Dr. Chayanon Sawatdeenarunat

274/38 Mahidol Rd., Padet,
Muang, Chiang Mai, 50100 Thailand chayanon_saw@g.cmru.ac.th
Tel/Fax: +6663-664-5146 www.adicet.cmru.ac.th

EXPERIENCE

March 2018 – present: **Lecturer Asian Development College for Community Economy and Technology (adiCET), Chiang Mai Rajabhat University, Chiang Mai, Thailand**

July, 2017 to January, 2018: **Post-doctoral researcher: College of Agriculture, Forestry and Natural Resource Management University of Hawai'i at Hilo, Hilo, HI, United States**

January, 2001 to August, 2013: **Project engineer and environmental engineer: Energy Research and Development Institute (ERDI-Nakornping), Chiang Mai University, Chiang Mai, Thailand**

January, 2010 to August, 2013: **Researcher at Energy Research and Development Institute (ERDI-Nakornping), Chiang Mai University, Chiang Mai, Thailand**

October, 2010 to August, 2013: **Technical trainer at Energy Research and Development Institute (ERDI-Nakornping), Chiang Mai University, Chiang Mai, Thailand**

August, 2013 to September, 2013: **Teaching Assistant at Civil Construction and Environmental Engineering**

January, 2014 to July, 2017: **Research Assistant at Khanal's Lab, Department Molecular Biosciences and Bioengineering**

EDUCATION

2017 ***Ph.D., Molecular Biosciences and Bioengineering***
University of Hawai'i at Mānoa, Honolulu, Hawaii, United States
Honolulu, Hawaii, USA

2009 ***M.S., Environmental Engineering***
Iowa State University, Ames, Iowa, United States Ames, Iowa, USA

1999 ***B.Eng., B.Eng. Environmental Engineering***
Chiang Mai University Chiang Mai, Thailand

RESEARCH PROJECT EXPERIENCE

- Leader: Appropriate management for decreasing air pollution caused by inappropriate Logan leave burning in Chiang Mai funded by Chiang Mai Rajabhat University (2018-2019)
- Research Consultant: Development of real-time anaerobic digestion performance monitoring and predicting system to enhance stability and efficiency (EPPO) funded by Energy Policy and Planning office (EPPO) (2018-2019)
- Research assistant: Developing Anaerobic Digestion Biorefinery Using High Yield Tropical Feedstocks funded by the Sun Grant Western Regional Center at Oregon State University through a grant provided by the United States Department of Transportation (US DOT) (Grant Number DTOS59-07-G-00055)
- Researcher: Potential of biogas production from many grasses in Thailand funded by EPPO (2011-2012)
- Researcher: Biogas Production from Agricultural Waste funded by EPPO (2009-2011)
- Researcher: Biogas Production from cassava tuber funded by SPM feedmill Co.,Ltd., Thailand (2009-2010)
- Researcher: Biogas Production from wastewater of alcohol production industry funded by SPM feedmill Co.,Ltd., Thailand (2009-2010)

CONFERENCE COMMITTEE AND ORGANIZER

- 28th Annual CTAHR and COE Student Research Symposium, University of Hawai'i at Mānoa, Honolulu, HI, U.S. April 8, 2016.
- The 2015 S-1041 Annual Meeting and Symposium, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH, U.S. August 10, 2015.
- 27th Annual CTAHR and COE Student Research Symposium, University of Hawai'i at Mānoa, Honolulu, HI, U.S. April 10, 2015.
- The 87th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC 2014), Chicago IL, U.S. (October 5-9, 2013)
- 2nd International Conference on Anaerobic Digestion for Waste and Wastewater Treatment organized by TechnoBiz communications Co., Ltd., Bangkok Thailand, April 26, 2012
- The 11st National Environmental Conference, Chiang Rai, Thailand (March 21-23, 2012)
- Renewable Energy Asia 2010, Bangkok Thailand (September 15-18, 2010)

- The 9th National Environmental Conference, Ubon Ratchathani, Thailand (March 24-27, 2010)
- 81st Annual Water Environment Federation Technical Exhibition And Conference (WEFTEC 08) Chicago IL, USA (October 5-9, 2008)

TRAINING

- Hazardous Materials Management training class, organized by University of Hawai'i at Mānoa, Honolulu, HI, U.S. (January 14, 2014)
- Biosafety Principals and Practices training class, organized by University of Hawai'i at Mānoa, Honolulu, HI, U.S. (January 30, 2014)
- *Advance Biogas Training course organized by GIZ at Bauhaus-University Weimar, Germany (November 29-December 7, 2009)*
- Biogas production from energy crops at Germany, organized by EPPO (October 29-November 4, 2009)

MENTORSHIPS

- Mentor of undergraduate student in the project "Biogas and Bioslurry production from anaerobic digestion of food waste" funded by Undergraduate Research Opportunity Program, University of Hawai'i at Mānoa, Feb 2016 – Apr 2016.
- Mentor of high school students under a pilot research bridge program in the project "Biogas production from anaerobic digestion of Napier grass" June 2016 – July 2016.

PUBLICATIONS

- Sawatdeenarunat, C. and Khanal. S. K. (2016, 8 April). "Optimizing AD process to maximize VFAs production from Napier grass using micro-oxygenation.", 28th Annual CTAHR and COE Student Research Symposium, University of Hawai'i at Mānoa,
- Sawatdeenarunat, C. and Khanal., S. K. (2015, 10 August). "Enhanced volatile fatty acids production with oxygenation during anaerobic digestion of lignocellulosic biomass", Poster presentation, The 2015 S-1041 Annual Meeting and Symposium, Ohio Agricultural Research and Development Center, The Ohio State University.
- Sawatdeenarunat, C. and Khanal., S. K. (2015, April 10). "Enhanced volatile fatty acids production with micro-oxygenation during anaerobic digestion of lignocellulosic

biomass", 27th Annual CTAHR and COE Student Research Symposium, University of Hawai'i at Mānoa.

