

# SIRICHAJ KOONAPHAPDEELERT

✉ sirichai@eng.cmu.ac.th

## Education

PhD in Chemical Engineering, Imperial College London, UK  
MSc in Environmental Technology, Imperial College London, UK  
MSc in Industrial Hygiene and Safety, Mahidol University  
BEng in Environmental Engineering, Chulalongkorn University

## Work Experience

Deputy Director, Energy Research and Development Institute -Nakornping,  
Chiang Mai University, Thailand  
Lecturer, Department of Environmental Engineering, Faculty of Engineering,  
Chiang Mai University, Thailand  
Environmental Engineer, EMEX Association Co., Ltd.

## Projects

- 1) Main Researcher: A Study to Develop a Roadmap for Hydrogen Production and its Utilization as Renewable Energy Source in Thailand, funded by Energy Policy and Planning Office, Thailand, 2020-present
- 2) Main Researcher: A Study to Develop Promotional Measures for the Utilization of Natural Gas, Liquefied Natural Gas and Biomethane to Replace Fuel Oil, coal and liquefied petroleum gas, funded by Energy Policy and Planning Office, Thailand, 2019-2020
- 3) Project Manager: The Center of Technology Transfer for Biomethane Production, Chiang Mai University, 2018-Present
- 4) Project Leader: The Review Study of Cost Structure for Natural Gas for Vehicles, funded by PTT PLC, 2017
- 5) Project Manager: The Promotion and Demonstration Project of Biomethane Utilization by Micro Gas Grid for Household Cooking, funded by Energy Policy and Planning Office, Thailand, 2016-2020
- 6) Project Manager: The Demonstration Project of Biomethane Utilization by Micro Gas Grid for Household Cooking, funded by Energy Policy and Planning Office, Thailand, 2015-2017
- 7) Principal Advisor: The Development of Biomethane Storage by Adsorption Process, funded by Energy Policy and Planning Office, Thailand, 2013-2014
- 8) Project Manager: The Commercial Production of Biomethane Gas as the Replacement of Liquefied Petroleum Gas, funded by Energy Policy and Planning Office, Thailand, 2012-2013
- 9) Project Leader: The Comprehensive Enhancement of Biogas Production in Livestock Farms using Co-digestion Technique, funded by National Science and Technology Development Agency, Thailand, 2012-2013
- 10) Principal Advisor: The Development of a Pilot Plant for the Production of Compressed Biomethane Gas for Vehicles, funded by Energy Policy and Planning Office, 2011-2013

- 5) Principal Advisor: The Nationwide Inspection and Monitoring of Engineering Standards, Safety and Performance of Power Plants, funded by Energy Regulatory Commission, 2012-2013
- 6) Principal Advisor: The Development of Emission Inventory for Chiang Mai Municipality, funded by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2010-2011.

### **Book**

Koonaphapdeelert, S., Aggaransi, P. and Moran J. (2019), Biomethane: Production and Applications, Springer-Nature, Singapore

### **Publications**

- 1) Tippayawong, N., Kantakanit, P., and Koonaphapdeelert S., (2020), Characterization of hydrochar from hydrothermal carbonization of maize residues, Energy Reports, Vol. 6, p.114-118.
- 2) Reansuwan K., Nitayavardhana S., and Koonaphapdeelert S., Cultivation of *Chlorella* sp. in Chicken Farm Biogas Effluent for CO<sub>2</sub> and Nutrient Removal, the 9th International Conference on Environmental Engineering, Science and Management, 27-29 May 2020, Chiang Rai, Thailand.
- 3) Parnkheaw, N., Mukkata, K., Koonaphapdeelert, S., and Nitayavardhana, S. (2018) Ethanol and Biogas Productions from Cassava Pulp by Biorefinery Approach. Proceeding of the 2nd International Conference on Anaerobic Digestion Technology Sustainable Alternative Bioenergy for a Stable Life, Jun, 4-7, Chiang Mai, Thailand.
- 4) Kantakanit, P., Tippayawong, N., Koonaphapdeelert, S., and Pattiya, A. (2018) Hydrochar Generation from Hydrothermal Carbonization of Organic Wastes. Proceeding of the 4th International Conference on Environment and Renewable Energy, Da Nang, Vietnam.
- 5) Koonaphapdeelert, S., Moran, J., Aggaransi, P. and Bunkham, A., Low pressure biomethane gas adsorption by activated carbon, Energy for Sustainable Development, 2018, Vol.43, p.196-202.
- 6) Huangsakunchareon, O. and Koonaphapdeelert S., Effects of Water Recirculation Rate on Biogas Upgrading by Algae in Air-lift Photobioreactor, International Journal of Renewable Energy, 2018, Vol. 13(1)
- 7) Muengming J., Pholchan P., Rakruam P., Wongrueng A. and Koonaphapdeelert S., Effect of Sludge Ages on Nitrogen Removal from Recycled Water of Tilapia Pond by Biodrum System and Membrane, Proceedings of the 15<sup>th</sup> National Conference of Environment, May 11<sup>th</sup> -13<sup>th</sup>, 2016, Bangkok, Thailand (in Thai)
- 8) Panpadung I., Jawana R. and Koonaphapdeelert S., Removal of Ammonia in Broiler Manure by Vacuum Stripping for Biogas Production, Proceedings of the 15th National Conference of Environment, May 11th -13th, 2016, Bangkok, Thailand (in Thai)
- 9) Boontawee, S. and Koonaphapdeelert S., In-situ Biomethane Enrichment by Recirculation of Biogas Channel Digester Effluent Using Gas Stripping Column, Energy Procedia, 2016, Vol. 80, p.78-84
- 10) Durongkasenee, O., Jawana R., Pholchan, P., and Koonaphapdeelert S., Effects of Hydraulic Retention Time on Nitrogen Removal from Biogas Effluent by *Chlorella* sp. in an Air-lift Photobioreactor, Proceedings of the 26<sup>th</sup> National Conference on Environmental Technology, Dec 11th-12th, 2014, Bangkok, Thailand (in Thai)
- 11) Bubpapung J., Jawana R. and Koonaphapdeelert S., In-situ Biomethane Enrichment by Effluent Recirculation from Stripping Column, Proceedings of the 26<sup>th</sup> National Conference on Environmental Technology, Dec 11<sup>th</sup>-12<sup>th</sup>, 2014, Bangkok, Thailand (in Thai)

