

SEOKTAE KANG, Ph. D.

Associate Professor, Department of Civil and Environmental Engineering
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EDUCATION

Yale University

(2006 – 2009)

Post-doctoral Education

Advisor: Professor Menachem Elimelech

Korea Advanced Institute of Science and Technology (KAIST)

(1997-2002)

Ph.D., Civil and Environmental Engineering

Dissertation : Characteristics and effects of extracellular polymeric substances and soluble microbial products in membrane bioreactors

Advisor : Professor Hangsik Shin

Korea Advanced Institute of Science and Technology (KAIST)

(1995-1997)

M.S., Civil and Environmental Engineering

Korea Advanced Institute of Science and Technology (KAIST)

(1991-1995)

B.S., Civil and Environmental Engineering

PROFESSIONAL EXPERIENCE

KAIST, ASSOCIATE PROFESSOR

Department of Civil and Environmental Engineering

2015.8 - present

KYUNGHEE UNIVERSITY, ASSOCIATE PROFESSOR

Department of Civil Engineering

2010. 3 – 2015.7

UNIVERSITY OF ALBERTA, ADJUNT PROFESSOR

Department of Civil and Environmental Engineering

2011. 2 – 2014. 1

UNIVERSITY OF ALBERTA, ASSISTANT PROFESSOR

Department of Civil and Environmental Engineering

2009. 11 - 2010. 12

YALE UNIVERSITY , POST-DOCTORAL ASSOCIATE Department of Chemical Engineering, Environmental Engineering Program	2005. 9 – 2009.11
GIST , ASSISTANT RESEARCH PROFESSOR (Gwangju Institute of Science and Technology, Rep. of Korea) Department of Environmental Science and Engineering	2003. 9 – 2006. 2
KAIST , RESEACHER Applied Engineering Research Center	2002. 3 – 2003.9
UC RIVERSIDE , POSTDOCTORAL RESEARCHER Department of Chemical and Environmental Engineering	2002. 7 – 2003. 7
HANBAT NATIONAL UNIVERSITY , LECTURER Department of Architectural Engineering	2001. 8 – 2002. 2
KIMM , VISITING RESEARCHER (Korea Institute of Materials and Machinery)	1997. 4 – 1997. 12
KAIST , TEACHING AND RESEARCH ASSISTANT Department of Civil and Environmental Engineering	1997.3 – 2001. 2

HONORS AND AWARDS

- Special achievement award, KSEE, Nov.16,**2017**
- Best Poster Presentation, KKNN Symposium, **2013**
- Distinction as author of the 9th most accessed article in *Langmuir* for the year **2007**
- 2nd Place in the 2006 WEFTEC poster symposium, Oct. 24, **2006**
- Postdoctoral fellowship, Korea Science and Engineering Foundation, July, **2002**
- Best presentation award, Korea Society of Environmental Engineers, May. 3, **2002**
- Best presentation award, Korea Society of Environmental Engineers, Nov. 3, **2001**
- Alumni Scholarship, KAIST Alumni, Dec. 29, **1999**
- Scholarship, DAAD, Germany, July, **1999**

SOCIAL AND PROFESSIONAL SERVICE

- *Director, Korean Membrane Society (2014.1.1 ~)*
- *Director, Korean Society of Environmental Engineers (2014.1.1 ~)*
- *Editor, Environmental Engineering Research (2014. 1.1)*
- *Editor, Korean Society on Water Environment (2013. 5.1 ~)*
- *Director, Scientist and Engineers without Border (2013.10.1 ~)*

- Board member, Program committee of 2015 World Water Forum (2013. 8.1 ~ 2015.3)

PROFESSIONAL SOCIETY MEMBERSHIP

- American Chemical Society (ACS)
- American Institute of Chemical Engineers (AIChE)
- International Water Association (IWA)
- North American Membrane Society (NAMS)
- Korean Society of Environmental Engineers (KSEE)
- Korean Chemical Society (KCS)
- Korea Membrane Society (KMS)
- Korean Society of Civil Engineers (KSCE)
- Korean Society of Water Quality (KSWQ)
- Korean Society of Industrial and Engineering Chemistry (KSIEC)

