

# Jung Rae Kim, Ph.D.

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## Associate Professor

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## Short Bio:

Dr. Jung Rae KIM (Jun) is an Associate Professor in School of Chemical and Biomolecular Engineering. He received his BS and MS degree in Chemical Engineering at Pusan National University, Korea and Ph.D. in Environmental Engineering at Pennsylvania State University, USA in 2006 with the thesis of microbial fuel cell. Then he moved into Sustainable Environment Research Centre (SERC), Faculty of Advanced Technology in University of Glamorgan (University of South Wales at present), United Kingdom. He has conducted UK national EPSRC Supergen Biological fuel cell project as research fellow since 2006, and permanent post senior research fellow since 2010. He joined the School of Chemical and Biomolecular Engineering in Pusan National University (PNU) at September 2012 as Assistant Professor and opened Bioenergy and Bioprocess Engineering Lab in PNU. His main research aim is development of sustainable bioelectrochemical system for bioenergy recovery and useful chemical production. Recently he has focused on novel bioprocess using electrogenic biofilm for biosynthesis, which use metabolically engineered biocatalyst for microbial electrosynthesis and its applications for bioenergy and biorefinery process. He has published over 65 SCI(E) research papers with citing more than 4000 (h-index: 27).

## Research Specialties and Interests

- C1 biorefinery for bioenergy and platform chemicals
- Bioenergy production: biogas and bioelectricity, and synthesis of platform chemicals
- Novel Microbially Inspired useful Resource Recovery
- Environmental biotechnology and biochemical engineering
- Bioelectrochemical system: Enzyme and whole cell based biosensor
- Design of environmentally sustainable system and bioprocess

## Academic History

### **2006 Ph.D. Environmental Engineering, The Pennsylvania State University, USA**

(Advisor: Prof. Bruce E. Logan)

Dissertation: "Development of Microbial Fuel Cells using Efficient Acclimation and Various Substrates"

### **2000 M.S. Chemical Engineering, Pusan National University, Korea**

(Advisor: Prof. Sunghoon Park)

Dissertation: "Hydrogen Production by Biological Water-Gas Shift Reaction with a New Chemoheterotrophic Bactrium *Citrobacter* sp. Y19"

**1998 B.S. Chemical Engineering, Pusan National University, Korea.**

### **Professional Experiences**

- Head of School of Chemical and Biomolecular Engineering, Pusan National University (Feb. 2017- present)
- Associate Professor, School of Chemical and Biomolecular Engineering, Pusan National University, Korea (Sep. 2016 – present)
- Assistant Professor, School of Chemical and Biomolecular Engineering, Pusan National University, Korea (Sep. 2012 – Aug. 2016)
- Senior Research Fellow, Faculty of Advanced Technology and Sustainable Environment Research Center (SERC), University of Glamorgan (present University of South Wales) (Feb. 2010- Aug. 2012) (Permanent Post)
- Research Fellow, Sustainable Environment Research Center (SERC) University of Glamorgan, UK (Oct. 2006 – Feb. 2010)
- Graduate Research Assistant Department of Civil and Environmental Engineering, The Penn State University, USA (Aug. 2002 – Sep. 2006)
- Full time Researcher Institute of Environmental Technology & Industry (IETI), Pusan National University, Korea (May. 2001 – Aug. 2002)
- Researcher Sponsored by The Internship Program of The Korea Science and Engineering Foundation (KOSEF), Korea (Sep. 2000 – Aug. 2001)

