodology and guidelines for defensible oil spill identification/fingerprinting. He has authored or co-authored 30 refereed publications and 85 nonrefereed publications (papers and invited presentations). E-mail: per.daling@chem.sintef.no.

Mrs. Maria de Fatima a Guadalupe Meniconi is an environmental geochemist with experience in the petroleum industry since 1986. She has carried out research on chemical fingerprinting of petroleum and derivatives, environmental off-shore production wells monitoring, oil spill assessment and modeling, fisheries safety monitoring, and source identification of hydrocarbons in the environment. She obtained her M.Sc. in chemical engineering from Federal University of Rio de Janeiro (COPPE), Brazil, in 1985, and her M.Phil. in instrumentation and analytical science from University of Manchester Institute of Science and Technology (UMIST), England, in 1999. She is currently a senior research scientist of the Research and Development Center of Petrobras, Rio de Janeiro, Brazil. E-mail: fatimameniconi@petrobras.com.br.

Gregory S. Douglas, Ph.D., is a senior consultant and partner at the NewFields Environmental Forensics Practice and has over 25 years of experience in the field of environmental chemistry. Dr. Douglas received a B.S. in chemical oceanography from the Florida Institute of Technology and M.S. and Ph.D. degrees in chemical oceanography from the Graduate School of Oceanography at the University of Rhode Island. His expertise includes development and application of advanced analytical chemistry methods for the study of the fate and effects of petroleum hydrocarbons in soil, waste, wastewater, and biota. His project experience includes many notable oil spill studies such as the *Exxon Valdez* (USA), *Haven* (Italy), *Trecate Blowout* (Italy), *OSSA II Pipeline* (Bolivia), *M/T Athos* (USA), *North Cape* (USA), *M/V New Carrissa* (USA), *T/V Julie N* (USA), *M/V Sea Empress* (Wales), *M/V Selendang* (USA), and 1991 Gulf War oil spills (Saudi Arabia). Dr. Douglas has also published

and presented extensively on analytical methods to identify and reliably monitor the degradation of crude oil in marine sediment and soils. His project support activities include analytical and field program design, analytical method development, oversight of laboratory quality-assurance/quality-control programs, hydrocarbon fingerprinting studies, and litigation support for Natural Resource Damage Assessment (NRDA) programs and Superfund Allocation programs. His e-mail address is gdouglas@newfields.com.

Stephen Emsbo-Mattingly, M.S. (University of Massachusetts), is an environmental scientist with 18 years of analytical chemistry and source identification experience. His area of research includes the composition and changes in the hydrocarbon chemistry of petroleum, tar, and PCB products in the environment. Numerous statistical techniques feature strongly in his work. Mr. Emsbo-Mattingly has authored or co-authored over 50 papers and presentations in the United States and Great Britain. His research has provided a basis for determining environmental liability for both government and industrial clients. He was formerly employed by E3I Environmental Laboratory, META Environmental, and Battelle Memorial Institute before becoming a partner at NewFields Environmental Forensics Practice, LLC, Rockland, Massachusetts. E-mail: smattingly@newfields.com.

Merv Fingas performs research focusing on the behavior and detection of oil spills in the environment. Mr. Fingas has a Ph.D. in environmental physics from McGill University and three master's degrees: one in chemistry, one in business, and another in mathematics, all from the University of Ottawa. He has devoted the last 32 years of his life to spill research and has over 650 papers and publications in the field. Dr. Fingas is a member of several editorial boards including editor-in-chief of the *Journal of Hazardous Materials*. E-mail: merv.fingas@ec.gc.ca.

Glenn S. Frysinger is a professor of chemistry at the United States Coast Guard Academy in

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Captain Richard B. Gaines has 28 years of active service in the United States Coast Guard. He is currently a professor of chemistry at the United States Coast Guard Academy in New London, CT, USA. In addition to teaching, he also interdicted illicit drugs, responded to oil and hazardous chemical spills, and conducted research and development projects related to the Coast Guard's marine safety mission. He received a B.S. in physical science from the United States Coast Guard Academy in 1978 and an M.S. (1981) and Ph.D. (1998) in analytical chemistry from the University of Connecticut. He has been involved in the development of comprehensive two-dimensional gas chromatography (GC × GC) since its inception. His research, in collaboration with colleague Glenn Frysinger, focuses on environmental and criminal forensics, including detailed analyses of oil spills, arson debris, and petroleum products. His e-mail address is Richard.B.Gaines@uscg.mil.

Asger B. Hansen (MSc) is a senior research scientist at the National Environmental Research Institute (NERI), Denmark. For more than 10 years he has been in charge of NERI's oil spill laboratory and responsible for forensic oil spill identification in Denmark as part of the national marine oil spill response team. He has recently participated in a Nordtest project on revising the Nordtest

methodology on oil spill identification. At present, he is a member of the CEN TC/BT TF 120 working group developing CEN guidelines on oil spill identifications. E-mail: aha@dmu.dk.

