

Masoud Kayhanian

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Education and Positions

Research

- Research interest
- Recently completed projects
- Funded research proposals and grants (as PI and Co-PI)
- Research funding sources

Teaching

- Courses taught
- New course and syllabus development
- Graduate students

Publications

- Books chapters
- Solution manuals
- Peer reviewed journal papers
- Professional journal papers
- Conference proceeding papers
- Technical reports

Professional Affiliation and Services

- Professional society membership
- Journal editorial services
- UC Davis committee membership services
- National and international committee membership and services
- Invited seminar presentations
- Conferences and symposia presentations
- Consulting services and collaborations

Awards and Honors

Education and Professional Positions

EDUCATION

- Ph.D. Environmental and Biological Systems Engineering
University of California, Davis (UC Davis), 1988
- M.S. Applied Mechanics & Engineering Science
University of California, San Diego (UC San Diego), 1982
- B.S. Civil Engineering (Magna Cum Laude)
United States International University (USIU), San Diego, 1980

ACADEMIC AND PROFESSIONAL POSITIONS

- July 1, 2014- Research Professor Emeritus, Department of Civil and Environmental Engineering, UCD
- 2006-2014 Research Professor, Department of Civil and Environmental Engineering, UCD
- 2003-2009 Associate Director, Center for Environmental and Water Resources Engineering, Department of Civil and Environmental Engineering, UC Davis
- 1999-2005 Associate Research Professor, Department of Civil and Environmental Engineering, UCD
- 1996-1998 Senior Engineer and Director of Technical Services, California Waste Recovery Systems, Inc., Sacramento, CA
- 1991-1995 Assistant Research Professor and Director of the UC Davis Biogasification Project, Department of Civil and Environmental Engineering, UC Davis
- 1989-1990 Staff Engineer, Western Environmental Science and Technology, Inc., Davis, CA
- 1884-1988 Research and Teaching Assistant, Department of Agricultural and Biological Engineering, UC Davis, CA

Research

RESEARCH INTERESTS

My research activities are primarily focused on two general areas: (1) conversion of waste into energy, and (2) characteristics, fate and transport, and treatment of surface runoff pollutants. Major research topics of interest include:

- Particle-bound organic and inorganic pollutant characterization;
- Mathematical modeling of roadway runoff pollutants;
- Source identification of non-point source pollutants from environment;
- Innovative stormwater runoff treatment;
- Permeable pavement for stormwater runoff management;
- High-solids bio-gasification of organic waste for energy recovery; and
- Methods to assess the biodegradability of organic wastes for bio-fuel production.

FUNDED RESEARCH PROPOSALS AND GRANTS (AS PI AND CO-PI)

- Application of inclined plate settlers for stormwater runoff treatment (PI)
- Ammonia toxicity in high-solids anaerobic digestion process (PI).
- Characterization of California statewide highway runoff from construction sites (Co-PI).
- Clogging investigation of porous asphalt and pervious concrete pavements in parking lots (PI).
- Clogging study of open graded porous asphalt under heavy vehicle and rainfall simulations (CO-PI)
- Comprehensive California statewide highway runoff characterization studies (Co-PI).
- Computer model to estimate the quality and quantity of biogas from municipal landfills (Co-PI).
- Continuous on line flow-through particle size measurement (PI).
- Development of data analysis software to analyze censored water quality data (Co-PI)
- Evaluating field and laboratory data for developing surrogate indicators to monitor fine sediment in the Tahoe Basin (Co-PI)
- Guidance for permeable pavement systems (Co-PI)
- Hydraulic performance evaluation of permeable pavements under heavy traffic and load (PI).
- Fate of wastewater nitrogen discharged to the aquatic and soil environment (Co-PI).
- First flush highway runoff characterization (PI)
- Impact of annual average daily traffic on highway runoff pollutant concentration (PI).
- Importance of nutrients availability on the performance of high-solid anaerobic digestion (PI).
- Isotopic approach to identify sources of nitrogen and phosphorus from Tahoe basin (Co-PI).
- Kinetic model to simulate the biodegradation of a high-solids anaerobic digestion process (PI).
- Managing biosolids by using the biodegradable organic fraction of MSW as a primary substrate and source of energy in a high-solids anaerobic composting process (PI).
- Mass balance modeling approach to identify sources of pollution from highway runoff (PI).
- Mathematical model to predict chemical constituents' pollutographs (PI)
- Methods to fractionate particle size distribution and contaminants associated with them (PI).
- Methods to measure the biodegradability of the organic fraction of municipal solid waste (PI).
- Micro-particles processing and analysis guidance manual for Tahoe Basin (Co-PI).
- New method to measure C/N for design and performance evaluation of bio-gasification (PI).
- Numerical methodology to define first flush pollutants mass loading (PI).
- Nutrient requirements for methanogens in high-solids anaerobic digestion (PI).
- Permeable Pavements in Cold Climates: State of the Art and Cold Climate Case Studies (Co-PI)
- Review of particle size distribution and contaminants associated with them (Co-PI)
- Source identification of total phosphorus originated from motor oil (PI).
- Source identification of nitrate and phosphate and fine sediments from highway runoff (PI)
- Structural performance evaluation of permeable pavements under heavy traffic and load (Co-PI).

- Technical assistance on stormwater runoff management and BMP treatment (Co-PI)
- Toxicity evaluation of highway stormwater runoff (PI)
- Utilization of humus produced from anaerobic composting of the biodegradable organic fraction of municipal solid waste as a fuel supplement in a fluidized bed (PI).
- Water quality of leachate produced from asphalt and concrete surfacing materials under control laboratory investigations (PI).
- White paper on the application of permeable pavement for the sustainable transportation (PI)

RESEARCH FUNDING SOURCES (Total funding ≈\$23,000,000)

- California Department of Air Resources Board
- California Department of Health
- California Department of Transportation (Caltrans)
- California Energy Commission
- California Integrated Waste Management Board
- California Prison Industry (PIA)
- California Waste Recovery Systems Inc.
- City of San Diego
- Delta Diablo Sanitation District
- Integrated Recycling Inc.
- Microgen Corporation
- Minnesota Department of Transportation (MnDOT)
- National Science Foundation
- Protech Inc.
- Richmond Sanitary Services
- UC Davis Academic Federation
- UC Davis Institute of Transportation
- U.S. Department of Energy
- U.S. Environmental Protection Agency (USEPA)
- U.S. Forest Services (USFS)
- University of California Energy Institute
- Vector Engineering, Inc.
- Water Environment Federation
- West County Agency
- West County Wastewater District
- Wildermuth Environmental, Inc.

Teaching

COURSES TAUGHT

Undergraduate courses

Statics, Engineering Economics, Electric Motor Equipment, Solid Waste Management; Renewable Sources of Energy, Conversion of Organic Wastes into Energy and Compost; Global Warming-Scientific Facts and Myths; Water Quality Management; Water Quality System Design; Stormwater Runoff and Its Impact on the Environment; Water Reuse; Water Resources Engineering Planning.

Graduate courses

Water and Wastewater Treatment; Processes Converting Organic Solid Waste into Energy

Professional courses

Bioconversion of Biodegradable Waste into Energy, Advanced Composting, Solid Waste Management Technologies, Solid Waste Management Problem Solving, Bio-Treatment of Toxic Organic Chemical Wastes, and Water Quality Fundamentals.

NEW COURSE AND SYLLABUS DEVELOPMENT

- Developed two new courses with associated teaching materials related to *bio-energy* and *stormwater pollution* and taught them to undergraduates since 2005 at UCD
- Developed short courses in bioenvironmental engineering and fundamentals of water quality and taught them to professionals through UCD Extension, 1995-04
- Developed a new graduate course entitled "Process Converting Organic Solid Waste into Energy" for the Department of Civil and Environmental Engineering at UC Davis and taught it in Spring 1996.
- Developed a comprehensive syllabus for Statics to accompany textbook as a student aid, 1996.
- Prepared three practical courses to educate and train the staff of the California Integrated Waste Management Board on the latest technologies in municipal solid waste management, 1994-97.
- Produced a 20-minute videotape in 1994 of the UC Davis High-Solids Biogasification Project for teaching purposes. This videotape is currently available in the University's Video Archive and is used for several courses at UC Davis.
- Developed a comprehensive syllabus for the Electric Motor Equipment course to aid students with their lab assignments, 1986.

