

CURRICULUM VITAE – DAISUKE MINAKATA

DAISUKE MINAKATA

Assistant Professor
Department of Civil and Environmental Engineering
Michigan Technological University,
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PROFESSIONAL PREPARATION

Georgia Institute of Technology, Environmental Engineering, Ph.D., 2010
Kyoto University, Japan, Environmental Engineering, M.S., 2005
Kyoto University, Japan, Environmental Engineering, B.S., 2002

APPOINTMENTS

2013 August - Present
Assistant Professor
Department of Civil and Environmental Engineering.
Michigan Technological University

2010 August - 2013 July
Research Engineer I
Brook Byers Institute for Sustainable Systems
Georgia Institute of Technology

2009 January - 2010 July
Graduate research assistant
Department of Civil and Environmental Engineering
Georgia Institute of Technology

2005 August - 2008 December
Graduate research assistant
Department of Civil and Environmental Engineering
Arizona State University

2005 April - 2005 July
Research Associate
Department of Environmental Engineering
Graduate School of Engineering,
Kyoto University, Japan

2004 April - 2005 March
Department of Environmental Engineering
Graduate School of Engineering
Kyoto University, Japan

2003 April - 2004 March
Non Traditional Student

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Master of Environmental Studies
University of Pennsylvania

2002 April - 2003 March

Department of Environmental Engineering
Graduate School of Engineering
Kyoto University, Japan

1998 April - 2002 March

School of Global Engineering
Kyoto University, Japan

PUBLICATIONS

- Zhang, G.; Zhang, W.; Crittenden, J.C.; Chen, Y.; Minakata, D.; Wang, P. Synthesis of $(\text{CuAg})_{0.15}\text{In}_{0.3}\text{Zn}_{1.4}\text{S}_2$ by precipitation and calcination and photocatalytic hydrogen production under visible-light irradiation. *Chinese Journal of Catalysis*. 2013, Accepted.
- Zhang, G.; Zhang, W.; Minakata, D.; Chen, Y.; Wang, P.; Crittenden, J. The pH Effects on H_2 Evolution Kinetics for Visible Light Water Splitting over the $\text{Ru}/(\text{CuAg})_{0.15}\text{In}_{0.3}\text{Zn}_{1.4}\text{S}_2$ Photocatalyst. *International J. Hydrogen Energy*, 2013, 38(27), 11727-11736.
- Cao, H.; Xing, L.; Wu, G.; Xie, S.; Zhang, S.Y.; Minakata, D.; Crittenden, J.C. Promoting effect of nitration modification on activated carbon in the catalytic ozonation of oxalic acid. *Applied Catalysis B: Environmental.*, 2013. Accepted.
- Sun, P.; Yao, H.; Minakata, D.; Crittenden, J.C.; Pavlostathis, P.; Huang, C-H. Acid-catalyzed transformation of ionophore veterinary antibiotics. *Environ. Sci. Technol.* 2013, 47, 6781-6789.
- Yao, H.; Sun, P.; Minakata, D.; Crittenden, J.C.; Huang, C-H. Kinetics and Modeling of Degradation of Ionophore Antibiotics by UV and UV/ H_2O_2 . *Environ. Sci. Technol.* 2013, 47, 4581-4589.
- Zhang, G.; Zhang, W.; Wang, P.; Minakata, D.; Chen, Y.; Crittenden, J. Stability of an H_2 -producing photocatalyst ($\text{Ru}/(\text{CuAg})_{0.15}\text{In}_{0.3}\text{Zn}_{1.4}\text{S}_2$) in aqueous solution under visible light irradiation. *International J. Hydrogen Energy*, 2013, 38, 1286-1296.
- Cooper, N.; Minakata, D.; Begovic, M.; Crittenden, J. "Should we consider using liquid fluoride thorium reactors for power generation?" *Environ. Sci. Technol.* 2011, 45(15), 6237-6238.
- Minakata, D.; Song, W.; Crittenden, J. "Reactivity of aqueous phase hydroxyl radical with halogenated carboxylate anions: Experimental and theoretical studies". *Environ. Sci. Technol.* 2011, 45, 6057-6065.
- Minakata, D.; Crittenden, J. Linear Free Energy Relationships between the Aqueous Phase Hydroxyl Radical ($\text{HO}\cdot$) Reaction Rate Constants and the Free Energy of Activation. *Environ. Sci. & Technol.* 2011, 45, 3479-3486.
- Minakata, D.; Li, K.; Westerhoff, P.; Crittenden, J. Development of a group contribution