RESEARCH INTERESTS

- Environmental applications and implications of nanomaterials
- Environmental application of atomic force microscopy (AFM)
- Membrane technology for water production
- Nano-scale understanding of microbial adhesion phenomena

GRADUATE STUDENT SUPERVISION (KAIST)

- | | |
|---------------------------------|-----------|
| 1. Pattarasiri FAGKAEW (Ph. D.) | 2016. 9 ~ |
| 2. Dwiwana YOGASARI (M. S.) | 2016. 9 ~ |
| 3. Jooseong PARK (M. S.) | 2016. 8 ~ |
| 4. Kookjin SEO (M. S.) | 2016. 8 ~ |
| 5. Dongkyu PARK (M. S.) | 2016. 3 ~ |
| 6. Miyoung LEE (Ph. D.) | 2016. 3 ~ |
| 7. Youngkyun CHUNG (M. S.) | 2016. 3 ~ |
| 8. Daeseon PARK (M. S.) | 2016. 3 ~ |
| 9. Hyojeon KIM (Ph. D.) | 2016. 3 ~ |
| 10. Huiyi ZHANG (Ph. D.) | 2015. 9 ~ |
| 11. Deoksoo JANG (Ph. D.) | 2015. 9 ~ |
| 12. Heeyoung KIM (M.S.) | 2015. 9 ~ |
| 13. Seungjoo CHOI (M. S.) | 2015. 9 ~ |

GRADUATE STUDENT SUPERVISION (Kyung Hee University)

- | | |
|--|------------------|
| 1. 1.Youngjoon Kim (M.S.; co-advice) | 2011.3 ~ 2012. 2 |
| - Adsorption of EDCs and PPCPs by carbon-based nanomaterials | |
| 2. Hyeongseop Jee (M.S.; co-advice) | 2011.3 ~ 2013.2 |

- Synthesis and application of organic-inorganic hybrid matters for soil and groundwater reclamation
- 3. Krizel Garrido (M. S.) 2011.9 ~ 2013.8
 - Biofouling in forward-osmosis process
- 4. Sunmi Choi (M.S.) 2012. 3 ~ 2014.2
 - Adsorption of heavy metals using manganese oxide-doped expanded graphite
- 5. Hyojeon Kim (M.S.) 2013. 2 ~ 2015. 2
 - Fluorescence spectroscopy for characterization of organic matters during adsorption and RO membrane cleaning
- 6. Do Quoc Cuong (M.S.-Ph. D. Joint) 2013.2 ~ 2015. 7
 - Separation of fatty acids from photosynthetic anaerobic reactor
- 7. Kaiwit Ruengruehan (Ph. D.) 2013. 2 ~ 2016. 8
 - Biofouling mechanisms of forward osmosis process
- 8. Le Thi Hai Yen (M.S.-Ph. D. Joint) 2014.2 ~ 2015. 7
 - Adsorption and Oxidation of antibiotics from agricultural wastewater
- 9. Myeongchan Kim (M.S.) 2014.2 ~ 2016. 2
 - Chemogenic preparation of metal oxide nanoparticles for the removal of micropollutants
- 10. Vicki Ardiansah (M.S.-Ph. D. Joint) 2015. 1 ~ 2015. 7
 - Removal of Algal Toxins by Carbon-Based Nanomaterials

GRADUATE STUDENT SUPERVISION (U. of Alberta)

1. Ahmed Moustafa (Ph. D.; co-advice; Alberta Ingenuity Scholarship)
Environmental application of carbon-based nanomaterials
2. Jiaming Liang (M. Sc.; co-supervision)
Microbial adhesion; Biofilm
3. Ladan Shamaer (M. Sc.)
Environmental application of biogenic nanomaterials
4. Khaleel Hussain Mohammed (M. Eng.)

