

Kyoung-Yeol Kim, Ph.D.

Curriculum Vitae

Department of Environmental and Sustainable Engineering,
226 Biology Building,
University at Albany, State University of New York, Albany, NY 12222
E-mail: kkim28@albany.edu
Tel: +1-518-437-4971
Cell: +1-814-470-3781

EDUCATION

- 2014 M.S./Ph.D. in Environmental Engineering, Gwangju Institute of Science and Technology (GIST), South Korea.
- 2008 B.S. in Environmental Engineering (minor: Chemical Engineering, Bioengineering), Kyungpook National University, South Korea.

PROFESSIONAL EXPERIENCES

- Sep 2018-present Assistant Professor, Department of Environmental and Sustainable Engineering, University at Albany, State University of New York (SUNY).
- June 2014-2018 Post-doctoral Researcher, Department of Civil and Environmental Engineering, Pennsylvania State University, USA.
- Mar 2014 Post-doctoral Researcher, SeaHERO, Center for Seawater Desalination Plant, South Korea.
- Jan 2012-
June 2012 Visiting Scholar, Department of Biological and Environmental Engineering, Cornell University, USA.
- Jan 2008 Research Internship, School of Environmental Science and Engineering, Pohang University of Science and Technology (POSTECH), Pohang, South Korea.
- July 2007 Research Internship, School of Environmental Science and Engineering, Gwangju Institute of Science and Technology (GIST), South Korea.

PATENTS

1. Kim, I.S., E. Yang, M.-J. Choi, **K.-Y. Kim**, "Hydrogen production and seawater desalination in a microbial electro dialysis cell by installing the direct proton transfer pathway", Korea Patent No. 10-1284554 (2013. 07. 04).

2. Kim, I.S., M.-J. Choi, E. Yang, **K.-Y. Kim**, A. Jang, “A process of desalination and hydrogen peroxide production by using microbial electrochemical cell”, Korea Patent No. 10-1282763 (2013. 07. 01).
3. Kim, I.S., K.-J. Chae, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi “A system for bioelectrochemical hydrogen production using sun light”, Korea Patent No. 10-1126190 (2012.3.6).
4. Kim, I.S., K.-J. Chae, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi “Bioelectrochemical hydrogen generating apparatus using a photovoltaic cell-storage battery assemble as an external voltage apparatus and method for operating the same”, Korea Patent No. 10-1123961 (2012. 2. 28).

PUBLICATIONS

Journal Publications (Total citations: **3191**, h-index=27, Google Scholar, 1/28/2022)

1. Chae, S., M. Kong, H. Kim, C. Hejase, **K.-Y. Kim**, T. Tong, S. Green, R.B. Young, J. Stokes-Draut, P. Kurup, J. Macknick, T. Borch, and D.D. Dionysiou (2021). Challenge and opportunities in advanced treatment and reuse of treated wastewater for agriculture in the United States: A critical review. *submitted*
2. Moreno-Jimenez, D.A. and **K.-Y. Kim*** (2022). Enhanced wettability improves catalytic activity of nickel-functionalized activated carbon cathode for hydrogen production in microbial electrolysis cells. *Bioresource Technology*, 350:126881.
3. Baek, G., **K.-Y. Kim**, and B.E. Logan (2021). Impact of surface area and current generation by microbial electrolysis cell electrodes inserted into anaerobic digesters. *Chemical Engineering Journal*, 426:131281.
4. **Kim, K.-Y.***, D.A. Moreno-Jimenez, and H. Efstathiadis (2021). Electrochemical ammonia recovery from anaerobic centrate using a nickel-functionalized activated carbon membrane electrode. *Environmental Science & Technology*, 55(11):7674-7680.
5. Mu, T., M. Park and **K.-Y. Kim*** (2021). Energy-efficient removal of PFOA and PFOS in water using electrocoagulation with an air-cathode. *Chemosphere*, 281:130956.
6. Fonseca, E.U., **K.-Y. Kim**, R. Rossi, and B.E. Logan (2021). Improving microbial electrolysis stability using flow-through brush electrodes and monitoring anode potentials relative to thermodynamic minima. *International Journal of Hydrogen Energy*, 46(14):9514-9522.
7. Kim, M., Y.E. Song, J.Q. Xiong, **K.-Y. Kim**, M. Jang, B.H. Jeon, and J.R. Kim (2021). Electrochemical detection and simultaneous removal of endocrine disruptor, bisphenol A using a carbon felt electrode. *Journal of Electroanalytical Chemistry*, 880:114907.
8. **Kim, K.-Y.***, R. Rossi, J.M. Regan, and B.E. Logan (2021). Enumeration of exoelectrogens in microbial fuel cell effluents fed acetate or wastewater substrates. *Biochemical Engineering Journal*, 165:107816.