GRADUATE STUDENTS

Served as research adviser for thesis and dissertation committee member, dissertation exam committee, and provided financial assistance for 26 master and PhD students. Past and current graduate students with their degree earned, the year of graduation, and the known position is summarized below:

- Sharla Hardy, PGR, 1992-1995, Project Engineer, City of Stockton
- Karl Lindenauer, PGR, 1992, Associate Professor, University of Colorado at Boulder
- Wes Mindermen, MS, 1993, Senior Engineer, California Integrated Waste Management Board
- Dan Rich, MS, 1994, Senior Project Engineer, EcoLogic Engineering, Inc.
- Blake Tresan, MS, 1995, Senior Project Engineer, Nolte and Associates
- Mike Ma, PhD, 2002, Senior Water Resources Engineer, Fuscoe Engineering, Inc.
- Haejin Lee, PhD, 2003, Agricultural Engineer, U.S. Department of Agriculture

- Lee-Hyung Kim, PhD, 2003, Assistant Professor, Kungjo University, Korea
- Sabbir Khan, PhD, 2004, Associate Professor, Bangladesh University of Engineering and Technology (BUET)
- Sunny Li, PhD, 2004, Assistant Professor, Beijing Normal University, China
- Joohyan Kang, PhD, 2004, Researcher professor, Gwangju Institute of Science and Technology (GIST), Korea
- H. Lee Read, MS, 2005, Environmental firm, Houston, TX
- John Money, MS, 2006, Associate Engineer, County of Sacramento
- Simon Ha, PhD, 2005, Postdoctoral Researcher (last known), University of California at Los Angeles
- Arash Massoudieh, PhD, 2006, Associate Professor, Catholic University of America, Washington, D.C.
- Karol Wong, MS, 2007, Snell & Wilmer law firm, Orange County, CA
- Anand Chadhry, MS, 2007, Project engineer, Black and Vetch, Sacramento, CA
- Ehsan Rasa, MS, 2008, Geosyntec Consultants, San Francisco Bay Area, CA
- Akshy Vichare, MS, 2008, Project engineer, Chevron Inc.
- Owen Ransom, MS, 2008, PhD student at the University of California, Davis
- Ramin Yazdani, PhD, (2010), Senior Engineer, Yolo County, Woodland, CA.
- Erica McKenzie, MS (2010), Post-doc, Colorado School of Mines, Golden, CO
- Lin Chai, MS (2010), PhD student at the Philadelphia University, PA
- Ali Abrishamchi, PhD, (2011), California Department of Water Resources, Sacramento, California
- Jon Leatherbarrow (deceased), PhD (2011), San Francisco Bay Estuary Institute
- Scott Moskowitz, MS (2012), Peace Corps, Water and Sanitation Program, Peru.

Publications (over 200 publications)

BOOK CHAPTERS

1. Contributing author of Chapter 14 of *"Integrated Waste Management: Engineering Principles and Management Issues."* McGraw-Hill Inc., New York, NY, by Tchobanoglous, G., Theisen, H. and Vigil, S., 1993.
2. Contributing author of Chapter 25 on "Biomass Conversion Processes for Energy Recovery," in the *"Handbook of Energy Efficiency and Renewable Energy"* edited by D. Yogi Goswami and Frank Kreith. CRC Press, Boca Raton, FL, May 2007.
3. Contributing author of Chapter 1 on "Implication of Particle Size Distribution, Suspended Solids and Fractionated Density in Urban Roadway Runoff Treatment" in the *Environmental Management*, NOVA Publisher, February 2009.
4. Contributing author of Chapter 1 on "Characteristics of Highway Runoff: General Water Quality, Toxicity, and Particle Size Distribution" in the *Handbook of Environmental Research Advances*, NOVA Publisher, February 2010.
5. Contributing author of Chapter 48 on "Energy Recovery by Anaerobic Digestion Proces," in the *Energy Efficiency and Renewable Energy Handbook, 2nd Edition*, edited by D. Yogi Goswami and Frank Kreith. CRC Press, Boca Raton, FL, September 2015.
6. Contributing author of Chapter on Chapter 1 "Laboratory Testing" and Chapter 14 "Field Data Analysis and Performance Evaluation" in the *Stormwater Manufactured Treatment Devices: Certification Guidelines*, edited by Qizhong (George) Guo, ASCE Press, Baltimore, MD, September 2017.

TEXT BOOKS SOLUTION MANUALS

1. Prepared solutions for Chapters 15 and 19 for the manual to accompany *"Water Resources Engineering, 4th edition."* McGraw-Hill Book Company, New York, by Linsley, Franzini, Freyberg and Tchobanoglous, 1992.
2. Prepared problems for Chapter 14 with solutions for the manual to accompany *"Integrated Waste Management: Engineering Principles and Management Issues."* McGraw-Hill Inc., New York, NY, by Tchobanoglous, G., Theisen, H. and Vigil, S., 1993.
3. Co-author of the solutions manual to accompany *"Small and Decentralized Wastewater Management Systems."* WCB/McGraw-Hill Inc., New York, NY, by Crites, R. and G. Tchobanoglous, 1998.

PEER REVIEWED JOURNAL PAPERS

1. Hills D. J. and **M. Kayhanian** (1985). "Methane from Settled and Filtered Flushed Dairy Waste." *Transactions of the ASAE*, Vol. 28, No. 3, 865-869.
2. **Kayhanian M.** and D. J. Hills (1988). "Membrane Purification of Anaerobic Digester Gas." *Biological Waste*, Vol. 23, No. 1, 1-15.
3. **Kayhanian M.**, D. J. Hills, and B. M. Jenkins (1988). "A Parametric Study on the Single Stage Membrane Purification of Anaerobic Digester Gas." *Transactions of the ASAE*, Vol. 31, No. 1, 191-196.
4. Salour D., B. M. Jenkins, M. Vafaei, and **M. Kayhanian** (1993). "Control of in-Bed Agglomeration by Fuel Blending in a Pilot Scale Straw and Wood Fueled AFBC." *Biomass and Bioenergy*, Vol. 4, No. 2, 117-133.

5. **Kayhanian M.** and G. Tchobanoglous (1993). "Innovative Two-Stage Process for the Recovery of Energy and Compost from the Organic Fraction of Municipal Solid Waste." *Water Science and Technology*, Vol. 27, No. 2, 133-143.
6. **Kayhanian M.** and G. Tchobanoglous (1993). "Characteristics of Humus Produced from the Anaerobic Composting Process of the Biodegradable Organic Fraction of Municipal Solid Waste." *Environmental Technology*, Vol. 14, No. 9, 815-829.
7. **Kayhanian M.** (1994). "Performance of High-Solids Anaerobic Digestion Process under Various Ammonia Concentrations." *Chemical Technology and Biotechnology*, Vol. 59, No. 5, 349-352.
8. **Kayhanian M.** and S. Hardy (1994). "The Impact of Four Design Parameters on the Performance of High-Solids Anaerobic Digestion of Municipal Solid Waste for Fuel Gas Production." *Environmental Technology*, Vol. 15, No. 6, 557-567.
9. **Kayhanian M.** (1995). "Biodegradability of the Organic Fraction of Municipal Solid Waste in a High-Solids Anaerobic Digester." *Waste Management and Research*, Vol. 13, No. 2, 123-136.
10. **Kayhanian M.** and D. Rich (1995). "Pilot-Scale High-Solids Anaerobic Digestion of Municipal Solid Waste with an Emphasis on Nutrient Requirements." *Biomass and Bioenergy*, Vol. 8, No. 6, 433-444.
11. **Kayhanian M.**, G. Tchobanoglous, and J. Mata-Alvarez (1996). "Development of a Mathematical Model for the Simulation of the Biodegradation of Municipal Solid Waste in High-Solids Anaerobic Digestion Process." *Chemical Technology and Biotechnology*, Vol. 66, No. 7, 312-322.
12. **Kayhanian M.** and D. Rich (1996). "Sludge Management using the Biodegradable Organic Fraction of Municipal Solid Waste as a Primary Substrate." *Water Environment Research*, Vol. 68, No. 2, 240-252.
13. Jenkins B. M., **M. Kayhanian**, L. Baxter, and D. Salour (1997). "Combustion of Residual Biosolids from High-Solids Anaerobic Digestion/Aerobic Composting Process." *Biomass and Bioenergy*, Vol. 12, No. 5, 367-381.
14. **Kayhanian M.** (1999). "Ammonia Inhibition in High-Solids Biogasification: A Comprehensive Overview and Practical Solutions." *Environmental Technology*, Vol. 20, No. 4, 355-366.
15. **Kayhanian M.** (1999). "Design, Operation, and Performance of an Innovative Compressed Windrow Composting Process." *Solid Waste Technology and Management*, Vol. 26, No. 1, 36-44.
16. **Kayhanian M.**, K. Murphy, L. Regenmorter, and R. Haller (2001). "Characteristics of Construction Sites Storm Water Runoff in California." *Transportation Research Record (Hydrology, Hydraulics, and Water Quality)*, Vol. 32, No. 1743, 33-40.
17. **Kayhanian, M.**, A. Singh, and S. Meyer (2002). "Impact of Non-Detect on Water Quality Data on Estimation of Constituent Mass Loading." *Water Science and Technology*, Vol. 45, No. 9, 219-225.
18. Shumway R. H., A. S. Azari, and **M. Kayhanian** (2002). "Statistical Approaches to Estimating Mean Water Quality Concentrations with Detection Limits." *Environmental Science and Technology*, Vol. 36, No. 15, 3345-3353.
19. **Kayhanian M.**, A. Singh, Claus Suverkropp, and S. Borroum (2003). "Impact of Annual Average Daily Traffic on Highway Runoff Pollutant Concentration." *Journal of Environmental Engineering*, Vol. 129, No. 11, 975-990.
20. Kim, H. L., **M. Kayhanian**, and M. K. Stenstrom (2004). "Event Mean Concentration and Mass Loading of Litter in Highway Outfalls during Rainstorms." *Science of the Total Environment*, Vol. 330, No. 1-3, 101-113.

