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LIST OF PUBLICATIONS AND PRESENTATIONS

Refereed Journal Papers

1. S. Ghafoori, M. Mehrvar, and P.K. Chan, Photoreactor scale-up for degradation of aqueous poly(vinyl alcohol) using UV/H₂O₂ process, *Chemical Engineering Journal* (*in press*).
2. C.F. Bustillo-Lecompte, M. Mehrvar, and E. Quiñones-Bolaños, Cost-Effectiveness analysis of TOC removal from slaughterhouse wastewater using combined anaerobic-aerobic and UV/H₂O₂ processes, *Journal of Environmental Management* (*in press*).
3. S. Ghafoori, K.K. Shah, M. Mehrvar, and P.K. Chan, Pharmaceutical wastewater treatment using granular activated carbon and UV/H₂O₂ processes: Experimental analysis and modeling, *Canadian Journal of Chemical Engineering* (*in press*).
4. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using tomography to visualize the continuous-flow mixing of biopolymer solutions inside a stirred tank reactor, *Chemical Engineering Journal*, **239**, 257–273, 2014.
5. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Tomography images to analyze the deformation of the cavern in the continuous-flow mixing of non-Newtonian fluids, *AIChE Journal*, **60** (1), 315–331, 2014.
6. S. Ghafoori, M. Mehrvar, and P.K. Chan, Optimization of photo-Fenton-like degradation of aqueous polyacrylic acid using Box-Behnken experimental design, *Canadian Journal of Chemical Engineering*, **92** (1), 97–108, 2014.
7. S. Ghafoori, M. Mehrvar, P.K. Chan, Photoassisted Fenton-like degradation of aqueous poly(acrylic acid): From mechanistic kinetic model to CFD modeling, *Chemical Engineering Research and Design*, **91** (12), 2617–2629, 2013.

8. C.F. Bustillo-Lecompte, M. Mehrvar, and E. Quiñones-Bolaños, Combined anaerobic-aerobic and UV/H₂O₂ processes for the treatment of synthetic slaughterhouse wastewater, *Journal of Environmental Science and Health: Part A: Toxic/Hazardous Substances & Environmental Engineering*, **48** (9), 1122–1135, 2013.
9. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Characterization of the continuous-flow mixing of non-Newtonian fluids using the ratio of residence time to batch mixing time, *Chemical Engineering Research and Design*, **91** (7), 1223-1234, 2013.
10. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using tomography to characterize the mixing of non-Newtonian fluids with a Maxblend impeller, *Chemical Engineering & Technology*, **36** (4), 687–695, 2013.
11. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using tomography technique to characterize the continuous-flow mixing of non-Newtonian fluids in stirred vessels, *Chemical Engineering Transaction*, **32**, 1465–1470, 2013.
12. S. Ghafoori, M. Mehrvar, and P.K. Chan, Free radical-induced degradation of aqueous polyethylene oxide by UV/H₂O₂ process: Experimental design, reaction mechanisms, and kinetic modeling, *Industrial & Engineering Chemistry Research*, **51** (46), 14980–14993, 2012.
13. S. Ghafoori, M. Mehrvar, and P.K. Chan, Kinetic study of photodegradation of water soluble polymers, *Iranian Polymer Journal*, **21** (12), 869–876, 2012.
14. M. Barrera, M. Mehrvar, K.A. Gilbride, L.H. McCarthy, A.E. Laursen, V. Bostan, and R. Pushchak, Photolytic treatment of organic constituents and bacterial pathogens in secondary effluent of synthetic slaughterhouse wastewater, *Chemical Engineering Research and Design*, **90** (9), 1335–1350, 2012.
15. I. Netto, V. Bostan, L. McCarthy, A. Laursen, K. Gilbride, M. Mehrvar, and R. Pushchak, Automated image analysis of *Euglena gracilis* klebs (Euglenophyta) for measuring sublethal effects of three model contaminants, *Water Science and Technology*, **66** (8), 1708–1715, 2012.
16. A. Maradona, G. Marshall, M. Mehrvar, R. Pushchak, A.E. Laursen, L.H. McCarthy, V. Bostan, and K.A. Gilbride, Utilization of multiple organisms in a proposed early-warning biomonitoring system for real-time detection of contaminants: preliminary results and modeling, *Journal of Hazardous Materials*, **219-220**, 95–102, 2012.