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method to predict aqueous phase hydroxyl radical (HO•) reaction rate constants. *Environ. Sci. & Technol.* 2009, 43, 6220-6227.

- Professor Hartmut Herrman (Professor of Atmospheric Chemistry and the head of the Chemistry Department of the Leibniz Institute for Tropospheric Research and a member of both the Faculties of Physics and Chemistry of the University of Leipzig in Germany) addressed the GCM tool in his 2010 review paper (*ChemPhysChem*, 2010, 11, 3796-3822), stating, “The wide application range in combination with the user-friendliness makes it probably the best currently available estimation tool for OH radical reactions in aqueous solution. Overall, the method of Minakata et al. is currently the most broadly usable method for the prediction of OH radical reaction rates in aqueous solution.”
 - Professor Urs von Gunten (Eawag, Swiss Federal Institute of Aquatic Science and Technology) referred to the GCM for HO radical rate constant predictions as "sophisticated estimation methods for HO radical rate constants" and used the GCM to calculate 29 HO radical reaction rate constants emerging organic contaminants and obtained an accuracy of difference of factor of 2 from experimental values (*Wat. Res.* 2012, 46, 6177-6195).
- Westerhoff, P.; Moon, H.; Minakata, D.; Crittenden, J.C. Oxidation of organics in retentates from reverse osmosis wastewater reuse facilities. *Wat. Res.* 2009, 43(16), 3992-3998.
 - Li, K.; Hokanson, D.R.; Crittenden, J.C.; Trussell, R.R.; Minakata, D. Evaluating UV/H₂O₂ processes for methyl tert-butyl ether and tertiary butyl alcohol removal: Effect of pretreatment options and light sources. *Wat. Res.* 2008, 42, 5045-5053.
 - Westerhoff, P.; Mezyk, S.P.; Cooper, W.J.; Minakata, D. Electron pulse radiolysis determination of hydroxyl radical rate constants with Suwannee river fulvic acid and other dissolved organic matter isolates. *Environ. Sci. & Technol.* 2007, 41, 4610-4646.
 - Kishimoto, N.; Minakata, D.; Somiya, I. Effect of hydrodynamic condition on radical production at Ti/Pt anode in electrochemical treatment. *Environmental Technology*, 2006, 26, 1161-1171.

SUBMITTED AND PREPARED PEER REVIEWED ARTICLE

- Minakata, D.; Song, W.; Crittenden, J.C. Group Contribution Method for Aqueous Phase Hydroxyl Radical Reaction Rate Constant Prediction: Update and Experimental Verification. *Environ. Sci. Technol.* In preparation.
- Minakata, D.; Song, W.; Crittenden, J.C. Visualizing Aqueous Phase Hydroxyl Radical Reactivity with Aromatic Compounds and Rate Constant Predictions. *Environ. Sci. Technol.* In preparation.

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- Minakata, D.; Mezyk, S.; Crittenden, J.C. Mechanistic Elucidation of Aqueous Phase Addition of Molecular Oxygen to Carbon-centered Radical and Reaction Rate Constant Prediction. *PNAS*. In preparation.
- Zhang, G.; Zhang, W.; Minakata, D.; Chen, Y.; Wang, P.; Crittenden, J. Efficient Photocatalytic H₂ Production Using Visible-Light Irradiation and (CuAg)_{0.15}In_{0.3}Zn_{1.4}S₂ Photocatalysts with Controllable Band Gaps, *Environ. Sci. & Technol.* 2013 Under review.