21. Lee H., S. L. Lau, **M. Kayhanian**, and M. K. Stenstrom (2004). "Seasonal First Flush Phenomenon of Urban Stormwater Discharges." *Water Research*, Vol. 38, No. 19, 4153-4163.
22. **Kayhanian M.**, L. C. Regenmorte, and K. Tsay (2004). "Characteristics of Snowmelt Runoff from Highways in the Tahoe Basin and Treatment Investigations for Improving the Runoff Quality." *Transportation Research Record (Hydrology, Hydraulics, and Water Quality)*, Vol. 35, No. 1890, 112-122.
23. Kim H. L., **M. Kayhanian**, and M. K. Stenstrom (2005). "A New Modeling Approach for Estimating First Flush Metal Mass Loading", *Water Science and Technology*, Vol. 51, No. 3-4, 159-167.
24. Li Y., S. L. Lau, **M. Kayhanian**, and M. K. Stenstrom (2005). "Particle Size Distribution in Highway Runoff." *Environmental Engineering*, Vol. 131, No. 9, 1267-1276.
25. Kim L-H, **M. Kayhanian**, K. D. Zoh, and M. K. Stenstrom (2005). "Modeling of Highway Stormwater Runoff." *Science of the Total Environment*, Vol. 348, No. 1-3, 1-18.
26. **Kayhanian M.**, and M. K. Stenstrom (2005). "First Flush Pollutant Mass Loading: Treatment Strategies." *Transportation Research Record (Hydrology, Hydraulics, and Water Quality)*, No. 1904, pp 133-143.
27. Khan S., S. L. Lau, **M. Kayhanian**, and M. K. Stenstrom (2006). "Oil and Grease Measurement in Highway Runoff-Sampling Time and Event Mean Concentrations." *Environmental Engineering*, Vol. 132, No. 3, 415-422.
28. Han Y., S.L. Lau, **M. Kayhanian**, and M. K. Stenstrom (2006). "Correlation Analysis among Highway Stormwater Pollutants and Characteristics." *Water Science Technology*, Vol. 53, No. 2, 235-243.
29. Kim L. H., J. Kang, **M. Kayhanian**, K. I. Gil, M. K. Stenstrom, and K. D. Zoh (2006) "Characteristics of Litter Wastes in Highway Storm Runoff." *Water Science Technology*, Vol. 53, No. 2, 225-234.
30. Li Y, S. L. Lau, **M. Kayhanian**, and M. K. Stenstrom (2006). "Dynamic Characteristics of Particle Size Distribution in Highway Runoff: Implication for Settling Tank Design." *Environmental Engineering*, Vol. 132, No. 8, 852-861.
31. Kim, L. H., K. D. Zoh, S. M Jeong, **M. Kayhanian**, and M. K. Stenstrom (2006). "Estimating Pollutant Mass Accumulation on Highways during Dry Periods." *Environmental Engineering*, Vol. 132, No. 9, 985-993.
32. Li Y, S. L. Lau, **M. Kayhanian**, and M.K. Stenstrom (2006). "First flush and Natural Aggregation of Particles in Highway Runoff." *Water Science and Technology*, Vo. 54, No. 11, 21-27.
33. Kang J. H, **M. Kayhanian**, and M. K Stenstrom (2006). Implications of a Kinematic Wave Model for First Flush Treatment Design, *Water Research*, Vol. 40 No. 20, 3820-3830.
34. Han Y., S. L. Lau, **M. Kayhanian**, and M.K. Stenstrom (2006) "Characteristics of Highway Stormwater Runoff." *Water Environmental Research*, Vol. 78, No. 12, 2377-2388.
35. Kang, J.H, Y. Li, S. L Lau, **M. Kayhanian**, and M. K. Stenstrom (2007). Particle Destabilization in Highway Runoff to Optimize Pollutant Removal, *Environmental Engineering*, Vol. 133, No. 4, 426-434.
36. **Kayhanian, M.**, C. Suverkropp, A. Ruby, and K. Tsay (2007). "Characterization and Prediction of Highway Stormwater Pollutant Event Mean Concentrations" *Environmental Management*, Vol. 85, No. 2, 279-295.
37. **Kayhanian M.**, C. Stransky, S. Bay, S. L. Lau, and M. K., Stenstrom (2008). "Toxicity Evaluation of Urban Highway Runoff with Respect to Storm Duration." *Journal of Science of the Total Environment*, Vol. 389, No. 2-3, 386-406.
38. Kang J. H, **M. Kayhanian**, and M.K Stenstrom (2008). Predicting the Existing of Stormwater First Flush from the Time of Concentration, *Water Research*, Vol. 42, No. 1-2, 220-228.