Dr. Abdelrahman H. Hegazi obtained his B.Sc. in chemistry from Alexandria University, Egypt, and his Ph.D. in 2003 through a scientific channel program between the universities of Alexandria and Münster, Germany. In his thesis he focused on petroleum polycyclic hydrocarbons and sulfur heterocycles in geochemical and environmental investigations. Since 2003, he has been a lecturer at the University of Alexandria with research interests in biomarkers and sulfur heterocycles in petroleum and the environment. E-mail: ahegazih@yahoo.com.

Dr. Alan Jeffrey is a senior geochemist at DPRA/Zymax Forensics in San Luis Obispo, California. Dr. Jeffrey received his Ph.D. in chemical oceanography from Texas A&M University for research using stable isotope ratios to determine the origin of natural gas. He has over 20 years of U.S. and international experience in environmental and petroleum geochemistry. Much of his work has focused on the use of geochemical techniques to solve environmental problems, including sources of spilled hydrocarbon fuels and fugitive methane seeps. E-mail: alanj@zymaxusa.com.

Jeffrey Short is a research chemist at the Auke Bay Laboratory, a division of the Alaska Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA). Dr. Short has worked on oil pollution issues for over 30 years and has published over 50 research papers on the subject. Dr. Short led several of the initial government studies for the Natural Resource Damage Assessment of the *Exxon Valdez* oil spill and has continued to study the long-term fate and effects of the spill. E-mail: Jeff.Short@noaa.gov.

Paul G. M. Kienhuis (B.Sc.) is an analytical chemist with more than 30 years' experience

and works at the Institute of Integral Water Management and Waste Water Treatment (RWS-RIZA, NL). For more than seven years, he has been responsible for the identification of waterborne petroleum and petroleum products from the inland waters of the Netherlands and the Dutch part of the North Sea. At present, he is a member of the CEN TC/BT TF 120 working group developing CEN guidelines on oil spill identifications and is also a member of the ENOSI (European Network for Oil Spill Identification) expert group of the Bonn Agreement (an international agreement by North Sea coastal states). In 2004, together with Dr. G. Dahlmann (BSH, Germany), he started with an annual international ring test for oil spill identification to share and improve knowledge about analytical techniques and limitations in comparing oil samples.

He worked for more than 10 years with LC-MS/MS on polar compounds in surface water and has published several papers in scientific journals dealing with specific methods for screening water samples and developed a library for MS/MS spectra based on chemical ionization and collision-induced dissociation; see www.riza.nl/cicid. E-mail: p.kienhuis@riza.rws.minvenw.nl.

William J. Lehr has a Ph.D. degree in physics from Washington State University. He is currently a senior scientist with the Hazardous Materials Response Division of the National Oceanic and Atmospheric Administration. Dr. Lehr was previously the spill response group leader for the same organization, technical analyst with Jet Propulsion Laboratory, and a professor of applied mathematics at the University of Petroleum and Minerals. Dr. Lehr has also served as an adjunct professor for the World Maritime University and as a consultant for UNESCO.

Dr. Lehr is a recognized expert in the field of hazardous chemical spill modeling with more than 50 peer-reviewed publications. He has served as past guest editor for the journal *Spill Science and Technology* and is currently guest editor for the *Journal of Hazardous Materials*. Dr. Lehr has also served as a

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Mr. Kevin J. McCarthy has over 18 years' experience in the field of environmental forensic chemistry. His specialization is in the area of environmental forensics of nonaqueous phase liquids (NAPL), waters, soils/sediments, and soil- and airborne vapors. He has managed over 200 projects delineating the fate and transport of petroleum-based hydrocarbons and coal-derived wastes in aquatic and terrestrial environments. He has written interpretive reports for over 100 programs, for both legal (outside counsel and in-house counsel) and nonlegal clients. He has participated in developing specialized methodologies for the analysis and characterization of oil and petroleum products. He has authored or co-authored over 50 papers as part of scientific journals and/or books. His expertise includes the use of advanced chemical forensic methodologies to characterize the type(s) of petroleum and non-petroleum materials present and the source relationships among samples and to determine proportional allocations of a broad range of chemicals, including those that comprise crude petroleum, petroleum distillates, solvents, fuels, lubricants, residuals, specialty materials, urban runoff, combustion-related PAHs, coal-derived wastes, and various industrial chemicals. He was a principal research scientist at Battelle Memorial Institute for 15 years and is currently a partner at NewFields Environmental Forensics Practice, LLC, Rockland, Massachusetts. E-mail: kmccarthy@newfields.com.

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Dr. Ed Owens is a principal with Polaris Applied Sciences, Inc., and is a coastal geologist who has been involved with spill response operations worldwide since 1970. His primary focus is on technical support for shoreline treatment and cleanup. Dr. Owens pioneered the use of aerial videotape surveys to support pre-spill shoreline mapping and for spill documentation and the SCAT process for the description of oiled shorelines. E-mail: ehovens@PolarisAppliedSciences.com.