- 12) Sirikulrat K , Koonaphapdeelert S., Capture of carbon dioxide in biogas by using *Chlorella* sp. in Photobioreactor, Proceedings of the International Graduate Research Conference 2013, Dec 20<sup>th</sup>, Chiang Mai, Thailand, p. ST209-215.
- 13) Koonaphapdeelert S., Charoenwai, A., Effects of hydraulic retention time and bisphenol-A concentration on the performance of membrane bioreactor, Proceedings of the Asian Conference on Civil, Materials and Environmental Science, Nov 7<sup>th</sup>-9<sup>th</sup>, 2013, Osaka, Japan
- 14) Suttiwat S., Suksa-ard T., Koonaphapdeelert S., Application of SPM9613 model on noise level prediction from Mae Moh lignite mine , Proceedings of the International Conference on Green and Sustainable Innovation 2012, May 24<sup>th</sup> – 26<sup>th</sup>, 2012, Chiang Mai, Thailand, p. 376-381
- 15) Khamsimak P., Koonaphapdeelert S., Tippayawong N., Dispersion modeling of SO<sub>2</sub> emissions from a lignite fired thermal power plant using CALPUFF, Energy and Environment Research, 2012, Vol. 2 (2), p. 127-136.
- 16) Khamsimak, P., Koonaphapdeelert, S., and Tippayawong, N. (2012) Simulated Effect of Terrain Change on Dispersion of SO<sub>2</sub> Emission Around Mae Moh Basin, Proceedings of the 3rd International Conference on Development, Energy and Environment, Economics 2012, Dec 2nd-4th, Paris, France, p. 200-204.
- 17) Khamsimak P., Koonaphapdeelert S., Tippayawong N., Prediction of sulfur dioxide dispersion from Mae Moh lignite fired power plant, Proceedings of the International Conference on Green and Sustainable Innovation 2012, May 24<sup>th</sup> – 26<sup>th</sup>, 2012, Chiang Mai, Thailand
- 18) Thongpitak J., and Koonaphapdeelert S., Effect of polypyrrolidone on filtration performance of hollow fiber membrane produced from PVDF, Thai Environmental Engineering Journal, 2013, Vol. 27 (1-2).
- 19) Sang-ngam, C. and Koonaphapdeelert S., Performance of membrane bioreactor in formaldehyde and phenol removal from hospital wastewater, Proceedings of the 11<sup>th</sup> National Environmental Conference, March 21<sup>st</sup> -23<sup>rd</sup>, 2012, Chiang Rai, Thailand (in Thai)
- 20) Koonaphapdeelert S., Prospects of compressed biomethane gas development in Thailand, Proceedings of the 4<sup>th</sup> AUN/SEED-Net Regional Conference on Global Environment and Seminar of NRCT- JSPS Asian Core Program, January 18<sup>th</sup> -19<sup>th</sup>, 2012 Bangkok, Thailand
- 21) Koonaphapdeelert S., Pholchan, P., Kantha U., Ruekkreangkrai, Biogas upgrading using pressurized water scrubbing, UBU Engineering Journal, 2011 (1) (in Thai)
- 22) Akepojananun, K., Kantha, U., Koonaphapdeelert S., Suitable conditions of biogas upgrading system for biomethane production, The National Conference on Engineering Research for Thailand Development, April 1<sup>st</sup>, 2011, Chiang Mai, Thailand (in Thai)
- 23) Koonaphapdeelert, S., Kantha, U., Aggarangsi, P., Biomethane: an alternative green fuel to CNG, The 7th International Conference on Automotive Engineering (ICAE-7), March 28<sup>th</sup> - April 1<sup>st</sup>, 2011, Bangkok, Thailand
- 24) Panyachatrak, P., Chang, Y-C., Tanong K., Koonaphapdeelert S., Chang, C-Y. (2010), The application of MFI on fouling study of MBR system treating septic tank effluent, The International Conference on Sustainable Environment and Green Technologies, May, 25<sup>th</sup>-27<sup>th</sup>, 2010, Taiwan.
- 25) Koonaphapdeelert, S., Wu, Z., Li, K., (2009) Thermogravimetric analysis and stability test of fluoroalkylsilanes grafted on alumina hollow fibre membranes, Journal of Applied Membrane Science&Technology, 10 (2009) 51-59.
- 26) Koonaphapdeelert, S., Wu, Z., Li, K., Carbon dioxide stripping in ceramic hollow fibre membrane contactors, Chemical Engineering Science., 64 (2009) 1-8
- 27) Koonaphapdeelert, S., Tan, X., Wu, Z., Li, K., Solvent distillation by ceramic hollow fibre membrane contactors, Journal of Membrane Science, 314 (2008) 58-66.
- 28) Koonaphapdeelert, S., Li, K., Preparation and characterization of hydrophobic ceramic hollow fibre membranes, Journal of Membrane Science, 291 (2007) 70-76.

- 29) Koonaphapdeelert, S., Li, K., The development of ceramic hollow fibre membranes for a membrane contactor, *Desalination* 200 (1-3) (2006) 581-583.