9. **Kim, K.-Y.***, S.E. Habas, J.A. Schaidle, and B.E. Logan (2019). Application of phase-pure nickel phosphide nanoparticles as cathode catalysts for hydrogen production in microbial electrolysis cells. *Bioresource Technology*, 293:122067.
10. Cario, B.P., R. Rossi, **K.-Y. Kim**, and B.E. Logan (2019). Applying the electrode potential slope method as a tool to quantitatively evaluate the performance of individual microbial electrolysis cell components. *Bioresource Technology*, 287:121418.
11. **Kim, K.-Y.*** and B.E. Logan (2019). Nickel powder blended activated carbon cathodes for hydrogen production in microbial electrolysis cells. *International Journal of Hydrogen Energy*, 44(26):13169-13174.
12. Hwang, J.-H., **K.-Y. Kim**, E.P. Resurreccion, and W.H. Lee (2019). Surfactant addition to enhance bioavailability of bilge water in single chamber microbial fuel cells (MFCs). *Journal of Hazardous Materials*, 368:732-738.
13. El-Dalatony, M.M., E. Salama, M.B. Kurade, **K.-Y. Kim**, S.P. Govindwar, J.R. Kim, E.E. Kwon, B. Min, M. Jang, S.-E. Oh, S.W. Chang, and B.-H. Jeon (2019). Whole conversion of microalgal biomass into biofuels through successive high-throughput fermentation. *Chemical Engineering Journal*, 360:797-805.
14. Logan, B.E., E. Zikmund, W. Yang, R. Rossi, **K.-Y. Kim**, P. Saikaly, and F. Zhang (2018). Impact of ohmic resistance on measured electrode potentials and maximum power production in microbial fuel cells. *Environmental Science & Technology*, 52(15):8977-8985.
15. Zikmund, E., **K.-Y. Kim**, and B.E. Logan (2018). Hydrogen production rates with closely-spaced felt anodes and cathodes compared to brush anodes in two-chamber microbial electrolysis cells. *International Journal of Hydrogen Energy*, 43(20):9599-9606.
16. **Kim, K.-Y.**, W. Yang, and B.E. Logan (2018). Regenerable nickel-functionalized activated carbon cathodes enhanced by metal adsorption to improve hydrogen production in microbial electrolysis cells. *Environmental Science & Technology*, 52(12):7131-7137.
17. Yang, W., R. Rossi, Y. Tian, **K.-Y. Kim**, E. Zikmund, and B.E. Logan (2018). Mitigating external and internal cathode fouling using a polymer bonded separator in microbial fuel cells. *Bioresource Technology*. 249:1080-1084.
18. **Kim, K.-Y.**, E. Zikmund, and B.E. Logan (2017). Impact of catholyte recirculation on different 3-dimensional stainless steel cathodes in microbial electrolysis cells. *International Journal of Hydrogen Energy*. 42:29708-29715.
19. Yilmazel, Y.D., X. Zhu, **K.-Y. Kim**, D.E. Holmes, and B.E. Logan (2017). Electrical current generation in microbial electrolysis cells by hyperthermophilic archaea *Ferroglobus placidus* and *Geoglobus ahangari*. *Bioelectrochemistry*, 119:142-149.
20. Yang, W., **K.-Y. Kim**, P.E. Saikaly, and B.E. Logan (2017). The impact of new cathode materials relative to baseline performance of microbial fuel cells all with the same architecture and solution chemistry. *Energy & Environmental Science*, 10:1025-1033.

21. McAnulty, M.J., V.G. Poosarla, **K.-Y. Kim**, R. Jasso-Chavez, B.E. Logan, and T.K. Wood (2017). Electricity from methane by reversing methanogenesis. *Nature Communications*, 8:15419.
22. **Kim, K.-Y.**, W. Yang, P.J. Evans, and B.E. Logan (2016). Continuous treatment of high strength wastewaters using air-cathode microbial fuel cells. *Bioresource Technology*, 221:96-101.
23. LaBarge, N., Y. Ye, **K.-Y. Kim**, Y.D. Yilmazel, P. Saikaly, P. Hong, and B.E. Logan (2016). Impact of acclimation methods on microbial communities and performance of anaerobic fluidized bed membrane bioreactors. *Environmental Science: Water Research & Technology*, 2:1041-1048.
24. Ye, Y., N. LaBarge, H. Kashima, **K.-Y. Kim**, P. Hong, P.E. Saikaly, and B.E. Logan (2016). An aerated and fluidized bed membrane bioreactor for effective wastewater treatment with low membrane fouling. *Environmental Science: Water Research & Technology*, 2:994-1003.
25. He, W., M.J. Wallack, **K.-Y. Kim**, X. Zhang, W. Yang, X. Zhu, Y. Feng, and B.E. Logan (2016). The effect of flow modes and electrode combinations on the performance of a multiple module microbial fuel cell installed at wastewater treatment plant. *Water Research*, 105:351-360.
26. **Kim, K.-Y.**, W. Yang, Y. Ye, N. LaBarge, and B.E. Logan (2016). Performance of anaerobic fluidized membrane bioreactors using effluents of microbial fuel cells treating domestic wastewater. *Bioresource Technology*, 208:58-63.
27. Yang, W., **K.-Y. Kim**, and B.E. Logan (2015). Development of carbon free diffusion layer for activated carbon air cathode of microbial fuel cell. *Bioresource Technology*, 197:318-322.
28. Logan, B.E., M.J. Wallack, **K.-Y. Kim**, W. He, Y. Feng, and P.E. Saikaly (2015). Assessment of microbial fuel cell configurations and power densities. *Environmental Science & Technology Letters*, 2:206-214.
29. **Kim, K.-Y.**, W. Yang, and B.E. Logan (2015). Impact of electrode configurations on retention time and domestic wastewater treatment efficiency using microbial fuel cells. *Water Research*, 80:41-46.
30. Yang, E., **K.-Y. Kim**, K.-J. Chae, M.-Y. Lee, and I.S. Kim (2015). Evaluation of energy and water recovery in forward osmosis–bioelectrochemical hybrid system with cellulose triacetate and polyamide asymmetric membrane in different orientations. *Desalination & Water Treatment*, 1-8.
31. Lee, M.-Y., **K.-Y. Kim**, E. Yang, and I.S. Kim (2015). Evaluation of hydrogen production and internal resistance in forward osmosis membrane integrated microbial electrolysis cells. *Bioresource Technology*, 187:106-112.

