



Department of Environmental Science  
Faculty of Science, Chulalongkorn University



# RESEARCH HIGHLIGHTS 2020



Published in 2020

Department of Environmental Science

Faculty of Science, Chulalongkorn University

254 Payathai Road, Wang Mai, Pathumwan, Bangkok 10330 Thailand

Tel: +66 2 218 5181-2 Fax: +66 2 218 5180

Email: [EnviSciCU@gmail.com](mailto:EnviSciCU@gmail.com)

[www.envisci.sc.chula.ac.th](http://www.envisci.sc.chula.ac.th)

<https://www.facebook.com/chulaindusttox>

# PREFACE

Department of Environmental Science was established in 1966 with the original name as General Science Department. For many years, our undergraduate program as an integrated double majors in science has reflected a strong interdisciplinary education. Students have developed a capacity for the independent judgment and creative thought that are necessary for life in a complex society and environment. Later, the environmental science program has been taught since 2005.

Entering the new decade, in 2018, the department took up future challenges of establishing new graduate programs, M.Sc. and Ph.D. in Industrial Toxicology and Risk Assessment. These programs consist of coursework and research activities which integrate knowledge of safety, environment and health. An interdisciplinary approach which recognizes theoretically basic science that helps students deal with issues of environment is also emphasized. In this academic year of 2020, we are successfully launched our master degree to our first lot of graduate students.

This Research Highlights was annually published since 2018 as an introduction to which research areas that are being conducted by our faculty members. Additionally, the academic position promotion and the new publications of our staff were recorded in the Research Highlights 2020. These information can be used as a guideline for students and researchers seeking for collaboration with our faculty members. The comprehensive details and updated publications can be reached on-line via international scientific databases and our department website [www. http://www.envisci.sc.chula.ac.th/](http://www.envisci.sc.chula.ac.th/).

Professor Wanida Jinsart, Ph.D.  
Head of the Department of Environmental Science

# CONTENT

## Professor

Wanida Jinsart 1

## Associate Professor

Naiyanan Ariyakanon 5

Nuta Supakata 7

Roongkan Nuisin 9

## Assistant Professor

Chokchai Yachusri 11

Tassanee Prueksasit 13

Sitthichok Puangthongthub 15

Sarawut Srithongouthai 17

Pasicha Chaikaew 19

Vorapot Kanokkantapong 21

Pantana Tor-ngern 23

## Lecturer

Supawin Watcharamul 25

Sermpong Sairiam 27

Chidsanupong Chart-asa 29

Jatuwat Sangsanont 31

Sumeth Wongkiew 33





*PROFESSOR*

# WANIDA JINSART



## Professor

+66-1-837-5127

Jwanida2013@gmail.com

Ph.D. La Trobe University	1993
M.Sc. Chulalongkorn University	1986
B.Sc. Kasetsart University	1981

## Areas of Research Interest

Air Pollution, Environmental Health, Environmental Epidemiology and Industrial toxicology

## Professional Experiences

Chulalongkorn University staff since 1982

Scientist, 1982-1994

Lecturer, 1994-1996

Assistant Professor, 1996-2001

Associate Professor, 2001-2012

Professor, 2012- present

Head department, 2002-2005 and 2018-2020

President of Thai Society of Higher Education Institutes on the Environment, 2017-2021

Chair Industrial toxicology impact assessment Post Graduate Program, 2018-2020

Editor in chief, Environment Asia (Scopus Journal), 2017-2021

## Research Emphasis

My research focuses on Air pollution and health effect, for more detailed research outcomes see selected publications. Currently, my work is in the application of air modeling and climate change including the weather and the impact modeling.

## Measure of Esteem

Professor award, Chulalongkorn University, 2017

## Selected Publications

1. Dutta, A., & Jinsart, W. (2020). Waste generation and management status in the fast-expanding Indian cities: A review. Journal of the Air & Waste Management Association, 70(5), 491-503.