39. Massoudieh, A., A. Abrishamchi, and **M. Kayhanian** (2008). "Mathematical Modeling of First Flush in Highway Storm Runoff using Genetic Algorithm." *Science of the Total Environment*, Vol. 398, No. 1-3, 107-121.
40. McKenzie, E. R., C. Wong, P. G. Green, **M. Kayhanian**, and T. M. Young (2008). "Size Dependent Elemental Composition of Road-Associated Particles." *Science of the Total Environment*, Vol. 398, No. 1-3, 145-153.
41. **Kayhanian M.**, E. Rasa, A. Vichare, and J. E. Leatherbarrow (2008). "Utility of Suspended Solid Measurements for Stormwater Runoff Treatment." *Environmental Engineering*, Vol. 134, No. 9, 712-721.
42. Massoudieh, A. and **M. Kayhanian** (2008). "Artificial Neural Network in Predicting Highway Runoff Constituent Event Mean Concentration." *Journal of Scientia Iranica*, Vol. 15, No. 3, 308-314.
43. Li Y, J-H Kang, S. L. Lau, **M. Kayhanian**, and M.K. Stenstrom (2008) "Optimization of Settling Tank Design to Remove Particles and Metals." *Journal of Environmental Engineering*, Vol. 134, No. 9, 885-894.
44. Kang J-H, S. L. Lau, **M. Kayhanian**, and M.K. Stenstrom (2009) "Characteristics of Highway Stormwater Runoff in Los Angeles: Metals and PAHs." *Water Environment Research*, Vol. 81, No. 3, 308-318.
45. Ma, M., J-H Kang, **M. Kayhanian**, and Michael K. Stenstrom (2009). "Sampling Issues in Urban Runoff Monitoring Program: Composite versus Grabs." *Journal of Environmental Engineering*, Vol. 135, No. 3, 118-127.
46. **Kayhanian, M.**, A. Vichare, P. Green, J. Harvey (2009). "Leachability of Dissolved Chromium from Asphalt and Concrete Surfacing Materials." *Journal of Environmental Management*, Vol. 90, No. 11, 3574-3580.
47. **Kayhanian, M.**, A. Vichare, P. Green, C. Alaimo, H-M Hwang, J. M. Signore, M. Troxler, D. Jones and J. Harvey (2010). "Water Quality Evaluation of Leachate Produced from Pavement Specimens under Controlled Laboratory Conditions." *Journal of Road Materials and Pavement Design*, Vol. 11, No. 1, 9-28.
48. Yazdani R., M. E. Mostafid, H. Byunghyun, P.T. Imhoff, P. Chiu, D. Augenstein, **M. Kayhanian** and G. Tchobanoglous (2010). "Quantifying Factors Limiting Aerobic Degredation during Aerobic Bioreactor Landfilling." *Journal of Environmental Science and Technology*, Vol. 44, No. 16, 6215-6220.
49. Abrishamchi A., A. Massoudieh, and **M. Kayhanian** (2010). "Probabilistic Modeling of Detention Basins for Highway Stormwater Runoff Pollutant Removal Efficiency." *Urban Water Journal*, Vol. 7, No. 6, 357-366.
50. Gettel M., J. S. Gulliver, **M. Kayhanian**, G. DeGroot , J. Brand , O. Mohseni , and A. J. Erickson (2011). "Improving Suspended Sediment Measurements by Automatic Samplers" *Journal of Environmental Monitoring*, Vol. 13, No. 10, 2703-2709.
51. **Kayhanian M.** and B. Givens (2011). "Processing and Analysis of Roadway Runoff Micro (<20 μm) Particles." *Journal of Environmental Monitoring*. Vol. 13, No. 10, 2720-2727.
52. Hettler, E.N., J.S. Gulliver and **M. Kayhanian** (2011). "An Elutriation Device to Measure Particle Settling Velocity in Urban Runoff." *Journal of Science of the Total Environment*, Vol. 409, No. 24, 5444-5453.
53. Sharifi, S., A. Massoudieh, **M. Kayhanian** (2011). "A Stochastic Stormwater Quality Volume Sizing Method with First Flush Emphasis." *Water Environment Research*. Vo. 83, No. 11, 2025-2035.
54. **Kayhanian M.** (2012). " Trend and concentrations of legacy lead (Pb) in highway runoff." *Journal of Environmental Pollution*, Vol. 160, No. 1, 169-177.

55. **Kayhanian M.**, D. Anderson, J. Harvey, D. Jones and B. Muhunthan (2012). "Permeability Measurement and Scanning Images to Investigate Clogging of Pervious Concrete Pavements in Parking Lots." *Journal of Environmental Management*, Vol. 95, No. 1, 114-123.
56. Yazdani R., M. A. Barlaz, D. Augenstein, **M. Kayhanian**, G. Tchobanoglous (2012). "Performance Evaluation of a Landfill-Based Anaerobic Composting Digester for Energy Recovery and Compost Production." *Journal of Waste Management*, Vol. 32, No. 5, 912-919.
57. Chai, L., **M. Kayhanian**, B. Givens, J. Harvey and D. Jones (2012). "Hydraulic Performance of Fully Permeable Highway Shoulder Retrofit for Stormwater Runoff Management." *Journal of Environmental Engineering*, Vol. 138, No. 7, 711-722.
58. Manahiloh, K.N, B. Muhunthan, **M. Kayhanian**, and S.Y. Gebremariam. (2012). "X-ray Computed Tomography and Nondestructive Evaluation of Clogging in Porous Concrete Field Samples." *Journal of Materials in Civil Engineering*, Vol. 24, No. 8, 1103-1109.
59. **Kayhanian, M.**, E. R McKenzie, J.R. Leatherbarrow and T. M. Young (2012). "Characteristics of fractionated particles captured from paved surfaces and detention basins." Vol. 439, No. 10, 172-186, *Journal of Science of The Total Environment*.
60. **Kayhanian, M.**, B. Fruchtmann, J.S. Gulliver, C. Montanaro and Ezio Raniere (2012). "Review of Highway Runoff Characteristics: Comparative Analysis and Universal Implications." *Water Research*, Vol. 46, No. 20, 6609-6624.
61. Olson C. Nicholas, J.S. Gulliver, J.L. Nieber and **M. Kayhanian** (2013). "Remediation to Improve Infiltration into Compact Soils." *Journal of Environmental Management*, Vol. 117, No. 1, 85-95.
62. Massoudieh A. and **M. Kayhanian** (2013). "A Bayesian Chemical Mass Balance Method for Surface Water Contaminant Source Apportionment." *Journal of Environment Engineering*, Vol. 139, No. 2, 250-260.
63. Li, H., **M. Kayhanian**, and J. Harvey (2013). "Comparative Field Permeability Measurement of Permeable Pavements using ASTM C1701 and NCAT Permeameter Methods." *Journal of Environmental Management*, Vol. 118, No. 2, 144-152.
64. Li, H., J.T. Harvey, T.J. Holland and **M. Kayhanian** (2013). "Using High-Reflectance and Permeable Pavements as a Potential Practice for Heat Island Mitigation and Stormwater Management." *Journal of Environmental Research Letters 015023*, Vol. 8, No. 1, 1-14.
65. Coleri, E., **M. Kayhanian**, J. Harvey, K. Yang and J. M. Boone (2013). "Clogging Evaluation of Open Graded Friction Course Pavements Tested under Rainfall Simulation and Heavy Vehicle Simulator." *Journal Environmental Management*, Vo. 129, No. 8, 164-172.
66. Sharifi S., **M. Kayhanian** and A. Massoudieh (2014). "Fate and Transport Modeling of Urban Highway Contaminants by a Multi-Objective Evolutionary Method." *Urban Water Journal*, Vol. 11, No. 5, 379-391.
67. **Kayhanian, M.**, E. Coleri, J.T. Harvey (2014). "Permeability Performance Evaluation of Porous Friction Course (PFC) Pavements after Accelerated Pavement Testing." *Transportation Research Record, Journal of Transportation Research Board*, Vol. 2456, 21-29.
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29. Weiss, P.T., **Kayhanian, M.**, J.S. Gulliver, L. Khazanovich (2015). “Permeable Pavements in Cold Climates: State of the Art and Cold Climate Case Studies.” Final Report (2015-30) Prepared for the Minnesota Department of Transportation. <http://www.dot.state.mn.us/research/TS/2015/201530.pdf>
30. **Kayhanian, M.**, P.T. Weiss, J.S. Gulliver, L. Khazanovich (2015). “The Application of Permeable Pavement with Emphasis on Successful Design, Water Quality Benefits, and Identification of Knowledge and Data Gaps.” A Summary Report Prepared for the National Center for Sustainable Transportation at the University of California, Davis. <http://ncst.ucdavis.edu/wp-content/uploads/2014/08/09-30-2015-NCST-SR-Permeable-Pavement-FINALv5.pdf>

Professional Affiliation and Services

PROFESSIONAL SOCIETY MEMBERSHIP

- Member, American Society of Civil Engineering, 2002-Present
- Member, SIGMA XI (Scientific Research Society), 1987-Present
- Member, Tau Beta Pi (National Engineering Honor Society), 1986-Present
- Member, Alpha Epsilon (Engineering Honor Society), 1986-Present
- Member, Transportation Research Board, 2002-Present

JOURNAL EDITORIAL SERVICES

Editorial Board Member of the following journal:

- *Journal of Water and Wastewater* (International advisory editorial member), 2014-
- *Global Journal of Environmental Science and Technology*, 2010-Present
- *Scientia Iranica (regional editor)*, Journal of Science and Technology, 2005-Present
- *Stormwater*, Journal of Surface Water Quality, 2000-Present

Regular peer review contribution to the following scientific journals:

- *Biomass and Bioenergy, Bioresource Technology, Ecological Engineering, Environmental Engineering, Environmental Management, Environmental Monitoring, Environmental Monitoring Assessment, Environmental Pollution, Environmental Science and Technology, Environmental Technology, Global Journal of Environmental Science and Technology, Science of The Total Environment, Scientia Iranica, Solid Waste Technology and Management, Transportation Research, Waste Management, Water Environment Research, Water Research, Water Resources Planning and Management, Water Science and Technology,*

UC DAVIS COMMITTEE MEMBERSHIP AND SERVICES

- Academic Federation Representative to the Academic Committee on Senate International Studies& Exchange, 2008- 2010.
- Member of the Academic Federation Executive Council, 2006-2008.
- Member of the UC Davis Road Ecology Center, 2009-Present.
- Member of the UC Davis Energy Institute, 2007-Present.
- Member of the University of California Pavement Research Center, 2007-Present
- Member of the Academic Federation Committee on Committees, September 2006-2008
- Member of the Academic Federation Committee for Professional Development, 2005-06
- Member of the scientific committee for Tahoe Center for the Environment Sciences, 2007-Present

- Elected member of the UC Davis Cal Aggie Alumni Association (CAAA) Board of Directors, 2000-2004
- Member of the CAAA Scholarship Endowment Committee, 2000-2004.
- Key contributor of arranging the historical trip of the Chancellor Vanderhoef and 5-member delegation to visit Tehran University and two other technical universities in IRAN in May 2004.
- Key contributor of a 4-day training program at UC Davis sponsored by the United Nations to scientists and engineers from India on the latest technology for conversion of waste into energy and landfill gas recovery, 1996
- Hosted two visiting professors from Spain and Ireland in the Department of Civil and Environmental Engineering and worked with them on developing advanced bio-gasification research programs in their respective universities, 1994-95
- Elected graduate student representative, UCD Graduate Students Association, 1985-87.