BOOK AUTHORS AND CHAPTERS

- Crittenden, J.C.; Trussell, R.R.; Hand, D.W.; Howe, K. J.; Tchobanoglous G. Water Treatment Principles and Design. MWH third edition. Contributed to writing and revising Chapter 18. Advanced Oxidation Processes. 2012.
- Howe, K.J.; Hand, D.W.; Crittenden, J.C.; Trussell, R.R.; Tchobanoglous, G. Principles of Water Treatment. MWH. Contributed to writing of Chapters 10 and 12. Adsorption and Advanced Oxidation Processes. 2012.
- Mostofa, K.M.G.; Liu, C-q.; Sakugawa, H.; Vione, D.; Minakata, D.; Wu, F. Chapter 2 Photoinduced and Microbial Generation of Hydrogen Peroxide and Organic Peroxides in Natural Waters. In “*Photobiogeochemistry of Organic Matter: Principles and Practices in Water Environment*” Springer 2012.
- Mostofa, K.M.G.; Liu, C-q.; Sakugawa, H.; Vione, D.; Minakata, D.; Saquib, M.; Mottaleb, A. Chapter 3 Photoinduced Generation of Hydroxyl Radical in Natural Waters In “*Photobiogeochemistry of Organic Matter: Principles and Practices in Water Environment*” Springer 2012.
- Mostofa, K.M.G.; Liu, C-q.; Minakata, D.; Vione, D.; Wu, F.; Mottaleb, A.; Yoshioka, T.; Sakugawa, H. Chapter 4 Photoinduced and Microbial Degradation of Dissolved Organic Matter in Natural Waters. In “*Photobiogeochemistry of Organic Matter: Principles and Practices in Water Environment*” Springer 2012.
- Mostofa, K.M.G.; Liu, C-q.; Pan, X.; Vione, D.; Minakata, D.; Takahito, Y.; Gao, K.; Sakugawa, H.; Komissarov, G.G. Chapter 7 Photosynthesis in Nature: A New Look. In “*Photobiogeochemistry of Organic Matter: Principles and Practices in Water Environment*” Springer 2012.

INVITED TALKS

- Minakata, D. (○), Li, K.; Crittenden, J.C. Rational Design of Advanced Oxidation Processes using Computational Chemistry. GCOE Symposium on Sustainability in Environmental Engineering, July 21st, 2011. Kyoto University, Kyoto, Japan.