32. **Kim, K.-Y.**, K.-J. Chae, E. Yang, M.-Y. Lee, and I.S. Kim (2015). Influence of pressurized anode chamber on ion transports and power generation of UF membrane microbial fuel cells (UF-MFCs). *Journal of Power Sources*, 279:731-736.
33. Yang, E., M.-J. Choi, **K.-Y. Kim**, K.-J. Chae, and I.S. Kim (2015). Effect of initial salt concentrations on cell performance and distribution of internal resistance in microbial desalination cells. *Environmental Technology*, 36:852-860.
34. Chae, K.-J., **K.-Y. Kim**, M.-J. Choi, E. Yang, I.S. Kim, X. Ren, and M. Lee (2014). Sulfonated polyether ether ketone (SPEEK)-based composite proton exchange membrane reinforced with nanofibers for microbial electrolysis cells” *Chemical Engineering Journal*, 254:393-398.
35. Yang, E., M.-J. Choi, **K.-Y. Kim**, and I.S. Kim (2014). Microbial desalination cell for concurrent hydrogen peroxide production and desalination. *Journal of Environmental Engineering & Science*, 9:197-206.
36. **Kim, K.-Y.**, E. Yang, M.-Y. Lee, K.-J. Chae, C.-M. Kim, and I.S. Kim (2014). Polydopamine coating effects on ultrafiltration membrane to enhance power density and mitigate biofouling of ultrafiltration microbial fuel cells (UF-MFCs). *Water Research*, 54:62-68.
37. **Kim, K.-Y.**, E. Yang, M.-Y. Lee, K.-J. Chae, S.-J. Kim, and I.S. Kim (2014). Anode direct contact for enhancing power generation and biofouling reduction in ultrafiltration microbial fuel cells. *Journal of Chemical Technology & Biotechnology*, 89:1767-1771.
38. Yang, E., M.-J. Choi, **K.-Y. Kim**, and I.S. Kim (2013). Improvement of biohydrogen generation and seawater desalination in a microbial electro dialysis cell by installing the direct proton transfer pathway between the anode and cathode chambers. *Desalination & Water Treatment*, 51:6362-6369.
39. **Kim, K.-Y.**, K.-J. Chae, M.-J. Choi, E. Yang, M. H. Hwang, and I.S. Kim (2013). High-quality Effluent and Electricity Production from non-CEM based Flow-through Type Microbial Fuel Cell. *Chemical Engineering Journal*, 218:19-23.
40. **Kim, K.-Y.**, K.-J. Chae, M.-J. Choi, F.F. Ajayi, C.-W. Kim, and I.S. Kim (2011). Enhanced Coulombic efficiency in glucose-fed microbial fuel cells by reducing metabolite electron losses using dual-anode electrodes. *Bioresource Technology*, 102:4144-4149.
41. Choi, M.-J., K.-J. Chae, F.F. Ajayi, **K.-Y. Kim**, H.-W. Yu, C.-W. Kim, and I.S. Kim (2011). Effects of biofouling on ion transport through cation exchange membranes and microbial fuel cell performance. *Bioresource Technology*, 102:298-303.
42. Choi, M.-J., K.-J. Chae, H.-W. Yu, **K.-Y. Kim**, A. Jang, and I.S. Kim (2011). Development of Visible Light Responsive Nitrogen Doped Photocatalysts (TiO₂, Nb₂O₅) for hydrogen Evolution. *Journal of Korean Society of Environmental Engineering*, 33:907-912.

43. Chae, K.-J., M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, W.-S. Park, C.-W. Kim, and I.S. Kim (2010). Methanogenesis control by employing various environmental stress conditions in two-chambered microbial fuel cells. *Bioresource Technology*, 14:5350-5357.
44. Ajayi, F.F., **K.-Y. Kim**, K.-J. Chae, M.-J. Choi, and I.S. Kim (2010). Effect of hydrodynamic force and prolonged oxygen exposure on the performance of anodic biofilm in microbial electrolysis cells. *International Journal of Hydrogen Energy*, 35:3206-3213.
45. Ajayi, F.F., **K.-Y. Kim**, K.-J. Chae, M.-J. Choi, I.-S. Chang, and I.S. Kim (2010). Optimization studies of bio-hydrogen production in a coupled microbial electrolysis-dye sensitized solar cell system. *Photochemical & Photobiological Sciences*, 9:349-356.
46. Chae, K.-J., M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, I.-S. Chang, and I.S. Kim (2010). Selective inhibition of methanogens for the improvement of biohydrogen production in microbial electrolysis cells. *International Journal of Hydrogen Energy*, 35:3379-3386.
47. Chae, K.-J., M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, I.-S. Chang, and I.S. Kim (2009). A Solar-powered microbial electrolysis cell with a platinum catalyst-free cathode to produce hydrogen. *Environmental Science & Technology*, 43:9525-9530.
48. Ajayi, F.F., **K.-Y. Kim**, K.-J. Chae, M.-J. Choi, S.-Y. Kim, I.-S. Chang, and I.S. Kim (2009). Study of hydrogen production in light assisted microbial electrolysis cell operated with dye sensitized solar cell. *International Journal of Hydrogen Energy*, 34:9297-9304.
49. Ajayi, F.F., K.-J. Chae, **K.-Y. Kim**, M.-J. Choi, and I.S. Kim (2009). Photocurrent and photoelectrochemical hydrogen production with tin porphyrin and platinum nanowires immobilized with nafion on glassy carbon electrode. *International Journal of Hydrogen Energy*, 34:110-114.
50. Chae, K.-J., M.-J. Choi, J.-W. Lee, **K.-Y. Kim**, and I.S. Kim (2009). Effect of different substrates on the performance, bacterial diversity, and bacterial viability in microbial fuel cells. *Bioresource Technology*, 100:3518-3525.

Book Chapters

1. Kim, I.S., L.H. Kim, S.-J. Kim, **K.-Y. Kim**, (2015). Biofouling in Osmotic Membrane Bioreactor (Chapter 12, pp. 241-275). In: *Forward Osmosis: Fundamentals and Applications*. Eds.: Shon, H.K., Phuntsho, S., Zhang, T. C., Surampalli, R.Y., American Society of Civil Engineers, USA.

Technical Reports

1. Logan, B.E., **K.-Y. Kim**, P.J. Evans (2017). Energy Sustainable Wastewater Treatment Systems for Forward Operating Bases Based on Microbial Fuel Cells. Strategic Environmental Research and Development Program (SERDP) final report (Project number: 12 ER01-032).

PRESENTATIONS

Invited Presentations

Energy production and resource recovery from wastewater using novel activated carbon membrane electrodes. Invited seminar (online) for Brain Korea 21 (BK21) Program at the Kyungpook National University, South Korea, Jan 14, 2022.