POSTDOCTORAL FELLOW

1. Geelsu Hwang (Ph. D. from Yonsei University) 2010.4 ~ 2010.12
 - Microbial adhesion; Biofilm

COURSE TAUGHT

- Engineering Statistics (Undergraduate)
- Environmental Reaction Engineering (Undergraduate)
- Environmental Engineering and Laboratory (Undergraduate)

- Introduction to Environmental Nanotechnology (Graduate)
- Particles in Water (Graduate)
- Water Reuse (Graduate)
- Water Chemistry (Graduate)
- Advanced Topics in Environmental Engineering (Graduate)
- Advanced Environmental Engineering (Graduate)

REFEREED JOURNAL PUBLICATIONS

1. Seung-Ju Choi, Duksoo Jang, Jung-Kee Lee, Yeo-Myeong Yun, Seoktae Kang, "Mitigation of biofouling in forward osmosis process by bacteria-oriented quorum quenching molecules", *Desalination and Water Treatment*, 99, 107-111, **2017**
2. Seung-Ju Choi, Dong-Kyu Park, Yeo-Myeong Yun, Seoktae Kang, "Inhibition of biofilm formation on FO membrane surface by plant-oriented organic molecules", *Desalination and Water Treatment*, 99, 112-116, **2017**
3. Hyojeon Kim, Pattarasiri Fagkaew, Kwangtaek Ahn, Jaelim Lim, Youngju Lee, Seoktae Kang, "Chemical cleaning strategy of full-scale low-pressure reverse osmosis (LPRO) membrane process: case study", *Desalination and Water Treatment*, 99, 125-131, **2017**
4. Daeseon Park, Yeo-Myeong Yun, Hyojeon Kim, Seungju Choi, Seoktae Kang, "Mechanism of biofouling mitigation on nanofiltration membrane by non-oxidizing biocide", *Desalination and Water Treatment*, 99, 102-106, **2017**
5. Mi-Young Lee, Heeyoung Kim, Jong-Oh Kim, **Seoktae Kang**, "Three-dimensional hollow fiber type of carbon nanotube electrode for enhanced ion adsorption capacity", *Desalination and Water Treatment*, 90, 46-53, **2017**
6. MS Kim, C Moon, **S. Kang**, DH Kim, "Continuous performance of hydrogenotrophic methanogenic mixed cultures: Kinetic and SMP analysis", *International Journal of Hydrogen Energy*, 42, 27767-27773, **2017**
7. YM Yun, S Sung, **S. Kang**, MS Kim, DH Kim, "Enrichment of hydrogenotrophic methanogens by means of gas recycle and its application in biogas upgrading", *ENERGY*, 135, 294-302, **2017**
8. P. Fagkaew, K. Ruengruehan, J W Chung, and **S. Kang**, "Relating intrinsic membrane water permeability and fouling propensity in forward osmosis processes", *Desalination and Water Treatment*, 77, 122-128, **2017**
9. Quoc Cuong Do, Mi-Sun Kim, Donghoon Kim, Seok-Oh Ko, and **S. Kang** " Sustainable harvesting of aqueous phase fatty acids by expanded graphite and isopropyl alcohol", *International Journal of Hydrogen Energy*, 41, 21780-21786, **2016**
10. K. Ruengruehan, P. Fagkaew, D. Jang, S. Ko, **S. Kang**, "Impact of feed ionic concentration on colloidal and organic fouling of osmotically driven membrane process", *Desalination and Water Treatment*, 57, 24551-24556, **2016**

