**David Ameer Tavakoli**

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**RESEARCH INTERESTS**

David Tavakoli’s primary research interest has been on investigating how compounds partition from one phase to another. Examples of this partitioning include how compounds in liquids can be sorbed or chemically treated onto solid media like permeable reactive barriers particularly to remediate contaminated groundwater, to examining how compounds partition from the solids to gases which can have implications on the delivery of chemical doses of nicotine and carcinogens from tobacco smoke to the body. In the laboratory my focus has been on automating sample extraction, handling, and analysis to increase laboratory throughput.  Analytical experience includes method development and routine analysis of compounds on a wide variety of chemical instruments including, but not limited to, Gas Chromatography (GC) and High Pressure Liquid Chromatography (HPLC) with a variety of detectors including Mass Spectrometry (MS). Most recent experience has been as lab manager of the Panalytical X-Ray lab at the Georgia Institute of Technology.

**EMPLOYMENT HISTORY**

2014-Present RESEARCH SCIENTIST II

Georgia Institute of Technology

Gained expertise and experience in X-Ray instrumentation, particularly the Panalytical X’Pert PRO Alpha 1, MRD, and MPD. Performed general lab maintenance, assisted in experiment methodology and design, particularly in making sure experiments were performed safely and efficiently.

* Performed literature review
* Prepped, analyzed, and processed industrial samples on the MRD.
* Familiar with identifying, troubleshooting, and correcting problems with Panalytical hardware and software.
* Experience with PDF 4+ and Highscore plus for phase and element analysis.
* Training students and staff on the XRD techniques.
* Trained in purchasing and billing within the Georgia Tech administrative system
* Trained and authorized to register students and staff to the Faces scheduling system.
* Supervised experiments to ensure safety

2010-2014 ADMINISTRATOR

AWE

Performed general management duties and supervised day-to-day operations. Handled customer relations and sales.  Responsible for organizing workshops and seminars locally to increase professional skills.

* Maintained accurate accounting of profits, guarantees, fees, payroll, and expenses
* Managed schedule and travel accommodations nationwide
* Assisted in writing sponsorship proposals
* Supervised publicity

2005 – 2010 ASSOCIATE SERVICE FELLOW

Centers for Disease Control and Prevention (CDC)

Responsible for method development of various compounds including free-base nicotine and ammonia in mainstream tobacco smoke, as well as routine monitoring of “Tar”, Nicotine, and carbon monoxide (TNCO).

* Aided in development of the standard operating procedure for TNCO for FDA regulation
* Wrote method and data sections for papers prepared for publication (citations below)
* Responsible for instrument maintenance and troubleshooting
* Created standards, standard curves, and processed samples

1999-2005 GRADUATE RESEARCH ASSISTANT

OGI School of Science and Engineering

Studied mainstream tobacco smoke aerosols and how their chemical properties govern compound distribution between the gas phase and the suspended particles.

* Assisted in the development of papers for publication and grant proposals.
* Developed method for the measurement of free-base nicotine in the gas phase of mainstream tobacco smoke from commercial and research cigarettes.
* Taught Aquatic Chemistry 511 and 512. Prepared lectures, and assigned and graded homework.

1997 – 1999 RESEARCH ASSISTANT

OGI School of Science and Engineering

Performed analysis of Volatile Organic Compounds (VOCs) and Chromate from groundwater on HPLC and GC. Developed methods for detection of Benzene, Toluene, Ethylbenzene, Xylene (BTEX), and Methyl-tert-butylether (MTBE).

* Developed qualitative and quantitative methods for the detection and measurement of a variety of compounds in groundwater. Compounds routinely monitored were PCE, TCE, Benzene, Toluene, Ethylbenzene, and Xylene.
* Created custom software using HP VEE and LabVIEW to control pilot scale projects aimed to remediate groundwater contamination

**EDUCATIONAL HISTORY**

1997 OGI School of Science and Engineering, Beaverton, OR

M.S. Environmental Science and Engineering

1995 Northland College, Ashland, WI

B.S. Chemistry

**PUBLICATIONS**

“Percent Free-Base Nicotine in the Tobacco Smoke Particulate Matter of Selected Commercial and Reference Cigarettes”. Pankow, J.F.; Tavakoli, A.D.; Luo, W., Isabelle, L.M. *Chemical Research in Toxicology*,2003 Aug;16(8):1014-8

“Delivery Levels and Behavior of 1,3-Butadiene, Acrylonitrile, Benzene, and Other Toxic Volatile Organic Compounds (VOCs) in Mainstream Tobacco Smoke from Two Brands of Commercial Cigarettes”.  Pankow, J.F.; Luo, W.; Tavakoli, A.D.; Cai Chen; Isabell L. *Chemical Research in Toxicology,* 2004 Jun;17(6):805-13.

“Determination of 14 Polycyclic Aromatic Hydrocarbons in Mainstream Smoke from U.S. Brand and Non-U.S. Brand Cigarettes”. Ding, Y. S.; Yan, X. J.; Jain, R. B.; Lopp, E.,;Tavakoli, A.D.; Polzin, G. M.; Stanfill, S. B.; Ashley, D. L.; Watson, C. H.  *Environ. Sci. Technol.*, 2006 Feb 15;40(4):1133-8.

"Estimating Smokers' Mouth-level Exposure to Select Mainstream Smoke Constituents From Discarded Cigarette Filter Butts”. Polzin GM, Wu W, Yan X, McCraw JM, Abdul-Salaam S, Tavakoli AD, Zhang L, Ashley DL, Watson CH. *Nicotine Tob Res.* 2009 Jul;11(7):868-74.

“Determination of Solanesol Levels in Cigarette Filters by Liquid Chromatography/Mass Spectrometry” Polzin, G.M.; Weijia W.; Yan, X.; McCraw, J.; Zhang, L.; Abdul-Shalaam, S.; Tavakoli, A.D.; Ashley, D.L.; Watson, C.H. (In Preparation)

**BOOK CHAPTERS**

Approaches, Challenges, and Experience in Assessing Free Nicotine.

Ashley DL, Pankow JF, Tavakoli AD, Watson CH. Handb Exp Pharmacol. 2009;(192):437-56.

**PRESENTATIONS**

Assessing the Addictive Constituents and Design of Tobacco Products

Presented at the 15th World Conference on Tobacco OR Health, Washington DC., July 12-15, 2006

**POSTERS**

Analysis of Physical Characteristics and Smoke Chemistry of Popular Brand Cigarettes from Selected Countries Before and After Changes in Regulation

Bryan A. Hearn, Gregory M. Polzin, Christina L. Vaughan, Ameer D. Tavakoli, Liqin Zhang, Diana R. Johnson, Gary Giovino, K.Michael Cummings, Richard O'Connor, David Hammond, Geoffrey T. Fong, Ann McNeill, Bill King, Ron Borland, Buppha Sirirassamee, Foong Kin, Clifford H. Watson, and David L. Ashley. Presented at the 15th World Conference on Tobacco OR Health, Washington DC., July 12-15, 2006