NATIONAL AND INTERNATIONAL COMMITTEE MEMBERSHIP AND SERVICES

- Chair of the ASCE/EWRI Committee on data analysis and performance evaluation for manufactured BMPs, June 2008-Present
- ASCE/EWRI Committee Member on lab testing guidelines for certification of manufactured stormwater BMPs, April 2007-Present
- Technical Advisory Committee, Caltrans Stormwater Management Program, 1998-Present
- Blue-Ribbon Panel member on discussing “field testing, laboratory testing and protocols for manufactured best management practices (BMPs) for stormwater runoff treatment,” 7th National StormCon Conference, Orlando, FL, August 3-7, 2008.
- Scientific Advisory Committee, Tahoe Environment Research Center, April 2007-Present.
- Panel member of the “automobiles emissions and regulatory aspects for their control,” 11th International Conference on Diffuse Pollution, Belo Horizonte, Brazil, August 26-31, 2007.
- Panel member of the “BMP and LID workshop” at the 6th StormCon conference, Phoenix, AZ, 2007
- Chair of the “ecological health and risk assessment,” session at the 3rd EcoSummit Conference, Beijing, China, May 22-27, 2007.
- Technical Advisory Board Member of the University of New Hampshire Stormwater Center, July 2007- 2009
- Panel Member, of the “emission from traffic,” 10th International Conference on Diffuse Pollution, Istanbul, Turkey, September 2006
- Chair of “emerging treatment technologies, solid measurements technique, and source tracking of pathogens” session at the 5th StormCon conference on, Denver, Colorado, July 2006
- Panel member of “BMP workshop,” at the 5th StormCon conference, Denver, Colorado, July 2006.
- Chair of the “highway runoff pollutants, and source tracking of pathogens,” sessions at the 4th StormCon conference on, Orlando, Florida, 2005.
- Chair of the “roadway pollutant” session at the 10th International Conference on Urban Drainage, Copenhagen, Denmark, 2005.
- Chair of the “BMP treatment systems,” session at the 3rd StormCon Conference, Palm Desert, California, 2004.
- Organizer and contributor of the Stormwater Monitoring Techniques Workshop for the California Department of Transportation (Caltrans), 2002.

- Peer reviewer of the “energy technology status report” for the California Energy Commission, 1997-98.
- Scientific advisory committee member on “alternatives to rice straw burning” for the California Air Resource Board, 1996-97.
- Investigator of a “proprietary bioremediation process” for the Center for Evaluating New Environmental Technology (CENET) program, California Department of Health, 1994-95.
- Scientific advisory committee member on “California compost regulation,” California Integrated Waste Management Board, 1994-95.
- Scientific advisory committee member and a major contributor of full-scale implementation of newly-developed and innovative high-solids anaerobic composting process for the California Prison Industry Authority (PIA), 1992-95.
- Organizer and contributor of the “application of an anaerobic composting process for the recovery of energy and the production of compost from municipal solid waste workshop” for the California Energy Commission and the California Integrated Waste Management Board, 1994.
- Chair of the “solid and liquid waste treatment,” session at the Canadian Society for Civil Engineering Conference held in Winnipeg, Canada, 1994
- Chair of the “process aspect, performance, and design,” session at the International Symposium on Anaerobic Digestion of Solid Waste held in Venice, Italy, 1992.

INVITED SEMINAR PRESENTATIONS

1. **Kayhanian, K.** “Anaerobic digestion of municipal solid waste” Agricultural Engineering Department, University of California, Davis, March 1993.
2. **Kayhanian, K.** “Utilization of organic fraction of solid waste for energy production.” California Integrated Waste Management Board, March 1994.
3. **Kayhanian, K.** “The recovery of energy and compost from the organic fraction of municipal solid waste.” California Energy Commission, May 1995.
4. **Kayhanian, K.** “Advanced technologies for integrated solid waste management.” Presented to the California Integrated Waste Management Board, Sacramento, CA, June 1996.
5. **Kayhanian, K.** “Destruction of pathogens through compressed windrow.” Biocycle Conference, San Diego, CA, May 1997.
6. **Kayhanian, K.** “Trash-to-Traffic.” Presented at the California Regional Futures, Sacramento, CA, May 2001.
7. **Kayhanian, K.** “Monitoring data reporting, management and analysis.” Caltrans Monitoring Workshop, Oakland, California, April 2002.
8. **Kayhanian, K.** “Influence of non-detect on data analysis and data interpretation.” California State University, Sacramento, October 2003.
9. **Kayhanian, K.** “Highway runoff particle size fractionation and pollutants associated with them in Tahoe Basin.” Tahoe Symposium, Lake Tahoe, California, May 2004.
10. **Kayhanian, K.** “Validity and modification of total suspended solid measurement.” Southern California Coastal Water Research Project (SCCWRP), November 2004.
11. **Kayhanian, K.** “Highway runoff pollutant variability during storm events.” Center for Environmental and Water Resources Engineering, Department of Civil and Environmental Engineering, University of California, Davis, December 2005.

12. **Kayhanian, K.** “New technique to estimate oil and grease without monitoring.” Lake Tahoe Interagency Monitoring Program (LTIMP), May 2005.
13. **Kayhanian, K.** “Impact of annual average daily traffic on highway runoff characteristics.” Department of Civil and Environmental Engineering, University of California, Los Angeles, April, 2005.
14. **Kayhanian, K.** “The role of particle size distribution and suspended solids in BMP and LID performance Evaluation.” Presented to the StormCon panel members, Denver Colorado, August 2006.
15. **Kayhanian, K.** “First flush characterization and modeling.” Department of Civil and Environmental Engineering, University of New Hampshire, Durham, NH. May 11, 2007.
16. **Kayhanian, K.** “Practical application of first flush for treatment BMPs.” Caltrans Web-Based Seminar, October 24, 2007.
17. **Kayhanian, M.** “Urban Stormwater Runoff Management: The Caltrans Experience.” Watersheds and Groundwater Short Course, Buehler Alumni Center, University of California, January 23, 2008.
18. **Kayhanian, M.** “Local and Down-Stream Impacts of Highways to Water Quality.” Road Ecology Center, University of California, February 5, 2008.
19. **Kayhanian, M.** “Leachate Water Quality of Asphalt and Concrete Pavement Materials.” Caltrans Super Storm Water Association Team, San Diego, California, March 26, 2008.
20. **Kayhanian, M.** “Strategies for Particle Monitoring and Characterization in Stormwater.” Caltrans Stormwater Management Group, Sacramento California, April 18, 2008.
21. **Kayhanian, M.** “Diffuse Pollution and Environmental Water Quality Regulations.” Presented to Faculty and Graduate Students at the Sharif University of Technology, Tehran, IRAN, May 10, 2008.
22. **Kayhanian, M.** “Implication of first flush on BMP design and performance evaluation.” Presented to the California Department of Transportation Professional Engineers, Sacramento, CA, March 2010.
23. **Kayhanian, M.** “Performance of and Maintenance Evaluation of Pilot BMP Studies in California.” Presented to the Annual Minnesota Erosion Control Association Conference, Minneapolis, MN, March 2011.
24. **Kayhanian, M.** “Hydraulic Performance Evaluation of Fully Permeable Highway Shoulder.” Presented to the Warren Lecture Series, University of Minnesota, Minneapolis, MN, March 2011.
25. **Kayhanian, M.** “Application of Fully Permeable Pavement Shoulder as a BMP for Stormwater Runoff Management, Brun Intertec, Minneapolis, MN, April 2011
26. **Kayhanian, M.** “First Flush Phenomenon: Proper Definition and Practical Implications.” Presented at the St. Anthony Falls, University of Minnesota, Minneapolis, MN, May 2011
27. **Kayhanian, M.** “Water Reuse in Iran with Emphasis on Potable Reuse.” Presented at the Sharif University of Technology, November 5, 2016, Tehran, Iran.
28. **Kayhanian, M.** “Water Reuse in Iran with Emphasis on Potable Reuse.” Presented at the Isfahan University of Technology, November 11, 2016, Isfahan, Iran.
29. **Kayhanian, M.** “Effective Technical Conference Paper Presentation.” Presented at the Tarbiat Modares University, November 13, 2016, Tehran, Iran.
30. **Kayhanian, M.** “Potable Water Reuse in Iran.” Presented at the Tehran University, March 6, 2017, Tehran, Iran.
31. **Kayhanian, M.** “Potable Water Reuse in Iran: Challenges and Benefits.” Presented at the Khajeh Nasir Technical University, November 14, 2017, Tehran, Iran.