11. K. Ruengruehan, P. Fagkaew, G. Ahn, S. Ko, and **S. Kang**, “Relating membrane surface properties and flux recovery during the chemical cleaning of forward osmosis membrane”, *Desalination and Water Treatment*, 57, 26621-26628, **2016**
12. H. D. Yun, J. Kwak, S. Y. Kim, H. Seo, I. C. Bang, S. Y. Kim, **S. Kang**, S. Y. Kwon “High performance all-carbon composite transparent electrodes containing uniform carbon nanotube networks”, *Journal of Alloys and Compounds*, 675, 37-45, **2016**
13. W. Lee, Y. Ahn, H. Kim, S. –H. Kim, C. Lee, **S. Kang** “Microbial behavior and characteristics of biomass during starvation and their influence on ultrafiltration of activated sludge”, *Desalination and Water Treatment*, 57, 7487-7494, **2016**
14. Y. Ahn, **S. Kang**, B. Bae, C. Lee, W. Lee “Direct measurement of cake fouling potentials by powdered activated carbon during microfiltration of surface water”, *Desalination and Water Treatment*, 57, 7449-7455, **2016**
15. Gyeong-Wan Go, Eui-Jong Lee, **S. Kang**, Am Jang, “Combined coagulation/ceramic membrane ultrafiltration system for reclamation of degreasing washing water”, *Desalination and Water Treatment*, 57, 7479-7486, **2016**
16. K. Ruengruehan, H. Kim, J. Kim, **S. Kang** “Fatty Acids Fouling on Forward Osmosis Membrane: Impact of pH”, *Desalination and Water Treatment*, 57, 7531-7537, **2016**
17. M. R. Hibbs, L. K. McGrath, **S. Kang**, A. Adout, S. J. Altman, M. Elimelech, C. J. Cornelius, “Designing a biocidal reverse osmosis membrane coating: Synthesis and biofouling properties”, *Desalination*, 380, 52-59, **2016**
18. Y.-G Lee, J. Han, S. Kwon, **S. Kang**, A. Jang, “Development of a rotary disc voltammetric sensor system for semi-continuous and on-site measurements of Pb(II)” *Chemosphere*, 143, 78-84, **2016**
19. D. Q. Cuong and **S. Kang**, “Thermodynamic analysis of fatty acids harvesting by novel carbon-based adsorbent”, *Environmental Science and Pollution Research*, 23, 7146-7154, **2016**
20. H. Choi, M. Son, S. Yoon, E. Celik, **S. Kang**, H. Park, C. Park, H. Choi, “Alginate fouling reduction of functionalized carbon nanotube blended cellulose acetate membrane in forward osmosis”, *Chemosphere*, 136, 204–210, **2015**
21. So-Ryong Chae, Jin-Ho Chung, Yong-Rok Heo, **S. Kang**, Sang-Min Lee and Hang-Sik Shin, “Full-scale Implementation of a Vertical Membrane Bioreactor for Simultaneous Removal of Organic and Nutrients from Municipal Wastewater”, *Water*, 7, 1164-1172, **2015**
22. J. Choi, J. Kwak, S. Park, H. Yun, S. Kim, M. Jung, S. Kim, K. Park, **S. Kang**, S. Kim, D. Park, D. Lee, S. Hong, H. Shin, S. Kwon “Growth of Wrinkle-Free Graphene on Texture-Controlled Platinum Films and Thermal-Assisted Transfer of Large-Scale Patterned Graphene”, *ACS Nano*, 9, 679-686, **2015**
23. **S. Kang**, S.-R. Chae, A. Jang, J. –O. Kim, “Modeling of a monopolar ion-exchange membrane for nutrient removal”, *Desalination and Water Treatment*, 53, 2825-2830, **2015**
24. M.-E. Lee, J. H. Park, J. W. Chung, C. –Y. Lee, **S. Kang**, “Removal of Pb and Cu ions from aqueous solution by Mn₃O₄-coated activated carbon”, *Journal of Industrial Engineering and Chemistry*, 21, 470-475, **2015**
25. Moustafa, A., E., Kim, A. Alpatova, N. Sun, S. Smith, **S. Kang**, M. Gamal El-Din “Impact of polymeric membrane filtration of oil sands process water on organic