### **Teaching Experiences**

- **Chemical Engineering Calculation I & II**, School of Chemical and Biomolecular Engineering, Pusan National University (Mar. 2013 – present)
- **Advanced Biochemical Engineering**, School of Chemical and Biomolecular Engineering, Pusan National University (Mar. 2013 – present)
- **Advanced Environmental Engineering**, School of Chemical and Biomolecular Engineering, Pusan National University (Mar. 2013 – present)
- **Bioenergy Process**, School of Chemical and Biomolecular Engineering, Pusan National University (Mar. 2013 – present)
- **Biochemistry** (BSc) (CG27085), School of Chemical and Biomolecular Engineering, Pusan National University (Sep. 2012 – Dec. 2012 )
- **Biology** (BSc) (CG15824), School of Chemical and Biomolecular Engineering, Pusan National University (Sep. 2012 - Dec. 2012)
- **An Introduction to Chemical Engineering** (BSc) (CG26890), School of Chemical and Biomolecular Engineering, Pusan National University (Sep. 2012 - Dec. 2012)
- **Hydrogen-Fuel Vector for the Future** (MSc) (PH4S01), Faculty of Health, Sports and Science, University of Glamorgan: Hydrogen production and implementation (Sep. 2010 – Aug 2012)
- **Renewable Energy and Resource Management I** (MSc) (PH4S02), Faculty of Health, Sports and Science, University of Glamorgan: Bioenergy module (Oct. 2009- Aug 2012)
- **Anaerobic Treatment Process** (MSc and BS) (PH4S23), Faculty of Health, Sports and Science, University of Glamorgan: Bioenergy, ANAMMOX, Anaerobic biofilm process, Mini-project for system integration (Oct. 2011- Aug 2012)
- **Ph.D. student Supervising**, University of Glamorgan (Oct. 2007 - present): Mr. Iain Michie, Arseny Popov, Hiteshi Boghani, Ms. Amandeep Kaur, Katrin Fradler at present
- MSc and undergraduate student projects supervising, University of Glamorgan (Feb. 2007- Aug 2012)

- Undergraduate and visiting student project supervising, Pennsylvania State University, Environmental Engineering (Aug. 2005-Sep. 2006)
- Undergraduate student project supervising, Pusan National University, Chemical Engineering (Mar. 2002-July. 2002)
- Teaching Assistant, Department of Chemical Engineering, Pusan National University, Chemical Engineering Lab I & III (Mar. 1998 - Jun. 1998, Mar. 1999 – Jun. 1999).

#### **Graduate Students Examiner**

- Dr. Marwa Mohamed Abdelkader El-Dalatony, Department of Earth Resources and Environmental Engineering, The Graduate School of Hanyang University, August 2017 (External)
- Dr. Yeounjoo Ko, School of Chemical and Biomolecular Engineering, Pusan National University, February 2017 (Internal)
- Bongkyu Kim, School of Environmental Science and Engineering, Gwangju Institute of Science and Technology (GIST), August 2016 (External)
- Dr. Satish Kumar Ainala, School of Chemical and Biomolecular Engineering, Pusan National University, December 2016 (Internal)
- Dr. Sundara Sekar Balaji, School of Chemical and Biomolecular Engineering, Pusan National University, August 2016 (Internal)
- Dr. Ashok Somasundar, School of Chemical and Biomolecular Engineering, Pusan National University, December 2013 (Internal)