Resource recovery from wastewater using novel activated carbon membrane electrodes. Invited seminar at the Gwangju Institute of Science and Technology (GIST), South Korea, Nov 25, 2021.

Resource recovery from wastewater using novel activated carbon membrane electrodes. Invited seminar at the Korea Advanced Institute of Science and Technology (KAIST), South Korea, Nov 24, 2021.

Resource recovery from wastewater using novel activated carbon membrane electrodes. Invited seminar at the Ulsan National Institute of Science and Technology (UNIST), South Korea, Nov 23, 2021.

Energy production and resource recovery from wastewater using novel activated carbon membrane electrodes. Invited seminar at the Korea Maritime & Ocean University, South Korea, Nov 22, 2021.

Green hydrogen production from waste feedstock using microbial electrolysis cells: Perspectives and State of the Art. Invited talk (online) at the 10th Asia-Pacific Forum on Renewable Energy (AFORE2021), Jeju, South Korea, Oct. 31-Nov 3, 2021.

Understanding and application of microbial electrolysis cells. Invited talk (online) at the 6th Expert group conference, Korean Society of Environmental Engineers (KSEE), South Korea, June 25, 2021.

Novel microbial fuel cell technology combined with membrane filtration for effective wastewater treatment. Invited talk at the Environmental Protection Agency (EPA), Cincinnati, OH, March 24, 2017.

Novel microbial fuel cell technologies for wastewater treatment and energy recovery. Invited presentation at the Daegu Gyeongbuk Institute of Science and Technology (DGIST), South Korea, April 7, 2014.

Invited Lectures

Electrochemistry: Principles and Applications in Environmental Engineering. Invited lecture (online). Special lecture series for Strategy for Green Growth and Carbon Neutrality in Future Smart City (Fall 2021) at Sungkyunkwan University, South Korea.

Microbial electrochemical technologies (METs) to recover renewable energy from wastewater. Invited lecture for NENG 423 Renewable and Alternate Energy (2019 Fall) at SUNY Polytec.

Bioenergy and microbial electrochemical technologies. Invited lecture for ESE 381 Energy Engineering (2018 Fall) at UAlbany.

Selected Presentations

UF and FO membrane integrated microbial fuel cells to produce high-quality water electricity. Special session presentation at Korean Society on Water Quality- Korean Society of Water and Wastewater Spring Conference, South Korea, March 21, 2014

Development of UF membrane based flow-through type MFC for efficient wastewater treatment and energy recovery. Presentation at Networking Event for Bioelectrochemical System at IWA2012, South Korea, September 19, 2012.

Podium Presentations at Conferences (*Presenter for podium presentation)

1. Logan, B.E.*, **K.-Y. Kim**, “Coupling microbial fuel cells and anaerobic fluidized bed membrane bioreactors for effective and energy efficient wastewater treatment”, Abstract Proceedings of the 15th IWA World Conference on Anaerobic Digestion, Beijing, China, Oct 17-20 (2017). *invited talk
2. **Kim, K.-Y.***, W. Yang, P.J. Evans and B.E. Logan, “Continuous treatment of high strength wastewaters using air-cathode microbial fuel cells”, Abstract Proceedings of the 3rd North-America Meeting on Microbial Electrochemistry and Technologies (NA-ISMET2016), Stanford University, Palo Alto, Oct 5-7 (2016).
3. **Kim, K.-Y.***, W. Yang and B.E. Logan, “Power Generation and Domestic Wastewater Treatment Efficiency using Microbial Fuel Cell and Anaerobic Fluidized Membrane Bioreactor (MFC-AFMBR) System under Different Hydraulic Retention Times”, Abstract Proceedings of the 5th International Meeting on Microbial Electrochemistry and Technologies (ISMET2015), Arizona State University, Tempe, Oct 1-4 (2015).
4. **Kim, K.-Y.***, W. Yang and B.E. Logan, “Impact of brush anode configuration on HRT and domestic wastewater treatment efficiency using microbial fuel cells”, Abstract Proceedings of 2015 Association of Environmental Engineering and Science Professors (AEESP) Conference, Yale university, New Haven, June 13-16 (2015).
5. Lee, M.-Y.*, **K.-Y. Kim**, E. Yang and I.S. Kim, “Hydrogen production using forward osmosis membrane integrated microbial electrolysis cell”, Proceedings of the 4th International Microbial Fuel Cell Conference, Sep 1-4, Cairns, Australia (2013).
6. **Kim, K.-Y.***, L.T. Angenent and I.S. Kim, “Biofuel Production through Kolbe Electrolysis with Mixtures of n-butyric Acid and n-caproic Acid”, Abstract Proceedings of 2012 KSEE Conference, Changwon Exhibition Convention Center, Changwon, Aug 22-24 (2012).
7. Yang, E.*, M.-J. Choi, **K.-Y. Kim** and I.S. Kim, “Evaluation of internal resistance and performance in microbial desalination cell for electricity generation”, Abstract Proceedings of 2012 KSEE Conference, Changwon Exhibition Convention Center, Changwon, Aug 22-

