

Ali K. Oskouie, PhD

E-mail: oskouie@iit.edu oskouiea@mwr.org

EDUCATIONAL HISTORY

Illinois Institute of Technology	Ph.D. 1996	Environmental Engineering (Department of Chemical and Biological Engineering)
Post-Doctoral Fellow	1996-1997	American Air-Liquide R&D, Lagrange, IL
University of Michigan, Ann Arbor	M.S.E-1990	Civil and Environmental Engineering (Water Resources and Hydraulics)
Tabriz University (Iran)	BSc (1986)	Civil Engineering (Water Resources and Hydraulics)

PROFESSIONAL HISTORY

Research Scientist: (01/01-Present), *Metropolitan Water Reclamation District of Greater Chicago-Monitoring and Research Department (MWRDGC)*

Adjunct Professor: (05/96-Present), *Civil, Architectural and Environmental Engineering, Illinois Institute of Technology-Chicago, Illinois*
(Lectured over 22 graduate level classes in Civil& Environmental Engineering and Chemical and Biological Engineering; supervised PhD and MS students; Developed Laboratories: Environmental Processes Lab and Fine (nano-and micro size Particle Technology Lab at IIT)

Post-Doctoral Senior Research Associate: (6/96-6/97) *American Air-Liquide-R&D, Illinois, and Illinois Institute of Technology, Department of Chemical and Environmental Engineering*

Technical Consultant: (12/93-5/96) - *Amherst Process Instruments Inc. (API). Amherst, Massachusetts.*

Teaching and Research Assistant: (1/91-5/96) *Illinois Institute of Technology. Pritzker Department of Environmental Engineering*

PROFESSIONAL ACTIVITIES AT THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO (District) (2001-Present)

- Phosphorus Removal Feasibility Study at the Hanover Park Water Reclamation Plant (WRP)
- Scientific Advisory and Coordination of Sampling for an Innovative Membrane Technology at the O'Brien WRP for Future Full Scale Implementation at O'Brien for fast removal of ammonia during winter season.
- Feasibility Study at O'Brien WRP to Improve the Settleability of Activated Sludge Using Step-Feed System
- Providing Technical and Monitoring Support for Emissions of Odorous Compounds at the Thornton Composite Reservoir
- Providing Support to Planning Section of M&R in all Aspects of Decision Making on Design and Implementation of Control Systems for all Plants and Biofilm Activities in Collection Systems
- Provided Proposal to Secure Major Funding to Build a Biothermal System at the Kirie WRP, and Assisted Kirie M&O in Various Aspects of Biothermal System Installation
- Modeling Volatile Organic Compounds (VOCs) Emissions from the Wastewater Treatment Plants
- Optimization of Wastewater Treatment Processes
- Pilot Plant Study on Disinfection of Wastewater using UV systems on Large Treatment Plants
- Supervising Odor Monitoring Activities for Wastewater Treatment Plants and Sludge Drying Areas
- Review of District's Wastewater Treatment Plants Air Permits
- Preparing Work Plans for Research and Experimental Activities and Report Writing
- Assisting in District's Master Plan Projects by Providing Expertise to M&O and Engineering
- Technical Assistance to Industrial Waste Division of the District in Decision Making Process to Issue Permit for Release of Compounds to the Waterways.
- Assisted R&D in Review of Hydraulic Modeling of Diffusers for McCook Reservoir
- Involved in WERF (Water Environment Research Foundation) Research Committee for Wastewater Optimization and Solids Operations
- Full Scale Studies and Modeling of Odor Emissions from the District Drop Shafts
- Critical Review of USEPA Air Models for Future Implementation to the District Operations
- Literature Review to Provide Background Information to R&D, Engineering and M&O for Decision Making Purposes
- New Technology Review for Possible Implementation at the District Facilities
- Review of Academic and Non-academic Research Proposals and Publications as Related to Wastewater Operations for Funding Purposes
- Involved in Major Research activities such as Energy Management, Disinfection, Interceptor Corrosion, and Micro-constituents' Studies at the District