PRESENTATIONS

CURRICULUM VITAE – DAISUKE MINAKATA

- Minakata, D.(○); Mezyk, S.P.; Jones, J.; Crittenden, J.C. Mechanistic insights in peroxy radical formation and degradation and associated reaction rate constants prediction in aqueous phase advanced oxidation processes. ACS National Meeting in New Orleans, LA. April 7, 2013.
- Sun, P.(○); Yao, H.; Minakata, D.; Crittenden, J.C.; Huang, C-H. Assessment of UV/H₂O₂ advanced oxidation process on degradation of veterinary ionophore antibiotics. ACS National Meeting in New Orleans, LA. April 7, 2013.
- Minakata, D.; Guo, X.; Crittenden, J.C (○). Computer-based first-principles kinetic model for aqueous phase advanced oxidation processes: Proof of reaction pathway and byproducts formation. AOTs-18, November 11-15, 2012, Jacksonville, FL.
- Crittenden, J.C.; Pavlostathis, S.; Minakata, D. Advanced oxidation processes and biological treatment. Institute for light industry. December 16, 2011, China.
- Xing, L. (○); Minakata, D.; Cao, Hongbin; Crittenden, J.C. Experimental and computational simulation of oxalate degradation during ozonation with activated carbon. AOTs-17, November 7-10, 2011, San Diego, CA.
- Minakata D.(○) and Crittenden, J.C. Theoretical study in the aqueous-phase subsequent free-radical reactions induced by hydroxyl radicals. ACS National Meeting in Denver CO. August 29, 2011.
- Minakata, D.; Li, K.; Crittenden, J.C. (○); Hand, D. Rational Design of Advanced Oxidation Processes using Computational Chemistry. The 16th International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil (AOTs-16). November 15-18, 2010. San Diego, California, USA.
- Minakata, D.(○); Crittenden, J. Quantitative Understanding of Advanced Oxidation Processes for the Treatment of Emerging Contaminants. IWA World Water Congress & Exhibition. Montreal, Canada, September 19-24, 2010.
- Minakata, D. (○); Crittenden, J. Linear Free Energy Relationship (LFER) for the Aqueous Phase Hydroxyl Radical (HO•) Reactions with Ionized Species: Experimental and Theoretical Studies. 240th American Chemical Society (ACS) National Meeting & Exposition, Boston, Massachusetts. August 22-26, 2010.
- Crittenden, J.C.(○); Minakata, D.; Li, K.; Westerhoff, P. Overview of Advanced Oxidation Processes (AOPs): Understanding and Improving Process Performance. Potable Reuse for Water Supply Sustainability Critical Today –Essential Tomorrow-. Long Beach, California, November 16-19, 2008.
- Minakata, D.(○); Li, K.; Crittenden, J.; Westerhoff, P. Development of group contribution method (GCM) for hydroxyl radical (HO•) reaction rate constant in the aqueous phase. The 14th International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil (AOTs-14). San Diego, California, USA, September 22-25, 2008.

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- Minakata, D.(○); Crittenden, J.C.; Li, K. Evaluation and design Advanced Oxidation Processes (AOPs). 1. UV/H₂O₂ processes for methyl tert-butyl ether (MtBE) and tertiary butyl alcohol (tBA) removal from drinking water source: effect of pretreatment options and light source. 2. Mitigation of bromated during ozonation –kinetic study -. Water Quality Technology Conference Workshops Sun 5 Advanced Oxidation Technologies in Water. Nov. 4th 2007, Charlotte, NC.
- Crittenden, J.C.(○); Li, K.; Minakata, D.; Westerhoff, P.; Hokanson, D.; Trussell, R.; Jeong, H. Understanding and improving process performance of advanced oxidation processes (AOPs). The Croucher Foundation Advanced Study Institute (ASI), June 23-27, 2008, Hong Kong, China.
- Li, K.(○); Minakata, D.; Crittenden, J.C.; Westerhoff, P. Computer-Aided Pathway Generation for Aqueous Phase Advanced Oxidation Processes, American Chemical Society 233rd National Meeting & Exposition March 25-29, 2007, Chicago, IL USA.
- Westerhoff, P.; Mezyk, S.P.; Cooper, W.J.; Minakata, D. Electron pulse radiolysis determination of hydroxyl radical rate constants with Suwannee River fulvic acid and other dissolved organic matter isolates. Preprints of Extended Abstracts presented at the ACS National Meeting, American Chemical Society, Division of Environmental Chemistry (2007), 47(1), 1845-1848.
- Zhang, H.(○); Minakata, D.; Yamada, H.; Tsuno, H: Removal of Estrogenicity in Primary Effluent of Sewage during Ozonation. Proceeding of 17th Ozone World Congress & Exhibition, 2005, Strasbourg, France.
- Mizuno, T.(○); Minakata, D.; Yamada, H.; Tsuno, H: Ozone Consumption on Degradation of Organic Compounds during Ozonation of Secondary Effluent. Proceeding of 13th Annual Conference on Ozone Science and Technology in Japan, 2003, Sapporo, Hokkaido. pp. 145- 148, 2003.
- Kishimoto, N.(○); Minakata, D.; Somiya, I: OH radical production in electrolytic oxidation, Proceeding of the 3rd Seminar of JSPS-MOE Core University Program on Urban Environment, pp. 111-121, 2002.
- Ikeda, N; Minakata, D.(○); Kishimoto, N.; Somiya, I: Electrochemical Oxidation of 2,4-Dichlorophenol with Ti/Pt Anode. Proceedings of 12th. Annual Conference on Ozone Science and Technology in Japan, 2002, Hiratsuka, Kanagawa, Japan. pp. 144- 146, 2002.
- Minakata, D.(○); Kishimoto, N.; Somiya, I: Effective formation of HO radical in electrochemical oxidation, Proceeding of 57th Japan Society of civil engineers, VII-147, 2002.