#### **Research Projects**

- C1 Gas Refinery Program: Development of novel screening methods of CO conversion strains and biorefinery process using Bioelectrochemical system and Raman spectroscopy, National Research Foundation of Korea (NRF), Ministry of Science, ICT & Future Planning. May, 2016-present
- Mid-career Researcher Program: Bioenergy production using algal biomass, the National Research Foundation of Korea (NRF). Dec. 2013 – Nov. 2016.
- Analysis of electrochemically active strain using SPM, Korea Institute of Materials Science. Jan. 2014 – Dec. 2015.
- Leaders Industry-university Cooperation Project: Biodegradability test and its application to develop PLA polymer composite, the Ministry of Education (MOE), May. 2014- Jan. 2015.
- MFC Research and Business Development center (R&BD): Electrical Control Strategy for Scaled-up Microbial Fuel Cell System, K-water, Hanhwa E&C and Taeyoung E&C, July 2014-Jun. 2015.
- UK Global Partnership Funding (GPF), Development of Bioelectrochemical System for the biosynthesis of platform chemicals, Department of Business, Innovation and Skills (BIS), UK. April, 2011 – March, 2013.
- Quorum sensing MFC, The Feasibility Study for Korea-UK Joint R&D Project, Korea Institute of Advancement of Technology (KIAT), August. 2010 – Nov. 2010.
- The Supergen4 Biological Fuel Cells Consortium (renewal) EP/H019480/1, Engineering and Physical Science Research Council (EPSRC), UK, May. 2010 - present.
- The Supergen Sustainable Hydrogen Energy Consortium (SHEC), EP/E040071/1, Engineering and Physical Science Research Council (EPSRC), UK Oct. 2008- present.
- The Supergen5 Biological Fuel Cells Consortium EP/D047943/1, Engineering and Physical Science Research Council (EPSRC), UK, Oct. 2006- April. 2010.
- Demonstration of industrial scale tubular microbial fuel cell technology (A4B)– feasibility study, Mar. 2009- August. 2009, Welsh Government, UK and European Union.

- Coupled processes for bioenergy production: biological hydrogen linked with Microbial fuel cells, 2002-2006, USDA and NSF, USA.
- Environmental impact assessment of Saeng-Gok reclaimed area in Pusan Metropolitan City, Odor assessment (2000 – 2001), Busan Metropolitan City, Korea.
- Performance assessment of cleaning filter in air-conditioner (2000 –2002), Samsung Electronics Co., Ltd, Korea.
- Development of biological conversion technology of industrial waste gas into valuable chemicals, (1998 – 2001), The Ministry of Commerce, Industry and Energy of Korea.
- Development of biofilm reactor for treating high strength and refractory organic wastewater, (1997 – 1998), Korea.
- Solubilization of particulate organic carbon during the acid phase of anaerobic digestion, 1997, Samsung Engineering Co., Ltd, Korea.

#### **Academic Honours and Awards**

- Award for Most Cited Articles in Elsevier's peer-reviewed journal Bioresource Technology in 2007-2010, Elsevier, October 28<sup>th</sup> 2010.
- The Best Paper Presentation in Green Technology, Europe Korea Conference 2009 (EKC2009), Reading, UK. August 5<sup>th</sup> 2009
- Hot papers in Chemistry in 2007 in Environmental Science and Technology.
- The Best Presentation Award, Ascof (Association des Scientifiques Coréens en France) 2009 Conference, Lyon, France. May 2<sup>nd</sup> 2009
- Student Research Award from Pennsylvania Water Environment Association (PWEA) (2005)
- 2nd Place, Poster presentation award, 8th Environmental Chemistry Student Symposium, Pennsylvania State University (2005)
- Fellowship in College of Engineering at Penn State University (2002-2003)
- Graduate Research Assistantship at Penn State University (2002-2006)
- Graduate Scholarship from Pusan National University (1998)
- Teaching Assistantship (1998, 1999)
- Undergraduate Scholarship from Pusan National University (Mar. 1991 – Feb. 1998)

#### **Technical Skills**

- Electrochemistry: Fuel cell design and manufacture, operation and test, Electrochemical Impedance Spectroscopy (EIS), Cyclic voltametry, electrochemical deposition.
- Microbiology: Screening, Isolation and Identification of novel species, Cultivation of anaerobic microorganisms, Bioreactor development and operation.
- Molecular biotechnology: PCR-DNA, Gel electrophoresis, DGGE, Protein purification and activity analysis, SDS-PAGE.
- System control and modelling: LabVIEW<sup>®</sup> data monitoring and control. COMSOL Multiphysics
- Instruments: Gas Chromatography, Ion Chromatography, UV-Vis Spectrometer, Atomic Absorbance Spectroscopy, TOC/TN, Environmental analysis for chemicals, Potentiostat, Fuel Cell Tester.