- 24 (2012).
8. Yang, E. *, M.-J. Choi, **K.-Y. Kim** and I.S. Kim, “Improvement of biohydrogen generation and seawater desalination in a microbial electro dialysis cell by the direct proton transfer pathway between the anode and cathode”, Proceedings of the 2011 Asian Bio-Hydrogen and Biorefinery Symposium, Oct 13-15, Bogor, Indonesia (2011).
 9. **Kim, K.-Y.***, M.-J. Choi, E. Yang and I.S. Kim, “Evaluation biofouling and electricity production in anode electrode assembly membrane microbial fuel cells (MMFCs)”, Abstract Proceedings of Korean Society on Water Quality- Korean Society of Water and Wastewater Fall Conference, Daejeon Convention Center, Daejeon, Nov 2-3 (2011).
 10. Choi, M.-J.* , **K.-Y. Kim**, E. Yang and I.S. Kim, “Biohydrogen production with a copper cathode catalyst in a microbial electrolysis cell”, Abstract Proceedings of Korean Society on Water Quality- Korean Society of Water and Wastewater Fall Conference, Daejeon Convention Center, Daejeon, Nov 2-3 (2011).
 11. **Kim, K.-Y.***, M.-J. Choi, E. Yang, K.-J. Chae, A. Jang and I.S. Kim, “Biofouling reduction in membrane microbial fuel cells (MMFCs) by anode immobilization onto the ultrafiltration membrane”, Proceedings of the 4th IWA-ASPIRE Conference & Exhibition, Oct 2-6, Tokyo International Forum, Japan (2011).
 12. **Kim, K.-Y.***, M.-J. Choi, K.-J. Chae, E. Yang and I.S. Kim, “Simultaneous power generation and water treatment using microbial fuel cell equipped with ultrafiltration membrane”, Proceedings of the 1st International Conference on Green Environmental Technology 2011, Aug 21-24, BEXCO, Korea (2011).
 13. Yang, E. *, M.-J. Choi, **K.-Y. Kim**, A. Jang and I.S. Kim, “Impact of cathode solution and electrode type on H₂O₂ production and salt removal efficiency in microbial desalination cell (MDC)”, Abstract Proceedings of 2011 KSEE Conference, BEXCO, Busan, Aug 21-24 (2011).
 14. Chae, K.-J.* , Y.H. Kim, S.J. Kim, G.T. Kim, M.-J. Choi, **K.-Y. Kim**, E. Yang, I.S. Kim and M.S. Lee, “Sulfonated polyether ether ketone (SPEEK)-based composite proton exchange membrane for microbial electrolysis cells”, Abstract Proceedings of 2011 KSEE Conference, BEXCO, Busan, Aug 21-24 (2011).
 15. Choi, M.-J.* , K.-J. Chae, **K.-Y. Kim** and I.S. Kim, “Effect of catholyte pH on microbial Electrolysis cell performance”, Abstract Proceedings of 2010 KSEE Spring Conference, Jeju International Convention Center, Jeju, May 6-7 (2010).
 16. **Kim, K.-Y.***, M.-J. Choi, K.-J. Chae, F.F. Ajayi, S. Han and I.S. Kim, “Biohydrogen production using dye-sensitized solar cell and photofermentative bacteria in single chamber microbial electrolysis cell.”, Abstract Proceedings of 2010 KSEE Spring Conference, Jeju International Convention Center, Jeju, May 6-7 (2010).
 17. Chae, K.-J.* , S.-K. Yim, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, W. Park, C.-W. Kim and I.S. Kim, “Methanogenesis Inhibition by Employing various environmental stress conditions

- in MFCs inoculated with anaerobic digester sludge.”, Abstract Proceedings of 2010 KSEE Spring Conference, Jeju International Convention Center, Jeju, May 6-7 (2010).
18. **Kim, K.-Y.***, K.-J. Chae, M.-J. Choi, G. Xie and I.S. Kim, “Biohydrogen production from organic compounds by combining a solar-powered microbial electrolysis cell with photofermentation”, Proceedings of the Asian Biohydrogen Symposium, Feng Chia university, Taichung, Nov 15-20 (2010).
 19. **Kim, K.-Y.***, K.-J. Chae, M.-J. Choi, F.F. Ajayi and I.S. Kim, “Evaluation of new hybrid electrode microbial fuel cell for enhancing conversion efficiency of glucose”, Abstract Proceedings of 2009 KSEE Fall Conference, Kim Dae-Joong Center, Gwangju, Nov 5-7 (2009).
 20. Chae, K.-J.*, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi and I.S. Kim, “Selective Inhibition of Methanogens for the Improvement of Biohydrogen Production in Bioelectrochemical cells”, Abstract Proceedings of 2009 KSEE Fall Conference, Kim Dae-Joong Center, Gwangju, Nov 5-7 (2009).
 21. Choi, M.-J.*, K.-J. Chae, F.F. Ajayi, **K.-Y. Kim** and I.S. Kim, “Phototrophic Microbial Fuel Cells using an Enriched Phototrophic and Heterotrophic Consortium”, Abstract Proceedings of 2009 KSEE Fall Conference, Kim Dae-Joong Center, Gwangju, Nov 5-7 (2009).
 22. **Kim, K.-Y.***, K.-J. Chae, M.-J. Choi, F.F. Ajayi, S.Y. Kim, I.S. Chang and I.S. Kim, “Suppression of methanogenesis in microbial fuel cells using bicarbonate buffer solution”, Abstract Proceedings of 2009 KSEE spring Conference, Changwon Exhibition Convention Center, Changwon, Apr 30-May 1 (2009).
 23. Chae, K.-J.*, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, I.S. Chang and I.S. Kim, “Selective Inhibition of Methanogens for the Improvement of Biohydrogen Production in Bioelectrochemical cells”, Abstract Proceedings of 2009 KSEE spring Conference, Changwon Exhibition Convention Center, Changwon, Apr 30-May 1 (2009).
 24. Choi, M.-J.*, K.-J. Chae, F.F. Ajayi, **K.-Y. Kim**, I.S. Chang and I.S. Kim, “Visible Light Responsive Photocatalysts for Biohydrogen Evolution”, Abstract Proceedings of 2009 KSEE spring Conference, Changwon Exhibition Convention Center, Changwon, Apr 30-May 1 (2009).
 25. Ajayi, F.F.*, M.-J. Choi, K.-J. Chae, **K.-Y. Kim**, S.-Y. Kim, I.-S. Chang and I.S. Kim, “Photo-assisted microbial electrolysis with dye sensitized solar cell” Proceedings of the 2nd Microbial Fuel Cell Conference June 10-12, GIST, Gwangju, Korea (2009).
 26. Chae, K.-J.*, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, I.-S. Chang and I.S. Kim, “Hydrogen production using a solar-powered microbial electrolysis cell with Platinum catalyst-free cathode” Proceedings of the 2nd Microbial Fuel Cell Conference June 10-12, GIST, Gwangju, Korea (2009).
 27. Chae, K.-J.*, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, I.-S. Chang and I.S. Kim, “Strategy for