32. **Kayhanian, M.** "Stormwater Runoff Characterization: Value of Scientifically Validated Data." Presented at the Sharif University of Technology, December 6, 2017, Tehran, Iran.
33. **Kayhanian, M.** "California Statewide Stormwater Runoff Characterization and BMP Treatments." Presented at the College of Transportation Engineering, Tongji University, October 2018, Shanghai, China.

CONFERENCE AND SYMPOSIA PRESENTATIONS

1. **Kayhanian M.** and D. J. Hills. "Development and Evaluation of a Mathematical Model for Membrane Purification of Biogas." *ASAE*, Tucson, Arizona, June 26, 1986.
2. Salour D., B. M. Jenkins, M. Vafaei, and **M. Kayhanian.** "Combustion of Rice Straw and Straw/Wood Fuel Blend in a Fluidized Bed Reactor." *ASAE*, New Orleans, Louisiana, December 13, 1989. (read by D. Salour).
3. Salour D., B. M. Jenkins, M. Vafaei, and **M. Kayhanian.** "Thermal Conversion of Rice Straw in a Fluidized Bed Reactor." *American Institute of Chemical Engineering*, San Diego, California, August 19-22, 1990. (read by D. Salour).
4. Happ J., B. M. Jenkins, and **M. Kayhanian.** "Selenium in Fuel Derived from Agroforestry Plantations Irrigated with Saline Drainage Water." *ASAE*, Columbus, Ohio, June 26, 1990. (read by J. Happ).
5. **Kayhanian M.** and G. Tchobanoglous. "Pilot Investigation of an Innovative Two-Stage Anaerobic Digestion and Aerobic Composting for the Recovery of Energy and Compost from the Organic Fraction of MSW." *International Symposium on Anaerobic Digestion of Solid Waste*, Venice, Italy, April 16, 1992.
6. **Kayhanian M.** and D. Rich. "An Innovative Anaerobic Composting Process for the Management of Wastewater Treatment Plant Sludges." *Environmental Engineering Conference*, Manitoba, Canada, June 3, 1994.
7. **Kayhanian M.** and F. Martin." Systems Engineering Looks at AB939: The California Integrated Waste Management Act of 1989." *National Council on Systems Engineering, Fourth Annual International Symposium*, San Jose, California, August 11, 1994.
8. **Kayhanian M.,** B. Jenkins, L. Baxter, and D. Salour. "Combustion of Anaerobically Digested Humus as a Fuel." *Sixth National Bioenergy Conference*, Reno, NV, October 4, 1994.
9. **Kayhanian M.,** G. Tchobanoglous, L. Harrison, and K. Hall. "A Municipal Scale Bioenergy Facility at Folsom California." *Sixth National Bioenergy Conference*, Reno, NV, October 5, 1994.
10. Tchobanoglous G., **M. Kayhanian,** and S. Hardy. "Organic Fraction of Municipal Solid Waste Using High-Solids Anaerobic Digestion Process." *International Conference on Asian Water Technology '94*, Singapore, November 23, 1994.
11. **Kayhanian M.** and D. Jones. "Design of a Large-Scale Anaerobic Digestion Facility for the Recovery of Energy from Municipal Solid Waste." *Bioenergy '96-the Seventh National Bioenergy Conference*, Nashville, TN, September 18, 1996.
12. **Kayhanian M.** "Anaerobic Digestion Process for the Management of the Biodegradable Organic Fraction of MSW." *BioCycle West Coast Conference*, San Diego, CA, March 4, 1997.
13. **Kayhanian M.** "Characterization of the Highway Stormwater Runoff in California." *California Water Environment Association, 72nd Annual Conference*, Sacramento, CA, April 17, 2000.
14. Amano R. M., L. R. Flynn, **M. Kayhanian,** and E. Othmer. "Automated Verification and Validation of Caltrans Storm Water Analytical Results." *Annual Waste Testing and Quality Assurance (WTQA)*, Arlington, VA, August 15, 2001.

15. Stenstrom M., S-L. Lau, H-H. Lee, J. S. Ma, H. Ha, L-Y. Kim, S. Khan, and **M. Kayhanian**. "First Flush Stormwater from Highway" *EWRI World Water and Environmental Resources Congress*, Orlando, FL, May 23, 2001.
16. Myers S., A. Singh, **M. Kayhanian**, J. Wild, J. Johnston, A. Bale and G. Moeller. "A GIS Based Model to Predict the Effectiveness of Best Management Practice On Storm Water Pollutant Mass Loads." *5th International Conference on Diffuse Pollution and Watershed Management*, Milwaukee, WI, August 7, 2001.
17. **Kayhanian, M.**, A. Singh and S. Myers "Impact of Non-Detect on Water Quality Data on Estimation of Constituent Mass Loading." *5th International Conference on Diffuse Pollution and Watershed Management*, Milwaukee, WI, August 5, 2001.
18. **Kayhanian M.**, L. Hollingsworth, L. Regenmorter, M. Spongberg, and K. Tsay. "Characteristics of Stormwater Runoff from Caltrans Facilities." Transportation Research Board, Washington D.C., January 9-13, 2002
19. Regenmorter L. C., **M. Kayhanian**, R. W. Chappell, T. E. Burgessor, and K. Tsay. "Particles and the Associated Pollutant Concentrations in Highway Runoff in Lake Tahoe, California." 1st Annual StormCon Conference, Marco Island, FL, August 12-15, 2002.
20. Regenmorter L. C., **M. Kayhanian** and K. Tsay (2002). "Stormwater Runoff Water Quality Characteristics from Highways in Lake Tahoe, California." 1st Annual StormCon Conference, Marco Island, FL, August 12-15, 2002 (read by L. Regenmorter).
21. **Kayhanian M.** "Establishment of an Effective Total Maximum Daily Load through Reliable Water Quality Data." 1st Annual StormCon Conference, Marco Island, FL, August 12-15, 2002.
22. Ma M., S. Khan, S. Li, L.H. Kim, H. Ha, S. L. Lau, **M. Kayhanian**, and M. K. Stenstrom. "Implication of Oil and Grease Measurement in Stormwater Management Systems." 9th International Conference on Urban Storm Drainage, Portland, OR, September 8-13, 2002. (read by M. K. Stenstrom).
23. Ma M., S. Khan, S. Li, L. H. Kim, H. Ha, S. L. Lau, **M. Kayhanian**, and Michael K. Stenstrom. "First Flush Phenomena for Highways: How it can be Meaningfully Defined." 9th International Conference on Urban Storm Drainage, Portland, OR, September 8-13, 2002. (read by M.K. Stenstrom).
24. **Kayhanian M.**, S. Kummerfeldt, L. H. Kim, N. Gardiner, and K. Tsay. "Litter Pollutograph and Loadograph," 9th International Conference on Urban Storm Drainage, Portland, OR, September 8-13, 2002.
25. Lau S. L., **M. Kayhanian**, and M. K. Stenstrom. "First Flush of Organics in Highway Runoff." 9th International Conference on Urban Storm Drainage, Portland, OR, September 8-13, 2002. (read by M.K. Stenstrom).
26. Kim L. H., **M. Kayhanian**, and M. K. Stenstrom. "Prediction of Event Mean Concentrations and First Flush Effects Using a Mass Interpolation Wash-Off Model for Highway Runoff." 6th International Water Association Conference (IWA) on Diffuse Pollution, Amsterdam, Netherlands, October 1-4, 2002. (read by H-L. Kim)
27. Rogers J., **M. Kayhanian**, D. Schroeder, S. Liao, and K. Tsay. "Impact of Highway Construction Projects on Pollutant Mass Relative to Other Land Use." American Water Resources Association (AWRA), New York, NY, June 29-July 2, 2003.
28. Syrek D. **M. Kayhanian**, and S. Meyer. "A Regression Model to Predict Litter in Urban Freeway Outfalls after Rainstorms." 2nd Annual StormCon Conference, San Antonio, TX, July 28-31, 2003.
29. Shrake J., N. Schaedler, **M. Kayhanian**, and K. Tsay. "Impact of Urban Freeway Congestion on Runoff Water Quality." 2nd Annual StormCon Conference, San Antonio, TX, July 28-31, 2003. (read by N. Schaedler).