#### **Patents**

- 김종래, 김미연, 김창만 신규한 PLA 분해 미생물 및 이의 분리 방법 (Novel Poly-lactic acid degrading bacteria and screening method thereof), 특허출원 (10-2016-0071123)

- 김종래, 문정현, 김미연, 김창만, 송영은, 이재춘, 김보미, 생분해도 평가방법 (Evaluation method of biodegradation), 특허출원 (10-2015-0022193)
- 허진희, 김종래, 김창만, 미생물 연료전지 및 이를 이용한 미생물의 실시간 분석방법 (Microbial fuel cell, and the in-situ analyzing method of microorganism using it), 특허출원(10-2015-0180747)
- Biological Fuel Cell, US Patent App. 20,100/203,361, 2010.
- Tubular MFC, GB0712868.9 PCT/GB2008/002285 *Protection is being sought in more countries.*
- *RHODOPSEUDOMONAS PALUSTRIS* P4 AND PREPARATION FOR HYDROGEN BY USING THE SAME, Korean Patent, 2001, 10-1999-0030641.
- *CITROBACTER* sp. Y19 AND METHOD OF PREPARING HYDROGEN BY USING THE SAME, Korean Patent, 2001, 10-1999-0030642.

### Activities

- **Membership:** Korean Society of Biotechnology and Bioengineering (Sep. 2012-present), Member of Royal Society of Chemistry (MRSC) (Feb. 2011- present), and Member of Cardiff Scientific Society (Sep. 2009 - present), Deputy leader, SIG-E (Special Interest Group-Energy and Environment), Korea Science and Engineering Association in UK (KSEAUK). (Sep. 2009-present).
- **Consultant:** Information Provider (IP), DICER, (March. 2010- present) and KOSEN (Korean Scientists and Engineers Network, KISTI) (Sep. 2007 – present)
- **Editorial Board Member:** Environmental Sciences, Journal of Environment, and Journal of Wastewater Treatment & Analysis (June. 2010 - present)
- **Conference Organizer:** Network Event at 3rd International MFC Conference supported by Global Partnership Fund from UK Department of Business, Innovation and Skill (BIS). Leeuwarden, Netherland (June 06th – 08th 2011), and Organizing Committee member for 2nd Microbial Fuel Cell International Symposium, GIST, Kwangju, June 10-12 (2009)
- **Journal Reviewer:** Environmental Science and Technology, Applied Environmental Microbiology, Applied Microbiology and Biotechnology, Biotechnology and Bioengineering, Bioresource Technology, and Energy & Environmental Science, Water Research, International Journal of Hydrogen Energy, Lap on a Chip, Biotechnology and Bioprocess Engineering, Journal of Environmental Monitoring, Energy and Environmental Science (Mar. 2006 – present)
- **Grant Reviewer:** Natural Sciences and Engineering Research Council (NSERC), Canada; Engineering and Physical Sciences Research Council (EPSRC), United Kingdom.
- Secretary of Korean Student Club in Environmental Engineering Division of Penn State University. (Aug. 2003 – Nov. 2005)
- Student Member of Korea Institute of Chemical Engineers (KICe) and Korean Society of Biotechnology and Bioengineering (KSBB). (April. 1998 – Feb. 2000)
- Manager of Graduate Student Council of Chemical Engineering of Pusan National University. (Mar. 1998 –Feb.1999)
- Member of Pusan East Rotaract (volunteer club for social service), Rotary International District 3660 (Mar. 1991 – Feb. 1998), Manager for General Affair (1994)

### **Journal Papers**

**2017**

Chae Ho Im, Changman Kim, Young Eun Song, Sang-Eun Oh, Byong-Hun Jeon, Jung Rae Kim. 2017. Electrochemically enhanced microbial CO conversion to volatile fatty acids using neutral red as an electron mediator, *Chemosphere*, In press

Changman Kim, Mi Yeon Kim, Iain Michie, Byong-Hun Jeon, Giuliano C. Premier, Sunghoon Park, Jung Rae Kim. 2017. Anodic electro-fermentation of 3-hydroxypropionic acid from glycerol by recombinant *Klebsiella pneumoniae* L17 in a bioelectrochemical system. *Biotechnol Biofuels*. 10:199