POSTER

- Minakata, D.; Crittenden, J.C.; Li, K. Development of Computer-based Kinetic Model for the Treatment of Emerging Contaminants in Aqueous Advanced Oxidation Processes. Georgia Tech Strategic Planning Meeting & Poster Session. Large-Scale Data and High Performance Computing. February, 2011. 1116 Klaus Advanced Computing Building.

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- Zheng, X.; Jiang, Z.; Ward, C.; Yu, R.; Minakata, D.; Crittenden, J.C. High Strength Wastewater Treatment and Energy Recovery: Advanced Chemical Oxidation Combined with Anaerobic Biological Process. 2012. AEES Symposium Georgia Tech.
- Guo, X.; Minakata, D.; Crittenden, J.C. Reduction of Complex Chemical Mechanisms in Advanced Oxidation Processes. 2012 AEES Symposium Georgia Tech.

ACADEMIC ADVISER

- John C. Crittenden (Ph.D. Arizona State University and Georgia Institute of Technology)
- Hiroshi Tsuno (M.S. Kyoto University)
- Isao Somiya (B.S. Kyoto University)

PROJECTS INVOLVEMENT

- Rate Constants and Toxicity Estimation for the Computer Discovery of Byproducts Fate in Advanced Oxidation Systems. National Science Foundation unsolicitation. ARRA: #0854416. September 2009-August 2012, PI: John Crittenden (Georgia Tech) (award amount \$399,010).
- Pathway Generation and Byproducts Estimation for Chemical Oxidation Processes in Water Treatment. National Science Foundation #0607332. July 2006-June 2009, PI: John Crittenden (ASU) (award amount \$280,000).
- Oxidative Treatment of Organics in Membrane Concentrates. Water Reuse Foundation WRF-05-010. 2006-2008. PI: Paul Westerhoff (ASU) (award amount \$100,000).

INVOLVEMENT OF RESEARCH PROPOSAL WRITING

- Predicting the Reaction Pathway and Associated Rate Constants for Advanced Oxidation Processes using Complexity Theory and Quantum Chemistry. National Science Foundation. CBET division Process of Reaction Engineering program. 2012 Fall (Co-PI) (not-funded).
- Predicting the Reaction Pathway and Associated Rate Constants for Advanced Oxidation Processes using Complexity Theory and Quantum Chemistry. National Science Foundation. CBET division Environmental Engineering program. 2012 Spring (Co-PI) (not-funded).
- Rate Constants and Toxicity Estimation for the Computer Discovery of Byproducts Fate in Advanced Oxidation Systems. National Science Foundation ARRA: #0854416. September 2009-August 2012, PI: John Crittenden (Georgia Tech) (funded, award amount \$399,010).
- Pathway Generation and Byproducts Estimation for Chemical Oxidation Processes in Water Treatment. National Science Foundation #0607332. July 2006-June 2009, PI: John Crittenden (ASU) (funded, award amount \$280,000).