- Kumdhitiahutsawakul, A., Jirachaisakdeacha, D., Suaisom, P., Sawatdeenarunat C., Rerkkringkrai, P., Pholchan P., Pratomaree W., and Bovonsombut S., (2011). Determining of microbial community in anaerobic sequencing batch reactors (ASBRs) with different hydraulic retention times using PCR-DGGE. The 4th congress of Europian Microbiologists, Geneva, Switzerland.

PUBLICATIONS (Oral presentations)

- Sawatdeenarunat, C. and Khanal, S. K. (2017, 17-20 October). Innovative decentralized biorefinery for lignocellulosic biomass: Integrating anaerobic digestion with thermochemical conversion. The 15th IWA World Conference on Anaerobic Digestion (AD-15), Beijing, China.
- Sawatdeenarunat, C. and Khanal, S. K. (2016, 23-26 October). Enhanced volatile fatty acids production with micro-oxygenation during anaerobic digestion of lignocellulosic biomass. 1st International Conference Bioresource Technology for Bioenergy, Bioproducts and Environmental Sustainability, Sitges Spain.

PUBLICATIONS (Peer reviewed articles)

- Sawatdeenarunat, C., Nam, H., Adhikari, S., Sung,S., Khanal, S.K., (2018). Innovative decentralized biorefinery for lignocellulosic biomass: Integrating anaerobic digestion with thermochemical conversion. Bioresource Technology. 250, 140-147.
- Sawatdeenarunat, C., Sung S., Khanal, S.K., (2017). Enhanced volatile fatty acids production during anaerobic digestion of lignocellulosic biomass via micro-oxygenation. Bioresource Technology. 237, 139-145.
- Sawatdeenarunat, C., Nguyen, D., Surendra, K.C., Shrestha, S., Rajendran, K., Oechsner, H., Xie, L., Khanal, S.K., (2016). Anaerobic biorefinery: current status, challenges, and opportunities. Bioresource Technology. 215, 304-313.
- Surendra, K.C., Sawatdeenarunat, C., Shrestha, S., Sung, S., Khanal, S.K., (2015). Anaerobic Digestion-based Biorefinery for Bioenergy and Bio-based Products. Ind. Biotechnol. 11(2), 103-112.
- Sawatdeenarunat, C., K.C., Surendra, Takara, D., Oechsner, H., and Khanal, S.K., (2014). Anaerobic Digestion of Lignocellulosic Biomass: Challenges and Opportunities. Bioresource Technology. 178, 178-186.

- Kim, S.-Y., Huang, Y., Sawatdeenarunat, C., Sung, S., and Lin, V. S.-Y., (2011). Selective sequestration of carboxylic acids from biomass fermentation by surface-functionalized mesoporous silica nanoparticles. J. Mater. Chem. 21:12103-12109

PUBLICATIONS (Conference proceedings)

- Suaisom, P., Sawatdeenarunat, C., Pholchan, P., and Rerkkriangkrai, P., (2012). Effect of Organic Loading Rates on Biogas Production from Napier Pak Chong 1 grass by CSTR. The 12nd National Environmental Conference, Khon Kaen, Thailand.
- Sirisom, S., Pholchan, P., Suaisom, P., Sawatdeenarunat, C., and Chaichana, C., (2011). Suitable Start-up Condition for Biogas Production from Cassava by Two-Stage Anaerobic Digester. The 10th National Environmental Conference, Songkla, Thailand.
- Dangpradub, C., Pholchan, P., Suaisom, P., Sawatdeenarunat, C., and Chaichana, C., (2011). Effect of Hydraulic Retention Time on Biogas Production from Maize Silage by Two-stage Anaerobic Process. The 10th National Environmental Conference, Songkla, Thailand.

Reviewer

- Waste and Biomass Valorization (impact factor of 1.183) May 2018 – present
- International Journal of Hydrogen Energy (impact factor of 3.647) Nov 2017 – present
- Bioresource Technology journal (impact factor of 6.102) Dec 2016 – present
- Renewable Energy journal (impact factor of 4.825) Feb 2016 – present
- Chemical Engineering Research and Design (impact factor of 2.680) Sep 2016

AWARDS

- The BIORESTEC 2018 impactful Research award from bioresource technology, Sep 2018

PROFESSIONAL REGISTRATION AND SOCIETY

- Fellow Environmental Engineer License No.347, Thailand Council of Engineers
- Associate Civil Engineer License No.30936, Thailand Council of Engineers
- Ordinary member of Thailand Council of Engineers
- Member of American Society of Civil Engineer
- Vice president of Thai Student Association at Hawai'i (University of Hawai'i at Mānoa, Hawaii Pacific University, and Brigham Young University) (2015- 2017)

SCHOLASHIP/ASSISTANTSHIP

- The scholarship from ERDI-Nakornping, Chiang Mai University to study master
- Teaching assistantship from Department of Civil, Construction, and Environmental Engineering, Iowa State University, Ames, IA, United States (2013)
- Research Assistantship University of Hawai'i at Mānoa, Honolulu, Hawaii, United States (2014-2017)

AREAS OF EXPERTISES

- Anaerobic digestion technology
- Waste to energy
- Waste management
- Agricultural residue to biofuels
- Biological engineering
- Bioenergy and bio-based products
- Wastewater treatment
- Waste reclamation
- Resource recovery