Changman Kim, Cho Rong Lee, Young Eun Song, Jinhee Heo, Sung Mook Choi, Dong-Ha Lim, Jaehoon Cho, Chulhwan Park, Min Jang, Jung Rae Kim. Hexavalent chromium as a cathodic electron acceptor in a bipolar membrane microbial fuel cell with the simultaneous treatment of electroplating wastewater. *Chemical Engineering Journal* 328 (2017) 703–707

Taehui Nam, Sunghoon Son, Bonyoung Koo, Huong Viet Hoa Tran, Jung Rae Kim, Yonghoon Choi, Sokhee P. Jung. Comparative evaluation of performance and electrochemistry of microbial fuel cells with different anode structures and materials. *International Journal of Hydrogen Energy*. In press.

Younghyun Park, Seonghwan Park, Van Khanh Nguyen, Jung Rae Kim, Hong Suck Kim, Byung Goon Kim, Jaecheul Yu, Taeho Lee. 2017. Effect of gradual transition of substrate on performance of flat-panel air-cathode microbial fuel cells to treat domestic wastewater. *Bioresource Technology* 226. 158–163

Mi Yeon Kim, Changman Kim, Jungheun Moon, Jinhee Heo, Sokhee P. Jung, and Jung Rae Kim, 2017. Polymer Film-Based Screening and Isolation of Poly(lactic acid) (PLA)-Degrading Microorganisms, *Journal of Microbiology and Biotechnology*, 27(2), 342-349

Young Eun Song, Hyeon Jun Cho, Hyerin Park, Byong-Hun Jeon, and Jung Rae Kim, 2017. Customized power management system using a capacitor array and DC/DC booster for flat-plate microbial fuel cells. *Journal of Low Power Electronics*. 13, 60-66

Young Eun Song, Hitesh C. Boghani, Hong Suck Kim, Byung Goon Kim, Taeho Lee, Byong-Hun Jeon, Giuliano C. Premier, Jung Rae Kim. 2017. Electricity Production by the Application of a Low Voltage DC-DC Boost Converter to a Continuously Operating Flat-Plate Microbial Fuel Cell. *Energies*. 10, 596

Youngrak Lee, Ja Hyun Lee, Ho Jin Yang, Min Jang, Jung Rae Kim, Eui-Hong Byun, Jinwon Lee, Jeong-Geol Na, Seung Wook Kim, Chulhwan Park, 2017. Efficient simultaneous production of biodiesel and glycerol carbonate via statistical optimization. *Journal of Industrial and Engineering Chemistry*. 51, 49-53

## 2016

A.L. Popov, I.S. Michie, J.R. Kim, R.M. Dinsdale, A.J. Guwy, S.R. Esteves, G.C. Premier. **2016**. Enrichment strategy for enhanced bioelectrochemical hydrogen production and the prevention of methanogenesis. *International Journal of Hydrogen Energy*. 41(7):4120-4131

Y.E. Song, H.C. Boghani, H.S. Kim, B.G. Kim, T. Lee, B.-H. Jeon, G.C. Premier, J.R. Kim. **2016**. Maximum Power Point Tracking to Increase the Power Production and Treatment Efficiency of a Continuously Operated Flat-Plate Microbial Fuel Cell. *Energy Technology*. 4:1-9

C. Kim, S.K. Ainala, Y.-K. Oh, B.-H. Jeon, S. Park, and J.R. Kim. **2016**. Metabolic Flux Change in *Klebsiella pneumoniae* L17 by Anaerobic Respiration in Microbial Fuel Cell. *Biotechnology and Bioprocess Engineering*. 21:250-260

C. Kim, Y.E. Song, C.R. Lee, B.-H. Jeon & J.R. Kim. **2016**. Glycerol-fed microbial fuel cell with a coculture of *Shewanella oneidensis* MR-1 and *Klebsiella pneumoniae* J2B. *Journal of Industrial Microbiology*. In press