- quantification”, *Water Science and Technology*, 70, 771-779, **2014**
26. D. -H. Kim, J. -H. Lee, **S. Kang**, P. C. Hallenbeck, E. -J. Kim, J. K. Lee, M. -S. Kim, “Enhanced photo-fermentative H₂ production using Rhodospirillum rubrum by ethanol addition and analysis of soluble microbial products”, *Biotechnology for Biofuels*, 7, 79, **2014**
 27. J. W. Chung, M. E. Lee, **S. T. Kang**, N. S. Bolan, “Concentration Distribution of Carbonyl Compounds in an Industrial Shipbuilding Complex”, *KSCE Journal of Civil Engineering*, 18, 927-932, **2014**
 28. K. D. Garrido, R. J. S. Palacios, C.-Y. Lee, **S. Kang**, “Impact of conditioning film on the initial adhesion of *E. coli* on polysulfone ultrafiltration membrane”, *Journal of Industrial Engineering and Chemistry*, 20, 1438-1443, **2014**
 29. E. Jeong, W.-T. Im, D.-H. Kim, M.-S. Kim, **S. Kang**, H.-S. Shin, S. -R. Chae, “Different susceptibilities of bacterial community to silver nanoparticles in wastewater treatment systems”, *J. Environ. Sci. Health, Part A*, 49, 685-693, **2014**
 30. J. Thwala, E. M. V. Hoek, M. Li, **S. Kang**, M. Wong, B. Mamba, "Bacteria-Polymeric Membrane Interactions: AFM Force Microscopy and XDLVO predictions." *Langmuir*, 29, 13773-13782, **2013**
 31. D.-H. Kim, J.-H. Lee, Y. Hwang, **S. Kang**, M.-S. Kim, “Continuous Cultivation of Photosynthetic Bacteria for Fatty Acids Production”, *Bioresource Technology*, 148, 277-282, **2013**
 32. G. Hwang, J. Liang, **S. Kang**, M. Tong, Y. Liu, “The role of conditioning film formation in *Pseudomonas aeruginosa* PAO1 adhesion to inert surfaces in aquatic environments”, *Biochemical Engineering Journal*, 76, 90-98, **2013**
 33. D. Kim, J. Cha, **S. Kang**, M. Kim, “Continuous photo-fermentative hydrogen production from lactate and lactate-rich acidified food waste”, *International Journal of Hydrogen Energy*, 38, 6161-6166, **2013**
 34. A. S. Kim, **S. Kang**, “Microhydrodynamics Simulation of Single-collector Granular Filtration”, *Chemistry Letters*, 41, 1288-1290, **2012**
 35. G. Hwang, **S. Kang**, M. Gamal El-Din, Y. Liu, “Impact of extracellular polymeric substance (EPS) pre-coating on the initial adhesion of *Burkholderia cepacia* and *Pseudomonas aeruginosa*”, *Biofouling*, 28, 525-538, **2012**
 36. E. Jeong, S. R. Chae, **S. Kang**, H. S. Shin, “Effects of silver nanoparticles on biological nitrogen removal processes”, *Wat. Sci. Technol.*, 65, 1298-1303, **2012**
 37. J. Chu, J. Kwak, T. Y. Kwon, S. D. Park, H. Go, S. Y. Kim, K. Park, **S. Kang**, S. Y. Kwon, “Facile synthesis of few-layer graphene with a controllable thickness using rapid thermal annealing”, *ACS Appl. Mater. Interfaces*, 4, 1777-1782, **2012**
 38. H. W. Kim, J. Y. Nam, **S. Kang**, D. H. Kim, K. W. Jung, H. S. Shin, “Hydrolytic activities of extracellular enzymes in thermophilic and mesophilic anaerobic sequencing-batch reactors treating organic fractions of municipal solid wastes”, *Bioresource Technology*, 110, 130-134, **2012**
 39. G. Hwang, **S. Kang**, M. G. El-Din, Y. Liu, “Initial adhesion of three strains of *Burkholderia cepacia* PC184 to the conditioning films, depending on the EPS secretion ability”, *Colloids and Surfaces B: Biointerfaces*, 91, 181-188, **2012**
 40. G. Hwang, M. G. El-Din, **S. Kang** and Y. Liu, “Impact of conditioning films on the initial adhesion of *Burkholderia cepacia*”, *Colloids and Surfaces B: Biointerfaces*, 46, 70-

