

CHRISTINA S. KANG

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EDUCATION

- Ph.D.** Environmental Engineering, University of Michigan, September 2017 – Present
Advisor: Jeremy D. Semrau
Current GPA: 4.0/4.0
- M.S.** Environmental Engineering, Konkuk University, February 2015
Advisor: Han S. Kim
GPA: 4.44/4.5
- B.S.** Environmental Engineering, Konkuk University, February 2013
GPA: 4.38/4.5

FELLOWSHIPS AND AWARDS

Graduate Student Instructor, University of Michigan	Fall 2018
College of Engineering Deans Fellowship, University of Michigan	2017
Rackham Block Grant Fellowship, University of Michigan	2017
Reserved Master Candidate Scholarship, Konkuk University	2013-2014
Graduate Teaching Assistant C, Konkuk University	Fall 2014
Graduate Research Assistant A, Konkuk University	Winter 2013
Academic Scholarship, Konkuk University	2011-2012
National Grant, Korea Student Aid Foundation	2012
Department Exemplary Scholarship, Semyung University	2010
Academic Scholarship, First Rank, Semyung University	2009-2010
International Cultural Travel and Training Scholarship, Semyung University	2009
College Entrance Exam Scholarship, Second Grade, Semyung University	2009

RESEARCH EXPERIENCE

University of Michigan

Graduate Researcher, Aug 2017 – Present
Advisor: Jeremy D. Semrau
Characterization of a novel microbial mechanism of methylmercury detoxification

Konkuk University

Graduate Researcher, Mar 2013 – Jan 2015
Advisor: Han S. Kim
*Enzymatic degradation of 4-chlorophenol using recombinant monooxygenase CphC-I from *Arthrobacter chlorophenolicus* A6*

Konkuk University

Undergraduate Researcher, Mar 2011 – Feb 2013

Advisor: Han S. Kim

Over-expression of toluene dioxygenase in soluble form

PUBLICATIONS

Kang, C., Yang, J. W., Cho, W., Kwak, S., Park, S., Lim, Y., Choe, J. W., & Kim, H. S., 2017, "Oxidative biodegradation of 4-chlorophenol by using recombinant monooxygenase cloned and overexpressed from *Arthrobacter chlorophenolicus* A6," *Bioresource Technology*, 240, 123-129.

Suma, Y., **Kang, C. S.**, & Kim, H., 2016, "Noncovalent and covalent immobilization of oxygenase on single-walled carbon nanotube for enzymatic decomposition of aromatic hydrocarbon intermediates," *Environmental Science and Pollution Research*, 23(2), 1015-1024.

Yun, S., **Kang, C. S.**, Kim, J., & Kim, H., 2015, "Evaluation of soil flushing of complex contaminated soil: An experimental and modeling simulation study," *Journal of Hazardous Materials*, 287, 429-437.

Kang, C. S., Eaktasang, N., Kwon, D.-Y., & Kim, H., 2014, "Enhanced current production by *Desulfovibrio desulfuricans* biofilm in a mediator-less microbial fuel cell," *Bioresource Technology*, 165, 27-30.

Kang, C. S., & Kim, H., 2014, "Function Analysis of Chlorophenol Monooxygenase for Chlorophenol Degradation," *Advanced Materials Research*, 1073-1076, 700-703.

Eaktasang, N., Min, H.-S., **Kang, C.**, & Kim, H., 2013, "Control of malodorous hydrogen sulfide compounds using microbial fuel cell," *Bioprocess and Biosystems Engineering*, 36(10), 1417-1425.

Lee, S., Lee, S., Ryu, S., **Kang, C.**, Suma, Y., & Kim, H., 2013, "Effective biochemical decomposition of chlorinated aromatic hydrocarbons with a biocatalyst immobilized on a natural enzyme support," *Bioresource Technology*, 141, 89-96.

CONFERENCE PRESENTATIONS

Kang, C. S., Kim, H., "Function Analysis of Chlorophenol Monooxygenase for Chlorophenol Degradation," *4th International Conference on Energy, Environment and Sustainable Development*, October 2014, Nanjing, China.

Suma, Y., Ryu, S., **Kang, C. S.**, Kim, H., "Non-covalent and covalent immobilization of oxygenase onto single-walled carbon nanotube for enzymatic decomposition of aromatic hydrocarbon intermediates," *2nd International Conference on Contaminated Land, Ecological Assessment and Remediation*, October 2014, Chuncheon, Korea.

Kang, C., Lee, K., Kim, S., Park, K., Kim, H., "Optimization of enzyme immobilization onto nano-structure materials for enhancing bio-gas production from anaerobic digestion," *Smart Materials and Surfaces*, August 2014, Bangkok, Thailand.

Kang, C. S., Ryu, S., Kim, H., “Optimization of overexpression of putative chlorophenol monooxygenase small subunit for regeneration of FADH₂ for the enzymatic decomposition of phenolic contaminants,” *2014 International Conference on Soil and Groundwater Environment*, April 2014, Seoul, Korea.

Kang, C. S., Kim, H. T., Kim, H., “Optimization of overexpression of toluene dioxygenase and cis-toluene dihydrodiol dehydrogenase for the enzymatic decomposition of aromatic hydrocarbons and trichloroethylene,” *2013 International Symposium and Asian Network on Soil and Groundwater Environment*, November 2013, Seoul, Korea.

SKILLS

- Maintenance of intractable microbes
- Construction of mutant strains
- Polymerase chain reaction (PCR), reverse transcription PCR, quantitative PCR
- Bacteria transformation and conjugation, gene over-expression
- Protein purification and quantification, enzyme activity assay, enzyme immobilization
- Bioinformatic analysis, Python, R

WORK EXPERIENCE

University of Michigan

Graduate Student Instructor for Environmental Microbiology (CEE 582), Sept 2018 – Dec 2018

- Prepared and supervised laboratory sessions involving culturing techniques, molecular biology tools, and bioinformatic analysis
- Introduced basic theory of labs to students
- Assigned and graded homework and lab reports for each lab session
- Guided students to a better understanding of lecture and lab materials through discussion during office hours and individual communication

SHES Chemical Consulting Co., Ltd.

Assistant Manager, Feb 2016 – June 2017

Consultant, Jan 2015 – Feb 2016

- Ensured compliance with chemical and occupational safety regulations and supply chain communication of clients
- Oversaw the preparation of technical dossier for notification and permits in the US, Taiwan and South Korea
- Coordinated formal discussions between foreign clients and officials from the South Korean Ministry of Environment
- Conducted chemical risk assessment to control environmental and worker impact

PROFESSIONAL ACTIVITIES

Student member, American Geophysical Union

Student member, American Society for Microbiology