J.C. Lee, J.H. Moon, J.-H. Jeong, M.Y. Kim, B.M. Kim, M.-C. Choi, J.R. Kim, and C.-S. Ha. **2016**. Biodegradability of Poly(lactic acid) (PLA)/Lactic Acid (LA) Blends Using Anaerobic Digester Sludge. *Macromolecular Research*. In press

J.H. Moon, M.Y. Kim, B.M. Kim, J.C. Lee, M.-C. Choi, and J.R. Kim. **2016**. Estimation of the Microbial Degradation of Biodegradable Polymer, Poly(lactic acid)(PLA) with a Specific Gas Production Rate. *Macromolecular Research*. 24(5):415-421



Satish Kumar Ainala, Eunhee Seol, Jung Rae Kim, Sunghoon Park. **2016**. Effect of culture medium on fermentative and CO<sub>2</sub>-dependent H<sub>2</sub> production activity in *Citrobacter amalonaticus* Y19, *International Journal of Hydrogen Energy*. 6734-6742

Chae Ho Im, Young Eun Song, Byong-Hun Jeon, Jung Rae Kim, **2016**. Biologically activated graphite fiber electrode for autotrophic acetate production from CO<sub>2</sub> in a bioelectrochemical system, *Carbon Letters*. 20, 76-80

Mayur B. Kurade, Jung Rae Kim, Sanjay P. Govindwar, Byong-Hun Jeon, **2016**. Insights into microalgae mediated biodegradation of diazinon by *Chlorella vulgaris*: Microalgal tolerance to xenobiotic pollutants and metabolism. *Algal Research*. 20, 126-134

## 2015

R. Kakarla, J.R. Kim, B.-H. Jeon, B. Min. **2015**. Enhanced performance of an air-cathode microbial fuel cell with oxygen supply from an externally connected algal bioreactor. *Bioresource Technology*. 195:210

S. Kittappa, S. Pichiah, J.R. Kim, Y. Yoon, S.A. Snyder, M. Jang. **2015**. Magnetised nanocomposite mesoporous silica and its application for effective removal of methylene blue from aqueous solution. *Separation and Purification Technology*. 153:67

Y.-T. Ahn, A.N. Kabra, M.-K. Ji, Y. Yoon, J. Choi, I.-H. Choi, J.-W. Kang, J.R. Kim, B.-H. Jeon. **2015**. Removal of Iopromide and Its Intermediates from Ozone-Treated Water Using Granular Activated Carbon. *Water Air and Soil Pollution*. 226:346

J.R. Kim, Y.E. Song, G. Munussami, C. Kim & B.-H. Jeon. **2015**. Recent applications of bioelectrochemical system for useful resource recovery: retrieval of nutrient and metal from wastewater. *Geosystem Engineering* 18(4):1-8

E.-S. Salama, Kim JR, M.-K. Ji, D.W. Cho, R.A. Abou-Shanab, A.N. Kabra, B.-H. Jeon. **2015**. Application of acid mine drainage for coagulation/flocculation of microalgal biomass. *Bioresource Technology*. 186:232

## 2014

M.-K. Ji, A.N. Kabra, J. Choi, J.-H. Hwang, J.R. Kim, Reda A.I. Abou-Shanab, Y.-K. Oh, B.-H. Jeon. **2014**. Biodegradation of bisphenol A by the freshwater microalgae *Chlamydomonas mexicana* and *Chlorella vulgaris*. *Ecological Engineering*. 73:260

J.-H. Hwang, A.N. Kabrab, J.R. Kim, B.-H. Jeon. **2014**. Photoheterotrophic microalgal hydrogen production using acetate- and butyrate-rich wastewater effluent. *Energy*. 78:887