PATENTS

1. “Apparatus for generating aroma upon electrical signal”. (*US Patent # 6,004,516 was issued, Published in Washington Post, Science Section, Nov.22,1999*)-
Advanced Research Work performed at the Illinois Institute of Technology
2. “Apparatus for generating aroma upon electrical signal”. (*US Patent# 6,548,025*)-
Advanced Research Work performed at the Illinois Institute of Technology
3. Provisional Patent on Aroma Technology –*Illinois Institute of Technology- Filed-2018*

PARTNERSHIP DEVELOPMENT

- Partnership program (Research and Educational) with Department of Water Management(Water Treatment Plant), City of Chicago
- Research Collaborations with Ottawa General Hospital, Canada. Research on embolization particles

ACADEMIC ACTIVITIES

- Instructor and Adjunct Professor of broad range of Civil and Environmental Engineering Courses and Advanced Statistics in Chemistry Department at Illinois Institute of Technology
- Supervised Advanced Particle Technology Laboratory at IIT (Chemical Engineering)
- Supervised Environmental Processes Laboratory at IIT (Chemical and Environmental Engineering)
- Advised and Co-Advised PhD and MS Chemical and Environmental Engineering Students at the Illinois Institute of Technology.
-

PAPERS AND PRESENTATIONS

Oskouie, A.; Podczerwinski E., Zhang, H.; Kunitz, T.; Kozak, J. Prediction of Potential for Odor Emissions from a Chicago Interceptor Sewer System Using a Mathematical Model with Limited Data Yields Useful Results (Accepted for publication in ASCE, J. of Environmental Engineering, 2018)

Nick Adams, Ali Oskouie, Thomas E. Kunitz, , Jeff Peeters, Zebo Long, Pierre Côté. Innovative Membrane-Aerated Biofilm Reactor Pilot Test to Achieve Low-energy Nutrient Removal at the Chicago MWRD (submitted to ASCE, J. Env. Engrg 2018)

Kunitz T. E.; Oskouie A. K.; Poonsapaya A.; Peeters J.; Adams N.; Long Z.; Côté P. Innovative Membrane-Aerated Biofilm Reactor Pilot Test to Achieve

Low-energy Nutrient Removal at the MWRD-Chicago (Accepted for publication in WEF Proceedings-New Orleans, 2016)

Barber L., Loyo-Rosales J, Rice C, Minarik, T, Oskouie A. Endocrine Disrupting Alkylphenolic Chemicals and Other Contaminants in Wastewater Treatment Plant Effluents, Urban Streams, and Fish in the Great Lakes and Upper Mississippi River Regions; *Science of Total Environment*, 517 (2015), 195-206

Oskouie A., Lordi D., Granato T., Kollias, L. Plant Specific Correlations to Predict the Total VOC Emissions from Wastewater Treatment Plants. *Atmospheric Environment*, 42, 4530-4539, (2008).

Oskouie, A., Lordi, D. T., Sawyer, B., Lanyon, R. Comment on “ Locating and Quantifying PCB Sources in Chicago: Receptor Modeling and Field Sampling” *Environ. Sci Technol*, 37 (24): 5837 (2003).

Lestari, P., Oskouie, A., Noll K. E. Size Distribution and Dry Deposition of Particulate Mass, Sulfate and Nitrate in an Urban Area," *Atmospheric Environment*, 37, 2507-2516 (2003).

Oskouie, A., Noll, K. E., Wang H-C. "Minimizing the Effect of Density in Determination of Particle Aerodynamic Diameter Using a Time of Flight (TOF) Instrument," *J. Aerosol Science*, 34: 501-506 (2002).

Oskouie A., Noll K.E., Wang H-C. Determination of Particle Diameter and Lumped Density and Shape Factor Using a Three-Beam Time-of-Fight (TOF) Instrument, *J. Aerosol Sci.* 33(8) pp17-30 (2002).

Oskouie A., Furuya, E., Noll K. E. Dependency of the Highest occupied Molecular Orbital (HOMO) Electron Density on the Freundlich Exponent. *Carbon*, 40(8): 1199-1202 (2002).

Noll K. E., Jackson M., Oskouie A. Development of Atmospheric particle Dry Deposition Model. *Aerosol Sci. and Technol*, 35: 627-636 (2001).