77, **2012**

41. A. S. Brady-Estevez, M. H. Schnoor, **S. Kang**, M. Elimelech, "SWNT-MWNT hybrid filter attains high viral removal and bacterial inactivation", *Langmuir*, 26, 19153-19158, **2010**
42. C. D. Vecitis, K. R. Zodrow, **S. Kang**, M. Elimelech, "Electronic-structure-dependent bacterial cytotoxicity of single-walled carbon nanotubes", *ACS Nano*, 4, 5471-5479, **2010**
43. S. Aslan, C. Zoican, **S. Kang**, M. Elimelech, L. D. Pfefferle, and P. R. Van Tassel, "Antimicrobial biomaterials based on carbon nanotubes dispersed in poly(lactic-co-glycolic acid)", *Nanoscale*, 2, 1789-1794, **2010**
44. A. Adout, **S. Kang**, A. Asatekin, A. M. Mayes, M. Elimelech, "Ultrafiltration Membranes Incorporating Amphiphilic Comb Copolymer Additives Prevent Irreversible Adhesion of Bacteria", *Environmental Science and Technology*, 44, 2406-2411, **2010**
45. **S. Kang** and M. Elimelech, "Bioinspired single bacterial cell force spectroscopy", *Langmuir*, 25, 9656-9659, **2009**
46. A. Menniti, **S. Kang**, M. Elimelech, E. Morgenroth, "The influence of shear on EPS production in membrane bioreactors", *Water Research*, 43, 4305-4315, **2009**
47. M. Herzberg, **S. Kang**, and M. Elimelech, "Role of extracellular polymeric substances in biofouling of Reverse Osmosis Membranes", *Environmental Science and Technology*, 43, 4393-4398, **2009**
48. **S. Kang**, M. Mauter, and M. Elimelech, "Microbial cytotoxicity of carbon-based nanomaterials: Implications for river water and wastewater effluent", *Environmental Science and Technology*, 43, 2648-2653, **2009**
49. **S. Kang**, M. Mauter and M. Elimelech, "Physicochemical determinants of multi-walled carbon nanotube cytotoxicity", *Environmental Science and Technology*, 42, 7528-7534, **2008**
50. **S. Kang**, M. Herzberg, D. F. Rodrigues and M. Elimelech, "Antibacterial effects of carbon nanotubes: Size does matter!", *Langmuir*, 24, 6409-6413, **2008**
51. S. Brady-Estévez, **S. Kang**, and M. Elimelech, "A single-walled-carbon- nanotube filter for removal of viral and bacterial pathogens" *Small*, 4, 481-484, **2008**
52. **S. Kang**, M. Pinault, L. D. Pfefferle, and M. Elimelech, "Single-walled carbon nanotubes exhibit strong antimicrobial activity", *Langmuir*, 23, 8670-8673, **2007**
53. A. Asatekin, **S. Kang**, M. Elimelech and A. M. Mayes, "Anti-fouling ultrafiltration membranes containing polyacrylonitrile-graft-poly(ethylene oxide) comb copolymer additives", *Journal of Membrane Science*, 298, 136-146, **2007**
54. J. Won, J. Kim, **S. Kang**, and H. Choi, "Transport and adhesion of *Escherichia Coli* JM109 in soil aquifer treatment (SAT): One-dimensional column study", *Environmental Monitoring and Assessment*, 129, 9-18, **2007**
55. **S. Kang**, A. Asatekin, A. M. Mayes, and M. Elimelech, "Protein (BSA) antifouling mechanisms of PAN-g-PEO UF membranes", *Journal of Membrane Science*, 296, 42-50, **2007**
56. **S. Kang**, W. Lee, S. Chae and H. Shin, "Positive roles of biofilm during the operation of membrane bioreactor for water reuse", *Desalination*, 202, 129-134, **2007**
57. Y. Ahn, **S. Kang**, S. Chae and H. Shin, "Simultaneous high-strength organic and nitrogen removal with combined anaerobic upflow bed filter and aerobic membrane bio-reactor (UBF-MBR)", *Desalination*, 202, 114-121, **2007**