- selective Inhibition of Methanogens for the Improvement of Biohydrogen Production in bioelectrochemical cells” Proceedings of the 2008 Asian Bio-Hydrogen Symposium, December 26-28, Harbin, China (2008).
28. **Kim, K.-Y.***, K.-J. Chae, M.-J. Choi, F.F. Ajayi, S.-Y. Kim, I.-S. Chang and I.S. Kim, “Metabolites identification and electron balances in microbial electrohydrogenesis cells (MECs) utilizing glucose as electron donor” Proceedings of the 2008 Asian Bio-Hydrogen Symposium, December 26-28, Harbin, China (2008).
 29. Choi, M.-J.*, K.-J. Chae, F.F. Ajayi, **K.-Y. Kim** and I.S. Kim “Biohydrogen Production from Glucose using Visible Light-harvesting Function of Mg Chlorophyll-a as Photosensitizer” Proceedings of the 1st IWA Asia-Pacific Young Water Professionals Conference, December 08-10, GIST, Gwangju, Korea (2008).
 30. **Kim, K.-Y.***, K.-J. Chae, M.-J. Choi, F.F. Ajayi, M.H. Hwang, W.-S. Park and I.S. Kim “Comprehension about Microbial Metabolites Generated by Electricigens in MFCs” Proceedings of the 1st IWA Asia-Pacific Young Water Professionals Conference, December 08-10, GIST, Gwangju, Korea (2008).
 31. Ajayi, F.F.*, M.-J. Choi, K.-J. Chae, **K.-Y. Kim** and I.S. Kim, “Microbial Fuel Cell Operation with triiodide Ions as Cathodic Electron Acceptor” Proceedings of the 1st IWA Asia-Pacific Young Water Professionals Conference, December 08-10, GIST, Gwangju, Korea (2008).
 32. Choi, M.-J.*, K.-J. Chae, F.F. Ajayi, **K.-Y. Kim**, and I.S. Kim, “Catholyte pH effect on the performances of microbial fuel cells and biohydrogen-producing bioelectrochemical cells”, Proceedings of the Microbial Fuel Cells International Symposium, Penn state university, USA, May 27 (2008).
 33. Chae, K.-J.*, M.-J. Choi, **K.-Y. Kim**, F.F. Ajayi, M.S. Kang, H.D. Park and I.S. Kim, “Factors Affecting on the performances of Two-chambered Microbial Fuel Cell”, Proceedings of the KSEE spring conference, University of Ulsan, May 1-2 (2008).

Posters at Conferences

1. **Kim, K.-Y.** and B.E. Logan, “Nickel powder blended activated carbon cathodes for hydrogen production in microbial electrolysis cells”, Abstract Proceedings of the Association of Environmental Engineering and Science Professors (AEESP) 2019 Conference, Arizona State University, Tempe, May 14-18 (2019).
2. **Kim, K.-Y.** and B.E. Logan, “Dynamic flow and the use of inexpensive nickel-added activated carbon cathodes to achieve cost-effective hydrogen production in microbial electrolysis cells”, Abstract Proceedings of the 6th International Meeting of International Society for Microbial Electrochemistry and Technology (ISMET6), Universidade NOVA de Lisboa, Lisbon, Portugal, Oct. 3-6 (2017).
3. **Kim, K.-Y.** and B.E. Logan, “Evaluation of alternative cathode materials for hydrogen

- production in Microbial electrolysis cells (MECs)”, Abstract Proceedings of the Association of Environmental Engineering and Science Professors (AEESP) 2017 Conference, University of Michigan, Ann Arber, June 20-22 (2017).
4. **Kim, K.-Y.** and I.S. Kim, “Tubular ultrafiltration microbial fuel cells (UF-MFCs) for high-quality effluent and electricity production”, Proceedings of the 4th International Microbial Fuel Cell Conference, Sep 1-4, Cairns, Australia (2013).
 5. **Kim, K.-Y.**, E. Yang, M.-Y. Lee and I.S. Kim, “Effect of Polydopamine-coated UF Membrane on Biofouling and Power generation in UF-MFC”, Proceedings of the 2013 International Environmental Engineering Conference and Annual Meeting of the Korean Society of Environmental Engineers, June 11-13, COEX, Seoul, Korea (2013).
 6. Lee, M.-Y., **K.-Y. Kim**, E. Yang and I.S. Kim, “Evaluation of Hydrogen Production in Osmotic Membrane integrated Microbial Electrolysis Cell”, Proceedings of the 2013 International Environmental Engineering Conference and Annual Meeting of the Korean Society of Environmental Engineers, Jun. 11-13, COEX, Seoul, Korea (2013).
 7. **Kim, K.-Y.**, E. Yang, K.-J. Chae, M.-J. Choi and I.S. Kim, “Enhanced power generation and wastewater treatment using single-chamber membrane microbial fuel cells”, Proceedings of the IWA World Water Congress & Exhibition, Sep 16-21, Busan, Korea (2012).
 8. **Kim, K.-Y.**, E. Yang, M.-Y. Lee and I.S. Kim, “Ion transports and power generation in flow-through type ultrafiltration microbial fuel cell with different permeate flux”, Proceedings of the 5th International Desalination Workshop, Oct 28-31, Jeju, Korea (2012).
 9. Yang, E., **K.-Y. Kim**, M.-Y. Lee and I.S. Kim, “The Effect of Direct Proton Transfer Pathway between the Anode and Cathode in Microbial Electrodialysis Cells on Biohydrogen Generation and Seawater Desalination”, Proceedings of the 5th International Desalination Workshop, Oct 28-31, Jeju, Korea (2012).
 10. Yang, E., M.-J. Choi, **K.-Y. Kim** and I.S. Kim, “The effect of pH and concentration of catholyte on hydrogen peroxide production and salt removal in microbial desalination cell”, Abstract Proceedings of Korean Society on Water Quality- Korean Society of Water and Wastewater Fall Conference, Daejeon Convention Center, Daejeon, Nov 2-3 (2011).
 11. **Kim, K.-Y.**, M.-J. Choi, E. Yang, K.-J. Chae, A. Jang and I.S. Kim, “Sustainable water treatment and energy production using membrane microbial fuel cells (MMFCs)”, Proceedings of the 3rd International Microbial Fuel Cell Conference, June 6-8, Leeuwarden, Netherland (2011).
 12. Choi, M.-J., **K.-Y. Kim**, E. Yang, A. Jang, K.-J. Chae and I.S. Kim, “Continuous Biohydrogen production with a platinum catalyst-free cathode in a solar-powered single chamber microbial electrolysis cell”, Proceedings of the 3rd International Microbial Fuel Cell Conference, June 6-8, Leeuwarden, Netherland (2011).
 13. Yang, E., M.-J. Choi, **K.-Y. Kim**, A. Jang and I.S. Kim, “Simultaneous production of