17. B. Sylvestre-Williams and M. Mehrvar, An air dispersion model for the City of Toronto, Ontario, Canada, *Journal of Environmental Science and Health: Part A: Toxic/Hazardous Substances & Environmental Engineering*, **A47** (8), 1123–1137, 2012.
18. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, Optimization of aqueous *p*-aminophenol degradation by external-loop airlift sonophotoreactor using response surface methodology, *Chemical Engineering Research and Design*, **90** (9), 1221–1234, 2012.
19. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, CFD analysis of two-phase turbulent flow in internal airlift reactors, *Canadian Journal of Chemical Engineering*, **90** (6), 1611–1130, 2012.
20. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, Photoreactor design and CFD modeling of a UV/H₂O₂ process for distillery wastewater treatment, *Canadian Journal of Chemical Engineering*, **90** (3), 719–729, 2012.
21. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, Using an external-loop airlift sonophotoreactor to enhance the biodegradability of aqueous sulfadiazine solution, *Separation and Purification Technology*, **90** (3), 173–181, 2012.
22. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Improving the dynamic performance of continuous-flow mixing of pseudoplastic fluids possessing yield stress using Maxblend impeller, *Chemical Engineering Research and Design*, **90** (4), 514-523, 2012.
23. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Effect of impeller type on continuous-flow mixing of non-Newtonian fluids in stirred vessels through dynamic tests, *Canadian Journal of Chemical Engineering*, **90** (2), 290-298, 2012.
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32. S. Hosseini, D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Study of solid-liquid mixing in agitated tanks through computational fluid dynamics modeling, *Industrial & Engineering Chemistry Research*, **49** (9), 4426–4435, 2010.
33. S. Hosseini, D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Study of solid-liquid mixing in agitated tank through electrical resistance tomography, *Chemical Engineering Science*, **65** (4), 1374–1384, 2010.
34. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, An overview of the integration of advanced oxidation technologies and other processes for wastewater treatment, *International Journal of Engineering*, **3** (2), 120–146, 2009.
35. B. Laskarzewska and M. Mehrvar, Atmospheric chemistry in existing air atmospheric dispersion models and their applications: trends, advances and future in urban areas in Ontario, Canada and other areas in the world, *International Journal of Engineering*, **3** (1), 21–57, 2009.
36. A. Aidan, M. Mehrvar, T.H. Ibrahim, V. Nenov, and R. Alnaizy, Organic and phenolic shock load in a submerged ceramic membrane bioreactor for the degradation of aqueous phenol, *International Review of Chemical Engineering (IRECHE)*, **1**(1), 121–125, 2009.

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43. A. Asadi and M. Mehrvar, Degradation of aqueous methyl *tert*-butyl ether by photochemical, biological, and their combined processes, *International Journal of Photoenergy*, Vol 2006, Article ID 19790, 1–7, 2006.
44. M. Mehrvar and G.B. Tabrizi, Combined photochemical and biological processes for the treatment of linear alkylbenzene sulfonate in water, *Journal of Environmental Science and Health: Part A: Toxic/Hazardous Substances & Environmental Engineering*, **A41** (4), 581–597, 2006.
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48. S.H. Venhuis and M. Mehrvar, Photolytic Treatment of aqueous linear alkylbenzene sulfonate (LAS), *Journal of Environmental Science and Health: Part A: Toxic/Hazardous Substances & Environmental Engineering* **A40** (9), 1731–1739, 2005.
49. M. Mehrvar and S.H. Venhuis, Photocatalytic treatment of linear alkylbenzene sulfonate (LAS) in water, *Journal of Environmental Science and Health: Part A: Toxic/Hazardous Substances & Environmental Engineering*, **A40** (5), 1003–1012, 2005.
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Chapters in Books

68. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, Computational fluid dynamics (CFD) modeling in photochemical reactors, in “Applied Computational Fluid Dynamics”, Hyoung Woo Oh (*Editor*), InTech Open Access Publisher, Chapter 8, ISBN: 978-953-51-0271-7, pp 155-176, 2012.
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70. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, CFD Modeling of multiphase flow in environmental engineering, in “CFD Applications in Energy and Environment Sectors, Volume 1”, Maher A.R. Sadiq Al-Baghdadi and Hashim R. AbdolHamid (*Editors*), International Energy and Environment Foundation, Inc., Chapter 5, ISBN: 13:978-1466230651, pp 137-174, 2011.

Refereed Papers in Conference Proceedings

71. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using a tracer technique to identify the extent of non-ideal flow in the continuous mixing of non-Newtonian fluids, *European Physical Journal-Web of Conferences, Proceeding of the sixth International Conference on Tracer and Tracing Methods*, Oslo, Norway, June 6-8, 2011, 50 (01006), 1–7, 2013.
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73. M. Mehrvar, M. Mohajerani, and F. Ein-Mozaffari, Advanced oxidation process integration and intensification, *Proceeding of the 7th International Chemical Engineering Congress & Exhibition (IChEC 2011)*, Kish Island, Iran, November 21–24, 2011.
74. S. Ghafoori, M. Mehrvar, and P. Chan, Mechanisms and kinetic modeling of photodegradation of polymer-based composites in aqueous solutions, *Proceeding of the 2nd*

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75. M. Mehrvar, M. Mohajerani, and F. Ein-Mozaffari, Process integration and intensification: a way to enhance the biodegradability of industrial wastewaters by photochemical oxidation, *Proceeding of the 17th Regional Symposium on Chemical Engineering (RSCE2010)*, Queen Sirikit National Convention Center, Bangkok, Thailand, pp. 60–63, November 22 -23, 2010. **Invited Paper.**
76. D. Patel, S. Saeed, F. Ein-Mozaffari, and M. Mehrvar, Study of continuous-flow mixing of pseudoplastic fluids possessing yield stress in stirred vessels through dynamic tests and computational fluid dynamics modeling, *Proceeding of the 19th International Congress of Chemical and Process Engineering (CHISA-2010) and 7th European Congress of Chemical Engineering (ECCE-7)*, Prague, Czech Republic, Paper #433, pp. 1–12, August 28–September 1, 2010.
77. N.M. Abdel-Jabbar, E.A.H. Al Zubiady, and M. Mehrvar, Waste lubricating oil treatment by adsorption process using different adsorbents, *Proceeding of the International Conference on Environmental Science and Technology (ICEST 2010)*, Penang, Malaysia, February 24–26, 2010.
78. M. Mohajerani, M. Mehrvar, and F. Ein-Mozaffari, Kinetic modeling, reactor design, and flow model for removal of pharmaceutical residuals from aqueous systems by advanced oxidation technologies, *Proceeding of the First International Conference on “Advances in Wastewater Treatment and Reuse” (AWTR2009)*, University of Tehran, Tehran, Iran, November 10–12, 2009.
79. M. Mehrvar, G.B. Tabrizi, A. Asadi, and T. Aye, Combined photochemical and biological processes for water and wastewater treatment: an overview of trends, advances, and future, *Proceeding of the 5th International Chemical Engineering Congress (IChEC 2008)*, pp. 252–265, Kish Island, Iran, January 2–5, 2008. **Invited Paper.**
80. M. Mehrvar, Integration of photochemical and biological processes for wastewater treatment: an overview of trends, advances, and future, *Proceeding of the International Conference on Cleaner Technologies and Environmental Management (ICCTEM'07)*, Part II, pp. 816–819, Pondicherry, India, January 4–6, 2007. **Invited Paper.**