30. Ruby A., **M. Kayhanian**, M. Troughon, and B. Larensen. "Advanced Stormwater Runoff Monitoring." 2nd Annual StormCon Conference, San Antonio, TX, July 28-31, 2003. (read by A. Ruby).
31. **M. Kayhanian** "Dynamic of Particles in Highway Runoff." American Water Resources Association Annual Conference, San Diego, CA, November 11-14, 2003.
32. Li S., S. L. Lau, **M. Kayhanian**, and M. K. Stenstrom. "Particle Size Distribution in Highway Runoff." American Water Resources Association Annual Conference, San Diego, CA, November 11-14, 2003. (read by S. Li).
33. **Kayhanian M.** "Revised Rational Method Model to Predict Pollutant Mass Loading from the Highway Environment." American Water Resources Association Annual Conference, San Diego, CA, November 11-14, 2003.
34. **Kayhanian M.**, C. O'Neill, S. Schuster, S. Meyer, and K. Tsay. "The Quality of Stormwater Runoff and Associated Sediments from Representative Highways in the Tahoe Basin." Lake Tahoe Research Symposium, City of Lake Tahoe, CA, May 18-21, 2003.
35. Lau S. L., **M. Kayhanian**, and M. K. Stenstrom. "Mass First Flush of Organic Contaminants in Highway Runoff." Paper 3Q5K13, Proceedings of the IAW-Asia Pacific Regional Conference, Bangkok, Thailand, October 19-23, 2003. (read by S-L. Lau).
36. **Kayhanian M.**, C. Suverkropp, A. Ruby, and K. Tsay. "Multiple Regression Approach in Predicting Highway Runoff Pollutants Concentration." ASCE EWRI, Salt Lake City, UT, June 27-July 1, 2004.
37. Tsay K., A. Ruby, and **M. Kayhanian**. "Quality of Runoff from California Department of Transportation Facilities." 3rd Annual StormCon Conference, Palm Desert, CA, July 26-29, 2004.
38. Stenstrom M., M. Ma, and **M. Kayhanian**. "Sampling Issues: Composites versus Grabs." 3rd Annual StormCon Conference, Palm Desert, CA, July 26-29, 2004. (read by M.K. Stenstrom).
39. **Kayhanian M.**, S. Khan, and M. Stenstrom. "A New Method to Estimate Oil and Grease Event Mean Concentration in Highway Runoff." 3rd Annual StormCon Conference, Palm Desert, CA, July 26-29, 2004.
40. Younis B., A. Ercan, and **M. Kayhanian**. "Evaluation of a Linear Radial Device for Litter Removal from Highways during Rainstorms." 84th Transportation Research Board Conference, Washington, D.C., January 9-13, 2005
41. Kang J.H, Y. X. Li, S. L. Lau, **M. Kayhanian**, and MK Stenstrom. "Application of Particle Size Distribution in Highway Runoff: Optimization of Settling Tank Design to Remove Particles." *The 4th South Pacific Conference on Stormwater and Aquatic Resource Protection*, New Zealand, May 4-6, 2005. (read by J-H. Kang).
42. Lau S. L., **M. Kayhanian**, and M. K. Stenstrom. "PAHs and Organic Pollutants in Highway Runoff." Paper 7F5, Proceedings of the IAW-ASPIRE Conference, Singapore, July 10-15, 2005. (read by S-L. Lau).
43. Li Y. X., **Kayhanian M.**, S.L. Lau, and M. K. Stenstrom. "Particle-Based Pollutant Removal BMPs." 4th Annual StormCon Conference, Orlando, Florida, July 17-21, 2005.
44. **Kayhanian M.**, S. Ha, and M.K. Stenstrom. "Constituents' Annual Load Estimation from Highway" 10th *International Conference on Urban Storm Drainage*, Copenhagen, Denmark, August 21-26, 2005.
45. **Kayhanian M.** "Advanced Stormwater Runoff Characterization." 10th *International Conference on Urban Storm Drainage*, Copenhagen, Denmark, August 21-26, 2005.
46. **Kayhanian, M.** and M.K. Stenstrom "First Flush Phenomenon." California Stormwater Quality Association (CASQA), Ontario, CA, October 4, 2005.

47. **Kayhanian, M.**, Y. Li, S-L Lau and M.K. Stenstrom “Design of BMPs for Contaminant Removal with respect to Small Particle Size Distribution.” California Stormwater Quality Association (CASQA), Ontario, CA, October 5, 2005.
48. **Kayhanian, M.**, T. M. Young and M.K. Stenstrom “Solid Measurement in Stormwater Runoff.” California Stormwater Quality Association (CASQA), Ontario, CA, October 5, 2005.
49. **Kayhanian M.**, J. Leatherbarrow, and C. Alaimo. “Improved Method of Suspended Solid Measurements.” 5th Annual StormCon Conference, Denver, CO, July 24-27, 2006.
50. Massoudieh A., A. Abrishamchi, and **M. Kayhanian**. “A Mechanistic Mathematical Model for Predicting Highway Runoff Pollutograph.” 10th International Diffuse Pollution Conference, Istanbul, Turkey, September 18-22, 2006.
51. Massoudieh A., A. Abrishamchi, and **M. Kayhanian**. “Application of Artificial Neural Network in Predicting Highway Runoff Constituent Event Mean Concentration.” 10th International Diffuse Pollution Conference, Istanbul, Turkey, September 18-22, 2006.
52. **Kayhanian M.**, C. Stransky, S. L. Lau and M. K. Stenstrom. “Toxicity of Runoff from Three Urban Highway Sites in Los Angeles.” 10th International Diffuse Pollution Conference, Istanbul, Turkey, September 18-22, 2006.
53. Abrishamchi, A., A. Massoudieh, and **M. Kayhanian**. “Risk-Based Analysis of Pollutant Concentration Removal in Stormwater Detention Basins with Different Compartment Configurations.” American Institute of Hydrology (AIH), Reno, Nevada, April 22-24, 2007. (read by A. Abrishamchi).
54. Massoudieh A., A. Abrishamchi, and **M. Kayhanian**. “Monte-Carlo Simulation Technique to Assess Risk of Discharging Toxic Effluent Load from Detention Basins.” EcoSummit, Beijing, China, May 22-27, 2007.
55. Abrishamchi, A., A. Massoudieh, and **M. Kayhanian**. “Risk-Based Analysis of Pollutant Concentration Removal in Stormwater Detention Basins with Different Compartment Configurations, ASCE/EWRI, Tampa, Florida, May 22-26, 2007. (read by A. Massoudieh).
56. **Kayhanian M.**, Y. Han and M.K. Stenstrom. “First Flush Phenomenon with Respect to Hydrograph Types.” 6th Annual StormCon Conference, Phoenix, AZ, August 20-23, 2007.
57. **Kayhanian M.** and C. Stransky. “Highway Runoff Toxicity Removal by a Detention Basin.” 6th Annual StormCon Conference, Phoenix, AZ, August 20-23, 2007.
58. **Kayhanian, M.** and E. Rasa. “Particle Size Distribution and Fractionated Particle Density as a Monitoring Toll for Assessing the Performance of Stormwater Best Management Practices.” 11th International Conference on Diffuse Pollution, Belo Horizonte, Brazil, August 26-31, 2007.
59. **Kayhanian, M.**, J. M. Signore, M. P. Trexler, I Guada, J. Harvey, E. Rasa, A. Vichare, P. G. Green, C. Alaimo and H-M Hwang. “An Investigation to Identify the Sources of Contaminants from Pavement Surfacing Materials.” 11th International Conference on Diffuse Pollution, Belo Horizonte, Brazil, August 26-31, 2007.
60. Leatherbarrow, J. E., **M. Kayhanian**, T. M. Young, J. H. Kang, S-L. Lau and M. K. Stenstrom (2007). “Fractionation and Removal of Fine Particles from a Detention Basin.” WEFTEC, San Diego, CA, October 13-17, 2007. (read by J. E. Leatherbarrow).
61. **Kayhanian, M** and H-M Hwang “Methodology to Identify Phosphorus in Highway Storm Water Runoff Originated from Engine Oil.” 7th Annual StormCon Conference, Orlando, FL August 3-7, 2008.
62. Massoudieh, A, J. E. Leatherbarrow, **M. Kayhanian**, A. Abrishamchi, T. M. Young, (2008). “Numerical Model for Suspended Particles Removal within a Detention Basin.” 11th International Conference on Urban Drainage, Edinburgh, UK, September 1-5, 2008.