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Christopher M. Reddy is an associate chemist in the Department of Marine Chemistry and Geochemistry at the Woods Hole Oceanographic Institution in Woods Hole, MA, USA. He earned a B.S. in chemistry from Rhode Island College in 1992 and a Ph.D. in chemical oceanography from the Graduate School of Oceanography at the University of Rhode Island in 1997. His work mainly focuses on the source, transport, and fate of organic contaminants in the coastal ocean, with a particular interest in using novel analytical tools such as comprehensive two-dimensional gas chromatography as well as molecular-level isotopic analysis (radiocarbon, stable isotope, and stable chlorine). His e-mail address is CReddy@whoi.edu.

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Since 2003, she has worked as a research scientist in the Marine Environmental Technology Dept. at SINTEF in Trondheim, Norway.

Her main fields of competence and selected programs at SINTEF have been

- analysis of PAH in processed water, emission samples, and pitch from aluminum industry
- oil analysis and oil spill identification (fingerprinting)
- produced water analysis (PAH/NPD, alkylated phenols) in connection with testing different cleaning technologies from the oil industry
- oil spill contingency planning in the Arctic

Since 2005, Kristin has participated in establishing the standardized methodology and guidelines for defensible oil spill identification/fingerprinting — European Committee for Standardisation (CEN). E-mail: Kristin.R.Sorheim@sintef.no.

Debra Simecek-Beatty has been a physical scientist for the National Oceanic and Atmospheric Administration's Hazardous Materials Response and Assessment Division for over 20 years. She has a Master's degree in marine affairs from the University of Washington. During an emergency response, she is responsible for providing estimates of the movement and behavior of the spill. This includes collecting visual observations, remote sensing information, wind and current data, and computer modeling output to form an analysis. In addition, she is responsible for interfacing with local experts (i.e., meteorologist, academia, researchers) in formulating the trajectory analysis. E-mail: Debra.Simecek-Beatty@noaa.gov.

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Scott A. Stout, Ph.D., has degrees in oceanography and geology from Florida Tech and

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Allen D. Uhler holds a Ph.D. in chemistry from the University of Maryland and has over 20 years' experience in the field of environmental chemistry. He has published or presented more than 150 treatises on the analysis, occurrence, distribution, and fate of hydrocarbons and persistent anthropogenic industrial chemicals in the environment. Dr. Uhler has conducted assessments of the occurrence,

sources, and fate of fugitive petroleum at refineries, offshore oil and gas production platforms, bulk petroleum storage facilities, along petroleum pipelines, and sediments. He has studied the occurrence, behavior, and fate of coal-derived wastes at coke works, former manufactured gas plants, and wood-treating facilities. His experience includes the measurement and environmental chemistry of manmade industrial chemicals including PCB congeners and Aroclors, persistent pesticides, dioxins and furans, metals, and organometallic compounds. D. Uhler was a senior scientist for over 17 years at Battelle Memorial Institute and is currently a partner at NewFields Environmental Forensics Practice, LLC, in Rockland, Massachusetts. E-mail: auhler@newfields.com.

Clifford Walters received Bachelor degrees in both chemistry and biology from Boston University (1976) and a Ph.D. in geochemistry from the University of Maryland (1981). He then entered the private sector to conduct research in petroleum geochemistry; first with Gulf Research & Development (1982), then Sun Exploration & Production Co. (1984), Mobil Research & Development (1988), and finally ExxonMobil Research & Engineering (2000). He currently leads a program investigating the fundamental processes involved in petroleum generation, expulsion, and reservoir alteration, including biodegradation. Cliff has numerous publications in petroleum geochemistry, ranging from theoretical modeling to basinal case studies, and has co-authored the new edition of *The Biomarker Guide*. E-mail: clifford.c.walters@exxonmobil.com.

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behavior of oil and other hazardous organics in the environment; contaminated sediments assessment; oil burn emission and products study; oil biodegradation; and application of modern analytical techniques to oil and chemical spill studies. Dr. Wang has authored or co-authored over 280 publications including peer-reviewed journal papers, invited reviews, book and book chapters, departmental reports, conference proceedings, and other publications. Dr. Wang has received numerous national and international scientific honors. He is currently one of two editors-in-chief of *Environmental Forensics*. E-mail: Zhendi.Wang@ec.gc.ca.

Chun Yang has received a Ph.D. from Nanyang Technological University of Singapore in 2000, a master's degree from Research Centre for Eco-Environmental Sciences of Chinese Academy of Sciences (RCEES-CAS) in 1997, and a bachelor's degree from Beijing Normal University of China in 1992. He specializes in environmental sciences, analytical chemistry, and natural products and has authored or co-authored about 30 academic publications in peer-reviewed journals. Currently, his research in the Emergencies Science and Technology Division of Environment Canada mainly focuses on the chemical fingerprinting and environmental forensics of oil products and other possible spill candidates. E-mail: chun.yang@ec.gc.ca.

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