A.N. Kabra, M.-K. Ji, J. Choi, J.R. Kim, S.P. Govindwar, B.-H. Jeon. **2014**. Toxicity of atrazine and its bioaccumulation and biodegradation in a green microalga, *Chlamydomonas Mexicana*. *Environmental Science and Pollution Research*. 21:12270

E.-S. Salama, A.N. Kabra, M.-K. Ji, J.R. Kim, B. Min, B.-H. Jeon. **2014**. Enhancement of microalgae growth and fatty acid content under the influence of phytohormones. *Bioresource Technology*. 172:97

Y.E. Song and J.R. Kim. **2014**. Improvement of Power Generation of Microbial Fuel Cells using Maximum Power Point Tracking (MPPT) and Automatic Load Control Algorithm. *KSBB Journal*. 29(4):225-231

I. S. Michie, J. R. Kim, R. M. Dinsdale, A. J. Guwy, G. C. Premier. **2013**. The influence of anodic helical design on fluid flow and bioelectrochemical performance. *Bioresource Technology*. 165:13

E.-S. Salama., R. Abou-Shanab, J.R. Kim, S. Lee, S.-H. Kim, S.-E. Oh, H.-C. Kim, H.-S. Roh, B.-H. Jeon. **2013**. The effect of salinity on the growth and biochemical properties of *Chlamydomonas mexicana* GU732420 cultivated in municipal wastewater. *Environmental Technology*, 35(12):1491

K.R. Fradler, J.R. Kim, H.C. Boghani, R.M. Dinsdale, A.J. Guwy, G.C. Premier. **2013**. The effect of internal capacitance on power quality and energy efficiency in a tubular microbial fuel cell. *Process Biochemistry*. 49(6):973

K.R. Fradler, J.R. Kim, G. Shipley, J. Massanet-Nicolau, R.M. Dinsdale, A.J. Guwy, G.C. Premier. **2013**. Operation of a bioelectrochemical system as a polishing stage for the effluent from a two-stage biohydrogen and biomethane production process. *Biochemical Engineering Journal*, 85:125

M.-K. Ji, N.A. Kabra, E.-S. Salama, H.-S. Roh, J.R. Kim, D.S. Lee, B.-H. Jeon. **2014**. Effect of mine wastewater on nutrient removal and lipid production by a green microalga *Micratinium reisseri* from concentrated municipal wastewater. *Bioresource Technology*. 157:84–90

J.-H. Hwang, H.-C. Kim, J.-A. Choi, R.A.I. Abou-Shana, B.A. Dempsey, J. M. Regan, J.R. Kim, H.C. Song, I.-H. Nam, S.-N. Kim, W.J. Lee, D.H. Park, Y.J. Kim, J.Y. Choi, M.-K. Ji, W.S. Jung, B.-H. Jeon. Photoautotrophic hydrogen production by eukaryotic microalgae under aerobic conditions. *Nature Communications*. 5:3234

## 2013

Kaur, A., J.R. Kim, I.S. Michie, R.M. Dinsdale, A.J. Guwy, G.C. Premier. **2013**. Microbial fuel cell type biosensor for specific volatile fatty acids using acclimated bacterial communities. *Biosensors and Bioelectronics*. 47:50–55

Michie, I.S., J.R. Kim, R.M. Dinsdale, A.J. Guwy and G.C. Premier. **2013**. Factors affecting microbial fuel cell acclimation and operation in temperate climates. *Water Science and Technology*. 67:2568–2575

Boghani, H., J.R. Kim, R.M. Dinsdale, A.J. Guwy, G.C. Premier. **2013**. Control of power sourced from a microbial fuel cell reduces its start-up time and increases bioelectrochemical activity. *Bioresource Technology* 140:277–285

Boghani, H., J.R. Kim, R.M. Dinsdale, A.J. Guwy, G.C. Premier. **2013**. Analysis of the dynamic performance of a microbial fuel cell using a system identification approach. *Journal of Power Sources*. *Journal of Power Sources* 238:218-226