Mura Y., Chang H. T., Oskouie A., Noll K. E. Dependency of the Highest Occupied Molecular Orbital (HOMO) Electron density on Freundlich Exponent. *Refereed proceeding on Adsorption Science and Technology, Australia, May 2000.*

Rasuli P., Rasouli F, Oskouie A., Morrish W. An Expert System for the Diagnosis of Brain lesions based on their features Depicted on MR and CT, *PC AI*, November-December, (1999).

Kucuk S., Oskouie A., Cinar A. Particle trajectory in riser using finite element method (*Presented at AIChE bioengineering division*, November 1999).

Kucuk S., Oskouie A., Cinar, A., Numerical study on solid-liquid flow in a riser, (*Presented at AIChE bio-engineering division*, November 1999).

Oskouie A., Wang H-C., Noll K. E., Mavliev R. Calculated calibration curves for particle size determination based on time-of-flight, *J. Aerosol Sci. and Technol.* 29:433-441 (1998).

Oskouie, A., Rasouli, P. Gallegos, M., Aderangi, N. Evaluation of embolization particles using on-line light scattering particle size analyzer in normal saline and non-ionic contrast medium solution, (*Presented at the 4th Annual AIChE, Chicago Section, Northwestern University, Evanston, Illinois (First Place) (1998).*

Oskouie A., Wang H-C. Noll K. E. On the drag coefficient for calculating the calibration curves for API Aerosizer. (*Presented at the 15th Annual Meeting of American Association for Aerosol Research (AAAR) in Orlando-Florida, 1996*).

Oskouie A., Wang H-C., Noll K.E. Theoretical study on simultaneous determination of particle size, density and shape factor using time-of-flight sizers. (*Presented at the 14th Annual Meeting of American Association for Aerosol Research (AAAR) in Pittsburgh, 1995*).

BOOKS

Noll K.E., Oskouie A. (1999) Solutions Manual for Fundamental of Air Quality Systems (*Design of Air Pollution Control Devices*), American Academy of Environmental Engineers.

EDITORIAL and PEER REVIEW BOARD MEMBER:

- Co-editor of fluid-particle interactions symposiums (American Institute of Chemical Engineers, AIChE, (1999)
- Water Environment Research (2001-2012)
- Environmental Science and Technology (2003-2010)
- ASCE, Journal of Environmental Engineering (2003-2012)
- Journal of Atmospheric Environment (2004-present)
- Journal of the Air & Waste Management Association (2004-2014)
- Aerosol Science and Technology (2005-2010)
- International Journal of Environmental Science and Technology (IJEST) (2005-present)
- Chair (session), AIChE World Congress on Numerical Simulation of Fluid/Particle Flow Systems (2006)
- WERF- Issue Area Team member for Optimization of Wastewater, and Solids Operations (2006-2009)
- Fluids Journal (MDPI)
- Water Journal (MDPI)
- Sustainability Journal (MDPI)
- WE&RF LIFT-Link reviewer

- Contributor to four volumes of Energy Management Protocols by WERF
 - Basic Practices for Sustainable wastewater Treatment: Initial case Study Incorporating European Experience and Evaluation Tool Concept, 2010
 - Optimization of wastewater And Solids Operations: demonstration of the Life Cycle Assessment Manager for Energy Recovery Tool, 2010
 - Energy efficiency in wastewater Treatment in North America: A compendium of Best Practices and Case Studies of Novel Approaches, 2010
 - Energy efficiency in value Engineering; barriers and Pathways, 2010
 - Overview of State Energy Reduction Programs and Guidelines for the wastewater Sector,

- WERF LIFT member on control of odors due to biological activities in wastewater treatment systems (2014-present)

PROFESSIONAL SOCIETIES, COMMITTEES AND HONORS

- Member WEF –Water Environment Federation
- NACWA (National Association of Clean Water Agencies)
- WEF: LIFT-Link
- MWRDGC Microconstituents Committee Member (2005-2010)
- Served on the oral exam panel for selection of Research and Technical Manager for Metropolitan Water Reclamation District of Greater Chicago, 1997