58. S. R. Chae, **S. Kang**, S. M. Lee, E. S. Lee, S. E. Oh, Y. Watanabe, H. S. Shin, “High reuse potential of effluent from an innovative vertical submerged membrane bioreactor treating municipal wastewater”, *Desalination*, 202, 83-89, **2007**
59. A. Asatekin, Menniti, **S. Kang**, M. Elimelech, E. Morgenroth, and A. M. Mayes, “Antifouling nanofiltration membranes for membrane bioreactors from self-assembling graft copolymers”, *Journal of Membrane Science*, 285, 81-89, **2006**
60. S. Chae, Y. Ahn, **S. Kang**, and H. Shin, “Mitigated membrane fouling in a vertical submerged membrane bioreactor (VSMBR)”, *Journal of Membrane Science*, 280, 572-581, **2006**
61. **S. Kang**, E. M. V. Hoek, H. Choi, and H. Shin, “Effect of membrane surface properties during the fast evaluation of cell attachment”, *Separation Science and Technology*, 41, 1475-1487, **2006**
62. S. R. Chae, **S. Kang**, Y. Watanabe, H.S. Shin, “Development of an innovative vertical submerged membrane bioreactor (VSMBR) for simultaneous removal of organic matter and nutrients”, *Water Research*, 40, 2161-2167, **2006**
63. **S. Kang** and H. Choi, “Effect of surface hydrophobicity on the adhesion of *S. cerevisiae* onto modified surfaces by poly(styrene-ran-sulfonic acid) random copolymers”, *Colloids and Surfaces B: Biointerfaces*, 46, 70-77, **2005**
64. Y. Ahn, **S. Kang**, S. Chae, J. Lim, S. Lee, H. Shin, “Effect of internal recycle rate on the high-strength nitrogen wastewater treatment in the combined UBF/MBR system”, *Wat. Sci. Technol.*, 51, 241-247, **2005**
65. **S. Kang**, A. Subramani, E. M. V. Hoek, M. A. Deshusses, M. R. Matsumoto, “Direct observation of biofouling in cross-flow microfiltration: mechanisms of deposition and release”, *J. Membr. Sci.*, 244, 151-165, **2004**
66. H. Shin, **S. Kang**, C. Lee and J. Lim, “Performance of a pilot scale membrane bioreactor coupled with SBR (SM-SBR) – Experiences in seasonal temperature changes”, *Wat. Sci. Technol.: Water Supply*, 4, 135-142, **2004**
67. S. Chae, H. Jeong, J. Lim, **S. Kang**, H. Shin, B. Paik, J. Youn, “Behaviors of intercellular materials and nutrients in biological nutrient removal (BNR) process supplied with domestic sewage and food waste”, *Wat. Environ. Res.*, 76, 272-279, **2004**
68. H. Shin and **S. Kang**, “Characteristics and fates of soluble microbial products in ceramic membrane bioreactor at various sludge retention times”, *Wat. Res.*, 37, 211-217, **2003**
69. E. M. V. Hoek, **S. Kang**, M. A. Deshusses, “Observation, measurement and modeling of biocolloid deposition in crossflow membrane filtration”, *Abstracts of papers of the ACS 225th Meeting*, 43(1), 487-492, **2003**
70. W. Lee, **S. Kang**, and H. Shin, “Sludge characteristics and their contribution to microfiltration in submerged membrane bioreactors”, *J. Membr. Sci.*, 216, 217-227, **2003**
71. H. Shin and **S. Kang**, “Performance and membrane fouling in a pilot scale SBR process coupled with membrane”, *Wat. Sci. Technol.*, 47(1), 139-144, **2003**
72. H. Shin, **S. Kang** and S. Nam, “Effect of carbohydrate and protein in the EPS on sludge settling characteristics”, *Wat. Sci. Technol.*, 43(6), 193-196, **2001**