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- Rate Constants and Toxicity Estimation for the Computer Discovery of Byproducts Fate in Advanced Oxidation Systems, NSF unsolicitation March 2008, PI: John Crittenden (not-funded).
- Quantitative Structure Property Relationships (QSPR) to Predict Removal of EDCs/PPCPs in Water Treatment Processes, AWWA solicitation RFP 4148, July 2008, PI: John Crittenden (not-funded).
- Advanced Oxidation and Transformation of Organic Contaminants, Water Research Foundation solicitation RFP 4241, July 2009, PI: Jae-hong Kim (not-funded, runner-up).
- Advanced Oxidation and Transformation of Organic Contaminants, Water Research Foundation solicitation RFP 4241, September 2010, PI: Jae-hong Kim (not-funded, runner-up).
- Green Building Design: Water Quality and Utility Management Considerations, Water Research Foundation solicitation RFP 4383, August 2011, PI: Ching-hua Huang (not-funded).
- Urban Systems Under Stress: Multiscale Decision Support for Resilient and Sustainable Infrastructure - 2100 (UDS 2100), NSF Environmental Research Center (ERC), 2008-2010, PI: John Crittenden (not-funded).
- NSF Solicitation, Implications of Climate, Land Use, and Water Demand Variability and Change for Sustainable Development and Adaptive Management in a Rapidly Urbanizing River Basin. Water Sustainability and Climate (WSC), 2011, PI: Aris Georgakakos (submitted, award amount \$1.5 million).
- NSF Solicitation, Integrated Network for Sustainable Infrastructure Decisions for the 21st Century (Sustainable Infrastructure 2100). Sustainability Research Network (SRN), 2011-, PI: John Crittenden (on-going, award amount \$12 million).

PROJECT MANAGEMENT

- NSF EFRI-RESIN: Sustainable Infrastructures for Energy and Water Supply (SINEWS) #0836046. September 2008-August 2012, PI: John Crittenden (Georgia Tech) (Annual report integration and monthly meeting among Georgia Tech, University of Georgia, and Arizona State University).
- Rate Constants and Toxicity Estimation for the Computer Discovery of Byproducts Fate in Advanced Oxidation Systems. National Science Foundation #0854416. September 2009-August 2012, PI: John Crittenden (Georgia Tech) (Quarterly and annual report integration and writing, and regular weekly meeting).
- Pathway Generation and Byproducts Estimation for Chemical Oxidation Processes in Water Treatment. National Science Foundation #0607332. July 2006-June 2009, PI: John Crittenden (ASU) (Annual report writing and regular weekly meeting).

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PROJECTS REPORT

- Westerhoff, P.; Crittenden, J.; Moon, H.; Minakata, D. Oxidative Treatment of Organics in Membrane Concentrates. Water Reuse Research. 2010. Water Reuse Research Foundation. Alexandria, VA.

AWARD

- Richard Snell Assistantship at Arizona State University, 2005-2008
- 2008 Scholar of Arizona Water and Pollution Control Association (AWPCA)

THESIS AND DISSERTATION TOPICS

- Ph.D. Dissertation Title: Development of Aqueous Phase Hydroxyl Radical Reaction Rate Constants Predictors for Advanced Oxidation Processes. Thesis Supervisor: Professor. John, C. Crittenden (Georgia Tech)
- Master Thesis Title: Mechanisms of Ozone and Hydroxyl Radical Reaction with Dissolved Organic Matter in Water and Wastewater. Thesis Supervisor: Professor. Hiroshi Tsuno (Kyoto University)
- Bachelor Thesis Title: Effective Formation of Hydroxyl Radical by Electrochemical Oxidation. Thesis Supervisor: Professor Isao Somiya (Kyoto University)

ASSOCIATIONS AND SOCIETIES

- American Association for the Advancement of Science (AAAS)
- American Chemical Society (ACS) Division of Environmental Chemistry
- International Water Association (IWA)
- American Society for Engineering Education (ASEE)
- Advanced Oxidation Technology (AOT)
- Association of Environmental Engineering & Science Professors (AEESP)

PEER REVIEW

- Drinking water standard guideline for toluene, ethylbenzene and xylenes. Primary contractor for treatment technology section with Health Canada. 2013.