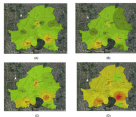


## **Selected Publications (Cont.)**

2. Thongthammachart, T., & Jinsart, W. (2019). Estimating PM2. 5 concentrations with statistical distribution techniques for health risk assessment in Bangkok. *Human and Ecological Risk Assessment: An International Journal*, 1-16.
3. Thammasaroj, P., & Jinsart, W. (2019). Effects of overcrowded traffic and road construction activities in Bangkok on PM 2.5, PM 10 and heavy metal composition. *EnvironmentAsia*, 12, 28-35.
4. Suwannapun, P. Suksang, K., and Jinsart, W. (2019). Decreasing of PM10 and PM2.5 and PAHs Exposures and Health Risk in Urban Parks of Bangkok. *Proceedings of the 5th EnvironmentAsia International Conference*. 13-15 June 2019.
5. Jeensorn, T., Apichartwiwat, P., & Jinsart, W. (2018). PM10 and PM2. 5 from haze smog and visibility effect in Chiang Mai Province Thailand. *Applied Environmental Research*, 40(3), 1-10.
6. Thongthammachart, T., Pimkot, K., Jinsart, W., 2017. Health Risk Assessment of Nitrogen Dioxide and Sulfur Dioxide Exposure from a new developing coal power plant in Thailand. *EnvironmentAsia* 10(2), 186-194.
7. Mitmark, B., & Jinsart, W. (2017). A GIS model for PM10 exposure from biomass burning in the north of Thailand. *Applied Environmental Research*, 39(2), 77-87.
8. Mitmark, B., Jinsart, W. (2016). Using GIS tools to estimate health risk from biomass burning in Northern Thailand. *Athens Journal of Sciences* 3(4), 285-296.
9. Wongprasert, P., Jinsart, W., Paw-Armar, T. L., Pala-En, N. (2016). Size-segregated particulate matter and polycyclic aromatic hydrocarbons profiles from biodiesel vehicles emission. *Sustainable Energy and Technology Asia (SETA2016)*, Bangkok, Thailand.
10. Jantanawararon, U., Jinsart, W., Pollawat, R. (2016). Removal of formaldehyde by some air plant species in epiphytic Tillandsia (Bromilliaee). *International Journal of Advances in Science, Engineering and Technology* 2016, 4(2), 136-140.
11. Asa, P., Jinsart, W. (2016). Lung function testing of school children living near industrial areas in Rayong, Thailand. *EnvironmentAsia* 9(2), 178-185.
12. Asa, P., Jinsart, W. (2016). Effects of air pollution related respiratory symptoms in school children in industrial areas Rayong, Thailand. *EnvironmentAsia* 9(1), 116-123.
13. Teerapattarada, N., Vathanapanich, Y., Jinsart, W. (2016). Health risk assessment of industrial emissions in Map Ta Phut, Thailand using AERMOD modeling and GIS. *International Journal of Geoinformatics* 12(1), 57-63.

## Selected Publications (Cont.)

14. Saengsai, S., Jinsart, W. (2015). Ozone formation potential of oxygenated hydrocarbons: phasing-in of gasoline in Bangkok Thailand. *IOSR Journal of Environmental Science, Toxicology and Food Technology* 9(1), 35 –41.
15. Saengsai, S., Jinsart, W. (2015). Evaluation of Urban Ozone Formation by Photochemical Ozone creation Potential Indices and Generalized Additive Model. *BCEE-2015 International Conference on Biological, Civil and Environmental Engineering*, February 3-4, 2015, Bali, Indonesia.
16. Jinsart, W., Thepanondh, S. (2014). Effects of climate change on heat accumulation and precipitation in Thailand. *International Journal of Environmental Science and Development* 5(4), 340-343.
17. Pungkhom, P., Jinsart, W. (2014). Health Risk Assessment from bush fire air pollutants using statistical analysis and Geographic Information System: case study in the northern Thailand. *International Journal of Geoinformatics* 10(1), 17-24.
18. Jinsart, W., Arbmanee, D., Ngeabprasert, R., and Pungkhom, P. (2014). Impact on visibility and air quality from bushfire smog in Northern Thailand. *A&WMA's 2014 Annual Conference & Exhibition Navigating Environmental Crossroads*, June 24-27, 2014, Long Beach, CA, USA.
19. Jinsart, W., Kaewmanee, C., Inoue, M., Hara, K. S Hasegawa, S., Karita, K., Tamura, K. and Yano, E. (2012). Driver exposure to particulate matter in Bangkok. *JAWMA*, 62(1), 64-71.
20. Jinsart W., Sripraparkorn, C., Siems, S.T., Hurley, P.J., Thepanondh, S. (2010). Application of The Air Pollution Model (TAPM) to the urban airshed of Bangkok, Thailand, *Int. J. Environment and Pollution*, 42(1-3), 68-84.