63. **Kayhanian, M.**, R. Roseen, J. Lenhart, G. Williams (2009). "Potential Data Analysis and Performance Evaluation for Manufactured BMPs." EWRI congress, Kansas City, MI.
64. Klass, T. R., **M. Kayhanian**, M. B. Young, C. Kendall, S. R. Silva and A. Paytan (2009) "Oxygen Isotopes of Dissolved Phosphate in Vegetation and Soil Water Extracts." Proceedings of the American Geophysical Union, San Francisco, CA, December 14-18 (read by A. Paytan).
65. **Kayhanian M.** (2010). LID Application and Concern over Pollutants Generated from Fresh and Recycled Pavement Materials." Proceedings of 9th Annual StormCon Conference, August 1-5, San Antonio, TX.
66. **Kayhanian M.** (2010). Did Phasing out the Leaded Gasoline Improved Highway Runoff Quality?" Proceedings of 9th Annual StormCon Conference, August 1-5, San Antonio, TX.
67. **Kayhanian M** and L. Chai (2011). "Hydraulic Performance Simulation of Fully Permeable Highway Shoulder." Proceedings of World Environment and Water resources Congress, Palm Spring, May 22-26, CA.
68. **Kayhanian M** and M.M. Dever and A. Massoudieh (2011). "Mass Balance Modeling Approach for Nutrient Source Identification of Highway Runoff." Proceeding of World Environment and Water Resources Congress, May 22-26, Palm Spring, CA,
69. Massoudieh A., S. Sharifi and **M. Kayhanian** (2011). "Predicting Highway Stormwater Pollutographs Using a Hybrid Evolutionary Data Driven Modeling Framework." Proceeding of World Environment and Water resources Congress, May 22-26, Palm Spring, CA.
70. **Kayhanian M.** and A. Paytan (2011). "Isotopic Fingerprinting Approach for Nutrient Source Identification." Proceedings of 10th Annual StormCon Conference, August 21-25, Anaheim, CA.
71. **Kayhanian M.** (2012). "Presence and Concentration of Herbicide Pollutants in Urban Highway Runoff." Proceedings of Urban Environment Pollution Conference, June 17-20, Amsterdam, Netherland.
72. **Kayhanian M.** and D. Anderson (2012). Clogging of Porous Asphalt and Pervious Concrete Parking Lots." Proceedings of 11th Annual StormCon Conference, August 19-23, Denver, CO.
73. Kazemi Parkouhi, F., M. Tajrishy, and **M. Kayhanian** (2012). "Characterization of road-deposited sediments in different land-use types in Tehran, Iran." Proceedings of 9th International Conference on Urban Drainage Modeling, September 3-7, Belgrade, Serbia. (read by F. Kazemi)
74. Kamali, M., S. Ghazvinizadeh, M. Tajrishy, **M. Kayhanian** (2012). "Urban runoff characteristics in Tehran, Iran." Proceedings of 9th International Conference on Urban Drainage Modeling, September 3-7, Belgrade, Serbia (read by A. Kamali).
75. Nabong J., C. Helmle, Y. Hrovat, W. Hunt, **M. Kayhanian**, B. Wardynski, R. Winston, J. Wright. (2013). "Development of Analysis Framework and Testing of Optimized Pretreatment Configurations for Municipal Stormwater Control Measures." Low Impact Development Symposium, St. Paul, Minnesota, MN (read by C. Helmle).
76. **Kayhanian, M.**, H. Li, J.T. Harvey, and Xiao Liang (2018). "Role of Permeable Pavement in Highway Stormwater Runoff Management: California Research Experience." International Workshop on Permeable Pavement and Stormwater Management, Shanghai, China.

CONSULTING SERVICES AND COLLABORATIONS

Worked and collaborated with the following environmental consulting firms, universities, and national laboratories to solve challenging problems related to surface runoff, wastewater, solid waste, biomass, energy recovery, and non-point source pollution:

- Brown and Caldwell
- California State University, Chico
- California State University, Sacramento
- California State University, San Diego
- California Waste Recovery Systems, Inc.
- CDM Smith, Inc.
- CH2MHILL
- Cornell University
- EcoLogic Engineering Inc.
- Geomatrix Consultants, Inc.
- Institute for Applied Research
- Integrated Recycling, Inc.
- Iowa State University, Ames, IA
- Kinetics Laboratory, Inc.
- Laboratory Data Consultants, Inc.
- Larry Walker and Associates
- Law Crandall Environmental Engineering and Services
- Microgen Corporation
- Minnesota Department of Transportation
- Montgomery Watson, Inc.
- National Renewable Energy Laboratory (NREL)
- North Carolina State University, Raleigh, NC
- RBF Consulting
- Sandia National Laboratory
- Sharif University of Technology
- Stanford University
- Stone and Webster Engineering Corporation
- Tetra Tech
- University of California, Berkeley
- University of California, Irvine
- University of California, Los Angeles
- University of California, Riverside
- University of California, Santa Cruz
- University of Minnesota
- URS Corporation
- Vector Engineering, Inc.
- Washington State University, Pullman

- Western Environmental Science and Technology
- Wildermuth Environmental, Inc.

Awards and Honors

- Service Award, Department of Civil and Environmental Engineering, UCD, 2014.
- James H. Meyer Distinguished Achievement Award, UCD, November 2012.
- Certificate of Appreciation for peer review contribution from the Journal of Environmental Science and Technology (ES&T), December 2011.
- Professional Development Award, Academic Federation, UCD, March 2011.
- J.S. Braun/Braun Intertec Professorship Award from the University of Minnesota, January 2010.
- Omar Khayyam Research Award, Sharif University of Technology, January 2009.
- Professional Service and Recognition Award for Serving as the Regional Editor of the Journal of Scientia Iranica, Sharif University of Technology, December 2008.
- Professional Development Award, Academic Federation, UCD, March 2008
- Best Conference Paper Award, American Institute of Hydrology conference on Integrated Watershed Management, Reno, Nevada, April 24, 2007.
- Outstanding Alumni Award, UCD, 2005
- Who's Who in Science and Engineering, 2004
- Service Award, UC Davis Cal Aggie Alumni Association (CAAA) Board of Directors, 2004
- Fifteen Years Service Award, UC Davis, 2003
- Ten Years Service Award, UC Davis, 1999
- Service Award, California Integrated Waste Management Board, 1995
- Professional Development Award, Academic Federation, UC Davis, 1995
- University of California Washington Center Research Award, UC Davis, 1994
- Distinguished Graduate Student Teaching Award, UC Davis, 1987
- A Closer Look at University Teaching Award, UC Davis, 1987
- Jastro-Shields Research Foundation Scholarship, UC Davis, 1986
- Elected president of Alpha Epsilon, Engineering Honorary Society at the University of California, Davis, 1985-87
- Elected Graduate Student Representative, in the Graduate Student Association at the University of California, Davis, 1985-87
- Distinguished Scholar Tuition Fee Fellowship, UC Davis, 1984-87
- National Dean's List, USIU, San Diego, CA, 1981
- International Student Scholarship Award, USIU, San Diego, CA, 1980
- National Dean's List, USIU, San Diego, CA, 1980
- National Dean's List, USIU, San Diego, CA, 1979