81. A. Asadi and M. Mehrvar, Photoreactors in water and wastewater treatment: trends and advances, *Proceeding of the International Conference on Thermal Engineering: Theory and Applications*, Beirut, Lebanon, May 31–June 4, 2004.
82. M. Mehrvar, W.A. Anderson, and M. Moo-Young, Applications of advanced oxidation technologies for the treatment of wastewater: kinetics and reactor design, *Proceeding of the First Environmental Forum Colombia-Canada: Solutions to Environmental Problems in Latin America*, Cartagena de Indias, Colombia, May 24-26, 2000.
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84. E. Quiñones-Bolaños, M.A. Cuenca, L. Otten, and M. Mehrvar, Biological fluidized bed reactors: a technology for water treatment, *Proceeding of the First Environmental Forum Colombia-Canada: Solutions to Environmental Problems in Latin America*, Cartagena de Indias, Colombia, May 24–26, 2000.
85. E. Castilla-Rodriguez, M.A. Cuenca, L. Otten, and M. Mehrvar, Nitrification and denitrification in rotating biological contactor (RBC), *Proceeding of the First Environmental Forum Colombia-Canada: Solutions to Environmental Problems in Latin America*, Cartagena de Indias, Colombia, May 24–26, 2000.

Abstracts and Conference Presentations

86. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using computational fluid dynamics to study the effect of fluid yield stress, consistency index, and flow behavior index on the dynamic behavior of the continuous-flow mixing of Herschel-Bulkley fluids, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
87. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Investigation of the cavern deformation in the continuous-flow mixing of non-Newtonian fluids possessing yield stress, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.

88. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using dynamic tests and tomography images to analyze the fully mixed volume in a continuous mode and cavern volume in a batch mode for the mixing of non-Newtonian fluids, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
89. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, To visualize the flow field of continuous-flow mixing of biopolymer solutions inside an agitated tank using electrical resistance tomography, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
90. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Effect of various operating conditions and design parameters on the ratio of residence time to batch mixing time in the mixing of non-Newtonian fluids, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
91. D. Hamad, M. Mehrvar, and R. Dhib, Experimental study and kinetic modeling of photo-oxidative degradation of polyvinyl alcohol by UV/H₂O₂ process, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
92. C. Lecompte, M. Mehrvar, E. Quiñones-Bolaños, J.A. Ardila-Sanchez, J.A. Ramos-Romero, and C.F. Castro-Faccetti, Removal of organics and nutrients from domestic wastewater using a vertical subsurface-flow constructed wetland in the City of Cartagena, Colombia, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
93. A. Mowla, M. Mehrvar, and R. Dhib, Combination of advanced oxidation and activated sludge processes for pharmaceutical wastewater treatment, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
94. M. Nasirian, M. Mehrvar, and I. Bahari, Tin mining and radionuclides environmental risks (Case study of natural radionuclides, uranium and thorium, *63rd Canadian Chemical Engineering Conference*, Fredericton, New Brunswick, Canada, October 20–23, 2013.
95. M. Mehrvar (*Invited Keynote Lecture*), S. Ghafoori, and P. Chan, Mechanistic kinetic modelling for degradation of water-soluble polymers using photo-Fenton-like process, *11th*