Jeon, B.-H., J.-A. Choi, H.-C. Kim, J.-H. Hwang, R.A. Abou-Shanab, B.A. Dempsey, J.M. Regan, J.R. Kim. **2013**. Ultrasonic disintegration of microalgal biomass and consequent improvement of bioaccessibility/bioavailability in microbial fermentation. *Biotechnology for Biofuels*. 6:37

Premier, G.C., J.R. Kim, J. Massanet-Nicolau, G. Kyazze, S. Esteves, B. KV Penumathsa, J. Rodríguez, J. Maddy, R.M. Dinsdale, A.J. Guwy. **2012**. Integration of biohydrogen, biomethane and bioelectrochemical systems. *Renewable Energy*. 49:188–192

Choi, S, J.R. Kim, J. Cha, Y. Kim, G.C. Premier, C.-W. Kim. **2013**. Enhanced power production of a membrane electrode assembly microbial fuel cell (MFC) using a cost effective poly [2, 5-benzimidazole](ABPBI) impregnated non-woven fabric filter. *Bioresource Technology*. 128:14-21

## 2012

Gurung, A., J.R. Kim, S. Jung, B.-H. Jeon, J.E. Yang, S.E. Oh. **2012**. Effects of substrate concentrations on performance of serially connected microbial fuel cells (MFCs) operated in a continuous mode. *Biotechnology Letters*. 34(10):1833-1839

Kim, J.R., H. Boghani, N. Amini, I. K. Aguey-Zinsou, Michie, R. M. Dinsdale, A. J. Guwy, X. Guo, G. C. Premier. **2012**. Porous anodes with helical flow pathways in bioelectrochemical systems: The effects of fluid dynamics and operating regimes. *Journal of Power Sources*. 213:382–390

M. Rahimnejad, G.D. Najafpour, A. A. Ghoreyshi, H. Younesi, G. C. Premier, M. Shakeri, J. R. Kim, S.-E. Oh. **2012**. Thionin increases electricity generation from Microbial fuel cell using *Saccharomyces cerevisiae* and exoelectrogenic mixed culture. *Journal of Microbiology*. 50(4):575-580

Popov, A.L., J.R. Kim, R.M. Dinsdale, G.C. Premier, S. Esteves, A.J. Guwy. **2012**. The effect of physico-chemically immobilized methylene blue and neutral red on the anode of microbial fuel cells. *Biotechnology and Bioprocess Engineering*. 17(2):361-370



**2011**

Michie, I., J.R. Kim, G.C. Premier, R.M. Dinsdale, A.J. Guwy. **2011**. Operational temperature regulates anodic biofilm growth and the development of electrogenic activity. *Applied Microbiology and Biotechnology*. 92(2):419-30

J-A Choi, J.-H. Hwang, B.A. Dempsey, J.R. Kim, Y. Cho, B. Min, R.A.I. Abou-Shanab, B.-H. Jeon. **2011**. Enhancement of fermentative bioenergy (ethanol/hydrogen) production using ultrasonication from *Scenedesmus obliquus* YSW15 cultivated in swine wastewater effluent. *Energy and Environmental Science*, 4:3513-3520

Guwy A.J., R.M. Dinsdale, J.R. Kim, J. Massanet- Nicolau and G.C. Premier. **2011**. Fermentative Biohydrogen Production Systems Integration. *Bioresource Technology*. 102:8534–8542

Kim, J.R., J.-Y. Kim, S.-B. Han, K.-W. Park, G. D. Saratale, S.-E. Oh. **2011**. Application of Co-naphthalocyanine(CoNPc) as alternative cathode catalyst and support structure for microbial fuel cells. *Bioresource Technology*. 102(1):342-347

Michie, I., J.R. Kim, R.M. Dinsdale, A.J. Guwy, G.C. Premier. **2011**. The influence of psychrophilic and mesophilic start-up temperature on Microbial Fuel Cell system performance. *Energy and Environmental Science*. 4:1011-1019

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