- hydrogen peroxide and water desalination using microbial desalination cell”, Proceedings of the 3rd International Microbial Fuel Cell Conference, June 6-8, Leeuwarden, Netherland (2011).
14. Choi, M.-J., E. Yang, **K.-Y. Kim**, L. Kim, A. Jang, K.-J. Chae, S. Han and I.S. Kim, “Effect of inoculum types on performance of microbial fuel cell”, Abstract Proceedings of 2010 KSEE Fall Conference, Song-Do Convensia, In-Cheon, Dec 2-3 (2010).
 15. Choi, M.-J., **K.-Y. Kim**, E. Yang, A. Jang, K.-J. Chae, S. Han and I.S. Kim, “Biohydrogen production in single-chambered microbial electrolysis cell with membrane electrode assembly”, Abstract Proceedings of 2010 KSEE Fall Conference, Song-Do Convensia, In-Cheon, Dec 2-3 (2010).
 16. Choi, M.-J., K.-J. Chae, **K.-Y. Kim**, F.F. Ajayi and I.S. Kim, “Biohydrogen Evolution in Bioelectrochemical Cell with Assistance of Phototrophs and Heterotrophs”, 7th IWA Leading-Edge Conference on Water and Wastewater Technologies, Phoenix, USA, June 2-4 (2010).
 17. **Kim, K.-Y.**, K.-J. Chae, M.-J. Choi, F.F. Ajayi, I.-S. Chang and I.S. Kim, “Application of solar-powered microbial electrolysis cell to domestic wastewater treatment”, Proceedings of the IWA World Water Congress & Exhibition, Montreal, Sep 19-24 (2010).
 18. Choi, M.-J., Kyu-Jung Chae, **K.-Y. Kim**, F.F. Ajayi, I.-S. Chang and I.S. Kim, “Photo-induced biohydrogen production based on the cooperation of phototrophics and heterotrophics”, Proceedings of the IWA World Water Congress & Exhibition, Montreal Sep 19-24 (2010).
 19. **Kim, K.-Y.**, K.-J. Chae, M.-J. Choi, F.F. Ajayi, S.-Y. Kim, I.-S. Chang and I.S. Kim, “Hybridization of glucose enriched and propionate enriched anodes to reduce electron losses in glucose-fed microbial fuel cells (MFCs)” Proceedings of the 2nd Microbial Fuel Cell Conference June 10-12, GIST, Gwangju, Korea (2009).
 20. Choi, M.-J., K.-J. Chae, F.F. Ajayi, **K.-Y. Kim**, I.-S. Chang and I.S. Kim, “Influence of membrane biofouling on performances of microbial fuel cells” Proceedings of the 2nd Microbial Fuel Cell Conference June 10-12, GIST, Gwangju, Korea (2009).
 21. **Kim, K.-Y.**, K.-J. Chae, M.-J. Choi, F.F. Ajayi, S.Y. Kim and I.S. Kim, “Comprehension about pathway of microbial metabolites generated by electricigens based on substrate and external resistance”, Environmental Engineers, Proceedings of Fall Conference, University of Seoul, Nov 6-7 (2008).
 22. Choi, M.-J., K.-J. Chae, F.F. Ajayi, **K.-Y. Kim**, I.-S. Chang and I.S. Kim, “Visible Light Induced Biohydrogen Production from Glucose Using Mg Chlorophyll-a”, Korean Society of Environmental Engineers, Proceedings of Fall Conference, University of Seoul, Nov 6-7, (2008).
 23. Choi, M.-J., K.-J. Chae, **K.-Y. Kim**, J.-Y. Lee and I.S. Kim, “Effect of catholyte pH and type of cation exchange membrane on the performance of microbial fuel cell”, Proceedings

of the KSEE spring conference, University of Ulsan, May 1-2, (2008).

24. Choi, M.-J., K.-J. Chae, F.F. Ajayi, **K.-Y. Kim**, J. Lee and I.S. Kim, “Effects of catholyte pH and membrane type on the performances of microbial fuel cells”, Proceedings of the 59th Annual Meeting of the International Society of Electrochemistry, Sep 7-12, Seville, Spain (2008).
25. Chae, K.-J., M.-J. Choi, F.F. Ajayi, **K.-Y. Kim** and I.S. Kim, “Comparisons of the anodic bacterial community structures and metabolic viabilities between electricity-generating microbial fuel cells and biohydrogen producing bioelectrochemical cells”, Proceedings of the Microbial Fuel Cells International Symposium, Penn state university, USA, May 27 (2008).
26. **Kim, K.-Y.**, K.-J. Chae, M.-J. Choi, F.F. Ajayi and I.S. Kim, “Cation exchange membrane-less microbial fuel cell via convective proton transfer”, Proceedings of the Microbial Fuel Cells International Symposium, Penn state university, USA, May 27 (2008).
27. Ajayi, F.F., M.-J. Choi, K.-J. Chae, **K.-Y. Kim** and I.S. Kim, “Electrically assisted Biohydrogen production in dual chamber acetate fed reactor with and without cation exchange membrane” Proceedings of the 2008 Asian Bio-Hydrogen Symposium, December 26-28, Harbin, China (2008).