GIS-based maps of the HQs of PM<sub>2.5</sub> in the CBD of Bangkok.

From Thongthammachart, T., & Jinsart, W. (2019).

21. Buadoung, D., Jinsart, W., Funatagawa, I., Karita, K., Yano, E. (2009). Association between PM10 and O3 levels and hospital visits for cardiovascular diseases in Bangkok, Thailand. *J. Epidemiol*, 19(4), 182-188.
22. Langkulsan, U., Jinsart, W., Karita, K. and Yano, E. (2006). Respiratory Symptoms and Lung Function in Bangkok schoolchildren. *The European Journal of Public Health*, 16(6), 676-681.

## Textbook

1. Department of Environmental Science Academic Staff, (2013). *Environmental Science Laboratory Manual*, Chulalongkorn University Press: Thailand, pp. 110-121. (in Thai)
2. วรวิศา ชื่นสาธิต (2551). "มลพิษอากาศและการจัดการคุณภาพอากาศ" สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย จำนวน 285 หน้า (in Thai)

## Academic articles

1. Jinsart, W., 2012, "International Perspective on Post-Graduate Environmental Education: Curriculum Development for Environmental Education in Thailand" *EM: Air & Waste Management Association's Magazine for Environmental Managers*, [www.awma.org](http://www.awma.org), Sep. 2012, 31-33 pages.

## Research to Serve Society

Editor in chief, *Environmental Asia* 2017 - present

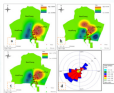


Figure 7. Six Distribution of PM10 and PM2.5 in Thailand in six cities. a. Bangkok b. Chiang Mai c. Phuket d. Nakhon Phanom e. Udon Thani f. Udon Thani

From Teerapattarada, N., Vathanapanich, Y., Jinsart, W., 2016. Health risk assessment of industrial emissions in Map Ta Phut, Thailand using AERMOD modeling and GIS. *International Journal of Geoinformatics* 12(1), 57-63.







*ASSOCIATE  
PROFESSOR*



# NAIYANAN ARIYAKANON



## Associate Professor

☎ +66 2 218 5190

✉ Naiyanan.A@chula.ac.th

Ph.D. The University of Tokyo 2000  
M.Sc. Chulalongkorn University 1995  
B.Sc. (2<sup>nd</sup> Honor) Chulalongkorn University 1993

## Areas of Research Interest

Phytoremediation, Remediation technology and Soil pollution

## Professional Experiences

Associate Professor, Chulalongkorn University, 2017 – present

Assistant Professor, Chulalongkorn University, 2006 – 2016

Lecturer, Chulalongkorn University, 1995 – 2006

## Research Emphasis

My research focuses on the removal of pollutants (pesticides, heavy metals and nutrients) from water using aquatic plants including water hyacinth, water lettuce and duckweed. Application of phytoremediation to treat contaminated soil is also my recent study. In wastewater treatment system, applying biochar from agricultural wastes to improve the water quality is another aspect of my research.

## Selected Publications

1. Wattanapanich C., Durongpongton N., Ariyakanon N. 2020. Performance of Water Hyacinth (*Eichhornia crassipes*) in the Treatment of Residential and Surimi wastewater. *EnvironmentAsia*. 13(2): 124-137.
2. Ariyakanon N. 2018. Water hyacinth for wastewater treatment. *Environmental Journal*. 22(3): 49-55.
3. Wattanapanich, C., Ariyakanon, N., 2018. The efficiency of rice straw to treat FOG and TSS in surimi wastewater. *The National Environmental Conference*.
4. Durongpongton, N., Ariyakanon, N., 2018. Fat, oil and grease in domestic wastewater treatment by rice straw. *The National Environmental Conference*.