REGIONAL (KOREAN) JOURNAL PUBLICATIONS

1. C. Y. Lee, H. S. Jee, J. Chung, S. Kim, Y. Cho, S. Kang, “Adsorption of p-Xylene by expanded graphite”, *KGES*, 13(5), 35-40, **2012**
2. S. Kang, Hee-chul Choi and Eric M. V. Hoek, “Measurement of adhesion forces between *S. cerevisiae* and membrane surfaces using atomic force microscopy (AFM) with bio-probe”, *J. of KSEE*, 26(7), 778-783, **2004**
3. Hang-Sik Shin, Won-Tae Lee, S. Kang, Se-Yong Nam and Hyeng-Seok Jeong, “Effect of Sludge Characteristics on Membrane Fouling in Submerged MBRs”, *J. of KSEE*, 24(5), 879-887, **2002**
4. Hang-Sik Shin, So-Ryong Chae, Se-Yong Nam, S. Kang, and Byeong-Cheon Paik, “The Effect of Anaerobically Fermented Leachate of Food Waste on Nutrient Removal in BNR (1)”, *J. of KSEE*, 24(6), 1023-1031, **2002**
5. Hang-Sik Shin, S. Kang, Se-Yong Nam, Won-Tae Lee, and So-Ryong Chae, “Simultaneous Removal of Organics and Nutrients in a Single Reactor coupled with Membrane”, *J. of KSEE*, 23(6), 971-978, **2001**
6. Hang-Sik Shin, S. Kang and Se-Yong Nam, “Effect of carbohydrate and protein in the EPS on sludge settling characteristics”, *Biotechnology Bioprocess Engineering*, 5(6), 460-464, **2000**.
7. Su-Han Kim, S. Kang, Hee-Kyung Park, “A Study of Optimal Pretreatment Systems for Desalination Using Reverse Osmosis”, *J. of KSEE*, 20(10), 1367-1375, **1998**

RESEARCH PROJECTS (at Kyung Hee University)

1. Investigation of the fate and transport of engineered nanoparticles in environmental processes, Korea Institute of Toxicology, 2015.05.01 – 2015.12.31, **KRW 30,000,000 (PI)**
2. Investigation of Cleaning Agent for Biofouling Control of RO Membranes, **Prime Tech. Corp.**, 2015. 1. 23 – 2015. 7.30, **KRW 33,000,000 (PI)**
3. Biofouling Control in FO-RO hybrid System, **Ministry of Land, Infrastructure and Transportation**, 2014. 12. 4- 2019. 12. 3, **KRW 1,360,900,000 (PI)**
4. Mobile Hybrid System for Processed Water Treatment from Contaminated Soil and Groundwater Remediation, **Ministry of Trade, Industry and Energy**, 2014. 12. 1 – 2015. 11. 30, **KRW 65,000,000 (PI)**
5. Installation of Wastewater Treatment and Reuse Facilities for Urban Slum and Textile Industry Complex in Bandung, Indonesia, **Korea Ministry of Environment**, 2014. 5. 21 – 2015. 3 .31, **KRW 180,000,000 (PI)**
6. Removal of Algae and Algae Oriented Harmful Toxins from Water Treatment System, **Korea Research Foundation**, 2014. 5. 1 – 2017. 4. 30, **KRW 1,150,000,000 (co-PI)**
7. Development of Graphene-Based Membrane Distillation for High-Quality Water Production, **Korea Research Foundation**, 2013.6.1 – 2016.5.30, **KRW 580,000,000 (co-PI)**
8. Upgrading of Low Rank Coal to Synthetic Natural Gas/Chemical Feedstock by Biological Processes, **Korea Institute of Energy Technology Evaluation and Planning**,

2013. 10. 1 - 2016. 9. 30, KRW 166,000,000 (PI)
9. Removal of Colors from Wastewater Effluent by Carbon-Based Nanomaterials, **Daewoo Construction Company**, 2013. 3. 1 – 2015. 3. 31, KRW 90,000,000 (PI)
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