Other Presentations

Poster presentation at Purdue Prospective Faculty Workshop, Feb 29-Mar 1, 2016, “Power Generation and Domestic Wastewater Treatment using Microbial Fuel Cell and Anaerobic Fluidized Membrane Bioreactor (MFC-AFMBR) System under Different Hydraulic Retention Times and COD Loading Rates”.

AWARDS AND HONORS

Outstanding Reviewer in 2018 for *Environmental Science: Water Research & Technology*.

Participate (Travel grant by Purdue University) Purdue Prospective Faculty Workshop, Feb 29-Mar 1, 2016.

Excellent Oral Presentation Award, “Simultaneous power generation and water treatment using microbial fuel cell equipped with ultrafiltration membrane”, Korean Society of Environmental Engineers, June 2012.

The Minister of Environment Award (First place), 7th International Olympiad for Environmental Scientists and Engineers, held by Ministry of Environment Republic of Korea, November 2007.

AWARDS WITH STUDENTS

Daniel Moreno Jiménez, scholarship (\$116,728 for 4 years) from CONACYT, Mexico, 2019.

TEACHING ACTIVITIES

Course taught at UAlbany (since 2018)

ESE 301 Introduction to Environmental and Sustainable Engineering with Lab

ESE 411/511 Water and Wastewater Treatment

ESE 412/512 Advanced Wastewater Engineering

ESE 515 Biological Wastewater Treatment

Teaching at Penn State (2014-2018)

Guest Lecturer (2016 Spring) Water Supply and Wastewater Treatment (CE371)

Guest Lecturer (2016 Fall) Environmental Transport Processes (CE576)

Guest Lecturer (2017 Spring) Water Supply and Wastewater Treatment (CE371)

Guest Lecturer (2017) Environmental Microbiology for Engineers (CE479)

STUDENTS & POST-DOCS

Ph.D. Students

Tianhong Mu (since 2018 Fall, in progress)

Daniel Alejandro Moreno Jimenez (since 2019 Fall, in progress)

Post-doctoral Researchers

Dr. Jongkwan Park (2019)

Current position: Assistant Professor at Changwon National University (South Korea)

PROFESSIONAL SERVICES

Journal Editorial Activities

Early Career Advisory Board member, Journal of Hazardous Materials Letters (2020-present)

Editorial Board member, Journal of Korean Society on Water Environment (2022-present)

University Level Service (At UAlbany)

Undergraduate Research Endowed Fellowships Review Committee (2020)

Academic implementation team, University at Albany Climate Action and Sustainability Plan (since 2021)

Departmental Services

Faculty Advisor, SUNY Albany NYWEA Student Chapter (since Fall 2021)

Undergraduate Program Director (since Fall 2021)

Conferences and Workshop

Paper review and evaluation, College of Engineering Research Symposium (CERS) 2016,
Penn State University, USA, April 5, 2016

Paper review and evaluation, College of Engineering Research Symposium (CERS) 2017,
Penn State University, USA, April 4, 2017

Paper review and evaluation, The 2nd International Conference on Energy Engineering and
Environmental Protection (EEEP 2017), Sanya, China, November 20-22, 2017

Research Proposal Review

National Science Foundation (NSF), Proposal Review Panel (SBIR Phase I); 2021

University of Wisconsin Sea Grant Institute, Ad Hoc Reviewer; 2021

National Institute of Food and Agriculture (NIFA), Ad Hoc Reviewer (AFRI); 2019

National Science Foundation (NSF), Proposal Review Panel (CBET); 2016, 2017, 2019

National Science Foundation (NSF), Ad Hoc Reviewer (SBIR Phase I); 2016

National Science Foundation (NSF), Ad Hoc Reviewer (SBIR Phase II); 2016

Other Services

Reviewer, Academic Job Application Review Program, AEESP, 2020

Reviewer, Book proposal review, Elsevier, 2020

Professional Memberships

American Association for the Advancement of Science (AAAS) (since 2017)

Association of Environmental Engineering and Science Professors (AEESP) (since 2015)

International Society for Microbial Electrochemistry and Technology (ISMET) (since 2013)

International Water Association (IWA) (since 2011)

Korean Society of Environmental Engineers (KSEE) (since 2008)

Journal Reviewer

ACS Environmental Au

ACS ES&T Engineering

ACS Omega

ACS Sustainable Chemistry & Engineering

Advanced Materials

Advanced Functional Materials

Angewandte Chemie

Applied Catalysis B: Environmental

Applied Microbiology and Biotechnology

Aquacultural Engineering

Aquaculture

Biochemical Engineering Journal
Bioelectrochemistry
Bioengineering
Bioresource Technology
Chemical Communications
Chemical Engineering Journal
Chemical Engineering Journal Advances
Chemosphere
Desalination
Desalination and Water Treatment
Electrochemistry Communications
Electrochimica Acta
Energies
Energy & Environmental Science
Energy Science & Engineering
Environmental Engineering Science
Environmental Engineering Research
Environmental International
Environmental Science & Technology Letters
Environmental Science: Water Research & Technology
Fuel Cells
International Journal of Energy Research
International Journal of Hydrogen Energy
Journal of Chemical Technology and Biotechnology
Journal of Cleaner Production
Journal of Electroanalytical Chemistry
Journal of Environmental Engineering
Journal of Environmental Management
Journal of Hazardous Materials
Journal of Hazardous Materials Letters
Journal of Industrial and Engineering Chemistry
Journal of Low Power Electronics
Journal of Membrane Science
Journal of Water and Health
Journal of Water Reuse and Desalination
Materials Chemistry and Physics
Membrane Water Treatment, An International Journal
Process Biochemistry

Science of the Total Environment
Scientific Reports
Separation and Purification Technology
Small
Sustainable Energy & Fuels
Trends in Microbiology
Water Environment Research
Water Research