JOURNAL PEER REVIEWER

- Environmental Science and Technology
- Water Research
- Journal of Hazardous Materials
- Chemical Engineering Journal
- Journal of Environmental Engineering

RESEARCH EXPERIENCE AND SKILLS

- Advanced oxidation processes (AOPs) related topics since Bachelor's research. His

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research experiences and interests are electrochemical oxidation, ozone and ozone/hydrogen peroxide AOP, UV/hydrogen peroxide AOP, titanium dioxide/ultraviolet AOP, HO• radical concentration measurement using electron spin resonance (ESR), and electron pulse radiolysis at University of Notre Dame Radiation Laboratory, reaction mechanisms of ozone and HO• with dissolved organic matter using flow tube type reactor.

- Development of ozone and ozone/hydrogen peroxide kinetic model including bromate mitigation (Advanced Oxidation software, AdOxTM2) using Fortran programming.
- Development of a tool to predict the aqueous phase HO• reaction rate constants in AOPs using a group contribution method (GCM) and genetic algorithms.
- Quantum Mechanical calculations in a field of computational chemistry. Quantum mechanical software includes Gaussian09, Gaussian03, Hyperchem, Turbomole, COSMOtherm, and Games. Calculations are conducted at Unix based high performance computing systems at ASU High Performance Computing (HPC) and Georgia Tech HPC.
- Building a user-based high performance workstation from scratch for computational chemistry.
- Consulting work for Coca Cola to help bottle washing plant process renovation
- Consulting work for technical review of electrochemically activated (ECA) water
- Assisting the expert technical advices for various depositions for cases of groundwater MtBE contamination.

TEACHING EXPERIENCE

- Teaching Advanced Oxidation Process section (CEE 561 - Physical and Chemical Treatment and CEE 598 - Environmental Process Engineering at Arizona State University)

MENTORING

- Xia Yang: TiO₂/UV application for industrial wastewater (visiting scholar at Georgia Tech, September 2012-August 2013).
- Yuheng Feng: Theoretical investigations of catalytic reduction of dioxine in combustion process (visiting Ph.D. student at Georgia Tech, September 2012- August 2013).
- Jared McGrath: Electrochemical oxidation for high strength industrial wastewater (Ph.D. student in Chemical Engineering Georgia Tech, September 2012-Spring 2013).
- Ruzhen Xie: Electrochemical application for high strength industrial wastewater (visiting Ph.D. student at Georgia Tech, October 2009- August 2013).
- Xin Guo: Reduction of Reaction Pathway in the Aqueous Phase Advanced Oxidation Processes (Ph.D. student, September 2009-August 2013).
- LinLin Xing: Experimental and Computational Simulation of Oxalic Acid Degradation during Ozonation with Activated Carbon (visiting Ph.D. student at Georgia Tech from Institute of Process Engineering in China, 2010-November, 2011).

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- Ruoren Ryu: TiO₂/UV application for industrial wastewater (MS student, September 2009- Spring 2012).
- Guanshan Zhu: Catalytic Production of Hydrogen from Water Splitting using solar light (visiting Ph.D. student at Georgia Tech from Halbin Institute of Technology in China, April 2010- September 2012).
- Xiofei Zheng: Combining photocatalysis with biological processes in the treatment of industrial wastewater (Ph.D. student, August 2011– Summer 2013).
- Ziyi Jiang: Economic feasibility of several combined techniques in industrial waste water treatment (Ph.D. student, August 2011- Summer 2013).
- Hyunju Jong: Development of toxicity estimation for the aqueous phase advanced oxidation processes (Ph.D. student, September 2007-December 2008).
- Fariya Sharif: Catalytic ozonation (Ph.D. student, May 2007 – December 2008).

EXCHANGE INTERNATIONAL PROGRAM

- Thomas Jefferson Science and Technology High School in Virginia, USA. as one of representative students in Japanese high school (March, 1996)

HEALTH APPEAL

- Ironman 70.3 (1.2 miles swim, 56 miles bike, 13.1 miles run), 4:57:07
- Olympic Distance (1.5K swim, 40K bike, 10K run), 2:05:08
- Half Marathon (13.1 miles), 1:30:58
- 24 miles of running, 2:49:00