## Selected Publications (Cont.)

5. Bookrue, E., Ariyakanon, N., 2017. Effects of ZnO nanoparticle on plant growth, plant stress, Zn bioaccumulation in water hyacinth (*Eichhornia crassipes*). The 4th EnvironmentAsia International Conference, 601-614.
6. Wanthanaporn, U., Ariyakanon, N., 2017. Removal of ZnO nanoparticle by duck weed [*Lemna minor*] and water lettuce [*Pistia stratiotes*]. The 4th EnvironmentAsia International Conference, 1-2.
7. Jewpattankul, C., Ariyakanon, N., 2017. Comparison of effects of LED light on zinc absorption by water lettuce (*Pistia stratiotes*). The 16th National Environmental Conference. 18R3-03, 1-7.
8. Rojanapithayakorn, D., Ariyakanon, N., 2016. Electrokinetic Enhancement on Phytoremediation in Zinc Contaminated Soil by Ruzi Grass. EnvironmentAsia 9(1), 92-98.
9. Anudechakul, C., Vangnai, A.S., Ariyakanon, N., 2015. Removal of Chlorpyrifos by Water Hyacinth (*Eichhornia crassipes*) and the Role of a Plant-Associated Bacterium. International Journal of Phytoremediation 17(7), 678-685.

## Book

1. Ariyakanon, N., 2015. Phytoremediation, 1<sup>st</sup> ed. Bangkok, Chulalongkorn University Press. 197 p.



# NUTA SUPAKATA



## Associate Professor

☎ +66 2 218 5187

✉ Nuta.S@chula.ac.th

Ph.D. Kasetsart University 2011

M.S. Colorado School of Mines 1999

B.Ed. Chulalongkorn University 1995

## Areas of Research Interest

Waste utilization and Environmental communication and education

## Professional Experiences

Associate Professor, Chulalongkorn University, 2017-present

Assistant Professor, Chulalongkorn University, 2014-2017

Lecturer, Chulalongkorn University, 2000-2014

## Research Emphasis

My research addresses two broad topics: the waste utilization; and the environmental communication and education. Here is a description of my current research areas:

*Waste Utilization* - My current work on this topic focuses on alternative management for community and industrial waste. This includes the application of using waste for renewable energy and construction materials.

*Environmental Communication and Education* - My current work on this topic focuses on exploring the application/media and practices of motivation to increase waste separation and reduction to community/public

## Measure of Esteem

Honorary Award in Academic Teaching from Faculty of Science, Chulalongkorn University, 2014

Outstanding Young Lecturer Award from Chulalongkorn University, 2014

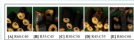
## Selected Publications

1. Apithanyasai, S., Supakata, N., Papong, S., 2020. The potential of industrial waste: using foundry sand with fly ash and electric arc furnace slag for geopolymer brick production. *Heliyon* 6, 1-11.
2. Dontriros, S., Nooae, P., Supakata, N., 2020. Geopolymer Bricks from Concrete Residue and Palm Oil Fuel Ash: Evaluating Physical-mechanical Properties, Life Cycle Assessment and Economic Feasibility. *EnvironmentAsia*. 2020, 13 (1), 150-162.