- International Conference on Magnetic Resonance (Spectroscopy, Tomography and Ecology)*, Southern Federal University, Rostov-on-Don, Russia, September 9-14, 2013.
96. S. Ghafoori, M. Mehrvar, and P. Chan, Determination of intrinsic kinetic constants for scaling-up a photoreactor for degradation of poly(vinyl alcohol) using UV/H₂O₂ process, *7th IWA Specialised Membrane Technology Conference and Exhibition for Water and Wastewater Treatment and Reuse*, Toronto, Ontario, Canada, August 25–29, 2013.
 97. A. Mowla, M. Mehrvar, and R. Dhib, Combination of advanced oxidation and activated sludge processes for elimination of benzoic acid from aqueous solutions, *7th IWA Specialised Membrane Technology Conference and Exhibition for Water and Wastewater Treatment and Reuse*, Toronto, Ontario, Canada, August 25–29, 2013.
 98. C. Lecompte, M. Mehrvar, and E. Quiñones-Bolaños, Cost-Effectiveness analysis for the treatment of synthetic slaughterhouse wastewater using combined anaerobic-aerobic and UV/H₂O₂ processes: a preliminary approach, *IX Convencion Internacional Sobre Medio Ambiente y Desarrollo*, Havana, Cuba, July 8-12, 2013.
 99. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using a tomography technique to characterize the continuous-flow mixing of non-Newtonian fluids in stirred vessels. Proceedings of the 11th international conference on Chemical and Process Engineering, Abstract reference # 43, Milan, Italy, June 2-5, 2013.
 100. S. Ghafoori, M. Mehrvar, and P. Chan, Photoreactor scale-up for the degradation of aqueous poly(ethylene oxide), *5th Canadian Wastewater Management Conference and 48th Central Canadian Symposium on Water Quality Research*, Sheraton Hamilton, Hamilton, Ontario, Canada, March 6–8, 2013.
 101. A. Mowla, M. Mehrvar, and R. Dhib, Treatment of multicomponent pharmaceutical wastewater by UV/H₂O₂ and US/H₂O₂ processes, *5th Canadian Wastewater Management Conference and 48th Central Canadian Symposium on Water Quality Research*, Sheraton Hamilton, Hamilton, Ontario, Canada, March 6–8, 2013.
 102. S. Ghafoori, M. Mehrvar, P. Chan, A statistical experiment design approach for the photo-Fenton-like degradation of poly(acrylic acid) , *62nd Canadian Chemical Engineering Conference*, Vancouver, British Columbia, Canada, October 14–17, 2012.

103. S. Ghafoori, M. Mehrvar, P. Chan, Kinetic study and CFD Modeling of poly(acrylic acid) degradation by photo-Fenton-like process, *62nd Canadian Chemical Engineering Conference*, Vancouver, British Columbia, Canada, October 14–17, 2012.
104. D. Hamad, R. Dhib, and M. Mehrvar, Photo-degradation of water-soluble polymers by free-radical chain scission in wastewater, *62nd Canadian Chemical Engineering Conference*, Vancouver, British Columbia, Canada, October 14–17, 2012.
105. C. Lecompte, M. Mehrvar, and E. Quiñones-Bolaños, Combined anaerobic-aerobic and UV/H₂O₂ processes for the treatment of synthetic slaughterhouse wastewater, *62nd Canadian Chemical Engineering Conference*, Vancouver, British Columbia, Canada, October 14–17, 2012.
106. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Continuous-flow mixing of non-Newtonian fluids in the stirred reactor equipped with a Maxblend impeller, *62nd Canadian Chemical Engineering Conference*, Vancouver, British Columbia, Canada, October 14–17, 2012.
107. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Effects of operating conditions and design parameters on the dynamic performance of the continuous-flow mixing of Herschel-Bulkley fluids in stirred reactors, *62nd Canadian Chemical Engineering Conference*, Vancouver, British Columbia, Canada, October 14–17, 2012.
108. D. Patel, F. Ein-Mozaffari, and M. Mehrvar, Using electrical resistance tomography to measure mixing time in the agitation of non-Newtonian fluids in a batch reactor, *62nd Canadian Chemical Engineering Conference*, Vancouver, British Columbia, Canada, October 14–17, 2012.
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 113. D. Hamad, R. Dhib, and M. Mehrvar, Photo-oxidative degradation of polyacrylamide in wastewater, *Thirty-Fourth Annual Symposium on Polymer Science/Engineering*, Institute for Polymer Research, University of Waterloo, Waterloo, Ontario, Canada, May 2, 2012.
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