

Joachim Dieter Pleil, Research Physical Scientist, in EPA's National Exposure Research Laboratory

Exposure Methods and Measurements Division

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Area of Expertise: Over the past 35-years, Dr. Pleil has worked with many aspects of environmental science, specifically in analytical methods and instrument development. Using laboratory results from field and applied studies with human subjects, Dr. Pleil has also developed stochastic and classical pharmacokinetic models for the uptake, metabolism and eventual disposition of various organic carcinogens (or suspected carcinogens) including vinyl chloride, benzene, chloroform, MTBE, trichloroethene, tetrachloroethene and diesel exhaust constituents. Currently, there are a number of his analytical methods based on cryogenic focusing (air/breath), liquid-liquid (and solid-liquid) extraction for blood, urine and dust in use for trace analysis at the Agency and other institutions. He has worked in collaboration with most branches of the military, as well as DoD, NASA, NATO, NIOSH, CDC, AFOSR, and DoE.

He has provided Agency expertise to the U.S. Navy's Undersea Medical Institute, trained Marine Corps personnel in Okinawa, and participated in the U.S. Air Force's inter-services military Jet Fuel exposure study as the senior Government scientist. Since 2001, he has been involved with the World Trade Center (WTC) disaster and its environmental/health aftermath. In his current position, Dr. Pleil develops laboratory methods for measuring and identifying patterns of endogenous and chemical biomarkers, constructs mathematical, statistical, and systems biology approaches to interpret exposures to environmental stressors, and, as an adjunct Professor, teaches "Environmental Exposure Assessment" for graduate students in the School of Public Health of the University of North Carolina. He has recently taken on the responsibility of Editor-in-Chief of the Journal of Breath Research, which is part of the Institute of Physics headquartered in Bristol, UK.

Select Publications:

Pleil JD, Stiegel MA and Risby TH, 2013. "Clinical breath analysis: Discriminating between human endogenous compounds and exogenous (environmental) chemical confounders", *Journal of Breath Research* 7:017107 (11pp).

Pleil JD, Williams M, and Sobus JR, 2012. "Chemical Safety for Sustainability (CSS): Biomonitoring in vivo data for distinguishing among adverse, adaptive, and random responses from in vitro toxicology", *Toxicology Letters* 215(3):201-207.

View more research publications by [Joachim Pleil](#).

Education:

- Ph.D., Environmental Science and Engineering, University of North Carolina, Chapel Hill, 2004
- M.S., Physics, Southern Illinois University, 1979
- B.S., Physics, Southern Illinois University, 1976
- B.S., Mathematics, Southern Illinois University, 1976

Professional Experience:

- Research Physical Scientist (GS-15), U.S. EPA, Research Triangle Park, NC, 1987-present
- Editor-in-Chief, Journal of Breath Research, Institute of Physics, Bristol, UK, 2015 to present
- Adjunct Associate Professor and Graduate Faculty appointments, Environmental Science and Engineering Dept., School of Public Health, University of North Carolina, 2005-2012
- Adjunct Professor, Environmental Science and Engineering Dept., School of Public Health, University of North Carolina, 2012-present
- Senior Research Scientist; Northrop Services Inc., Research Triangle Park, NC, 1979-1987