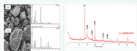


## Selected Publications (Cont.)

3. Chaisuwat, N., Kansai, N., Supakata, N., Papong, S., 2020. The Comparison of Environmental Impacts of Carbonized Briquettes from Rain Tree Residues and Coffee Grounds/Tea Waste and Traditional Waste Management. *International Journal of Environmental Science and Development*, 11 (1), 48-53.
4. Warnphen, H., Supakata, N., Kanokkantaopong, V., 2019. The Reuse of Waste Glass as Aggregate Replacement for Producing Concrete Bricks as an Alternative for Waste Glass Management on Koh Sichang. *Engineering Journal*, 23 (5), 43-58.
5. Sangpatch, T., Supakata, N., Kanokkantaopong, V., Jongsomjit, B., 2019. Fuel oil generated from the cogon grass-derived Al-Si (*Imperata cylindrica* (L.) Beauv) catalysed pyrolysis of waste plastics. *Heliyon*, 5, 1-8.
6. Punthama, C., Supakata, N., Kanokkantaopong, V., 2019. Characteristics of Concrete Bricks After Partially Substituting Portland Cement Type 1 with Cement and Seashell Waste and Partially Substituting Sand with Glass Waste. *EnvironmentAsia*, 12 (1), 36-48.
7. Kansai, N., Chaisuwat, N., Supakata, N., 2018. Carbonized briquettes as a tool for adding value to waste from rain tree and coffee ground/tea waste. *Engineering Journal*, 22 (6), 47-63.
8. Supakata, N., 2018. Bin monsters for promoting waste separation. *Applied Environmental Education and Communication*. DOI: 10.1080/1533015X.2017.1415774.
9. Apithanyasai, S., Nooach, P., Supakata, N., 2018. The utilization of concrete residue with electric arc furnace slag in the production of geopolymer bricks. *Engineering Journal*, 22 (1), 1-14.
10. Namchan, J., Supakata, N., 2018. The Use of Dredged Sediment from the Watsongpeenong Canal with Paper Mill Residue to Produce Facing Bricks. *Applied Environmental Research* 40(1), 17-26.
11. Sirikingsew, S., Supakata, N., 2017. Utilization of Fly Ash and Concrete Residue in the Production of Geopolymer Bricks. *Journal of Green Building*, 12, 63-77.
12. Siriruekratana, S., Supakata, N., 2017. Development of geopolymer bricks from synergistic use of bagasse ash and concrete residue as an alternative for industrial waste management. *Naresuan Journal*, 25, 69-78.
13. Sagniansakdiatkul, T., Supakata, N., 2016. The Application of Using Rice Straw Coconut Shell and Rice Husk for Briquette and Charcoal Production. *International Journal of Energy, Environment and Economics*, 24, 283-292.



The use of community waste for briquette production



The use of industrial waste for geopolymer brick production



Environmental communication and education

# ROONGKAN NUISIN



## Associate Professor

+66 2 218 5199

Roongkan.N@chula.ac.th

Ph.D. Chulalongkorn University 2003

M.Sc. Chulalongkorn University 1999

B.Sc. Chiang Mai University 1996

### Areas of Research Interest

Polymeric substrate for environmental applications, Biopolymers in environment and Polymer synthesis

### Professional Experiences

Associate Professor, Chulalongkorn University, 2019-present

Assistant Professor, Chulalongkorn University, 2010-2019

Lecturer, Chulalongkorn University, 2004-2010

### Research Emphasis

1. To fabricate the composite polymeric materials for environmental applications
2. To establish membrane emulsification techniques on the design of polymeric and biopolymeric materials with the purposes of maintaining and controlling the bio-activity of essential oil for cosmetics and drug applications.

### Measure of Esteem

Chulalongkorn University Distinguished Award in Student Affairs (Academic Year 2015, March 22, 2016)

### Selected Publications

1. Saelim, T., Sairiam, S., Siralertmukul, K., Watcharamul, S., Nuisin, R., 2020. Removal of glyphosate from an aqueous solution using chitosan beads as the adsorbent. *Journal of Metals, Materials and Minerals* (Accepted, Article in Press)
2. Noppakundilogratt, S., Piboon, P., Graisuwan, W., Nuisin, R., Kiatkamjornwong, S., 2018. Encapsulated eucalyptus oil in ionically cross-linked alginate microcapsules and its controlled release. *Carbohydrate Polymers* 131, 23-33.

3. Siralertmukul, K., Watcharamul, S., Wicheanpaisan, N., Nuisin, R., 2015., Potential antibacterial activity of polystyrene nanoparticles/chitosan coated on cotton fabrics. *Macromolecular Symposia* 354(1), 324-333.
4. Nuisin, R., Krongsin, J., Noppakundilagratt, S., Kiatkamjornwong, S., 2013. Microencapsulation of menthol by crosslinked chitosan via porous glass membrane emulsification technique and their controlled release properties. *Journal of Microencapsulation* 30(5), 498-509.

## Textbooks

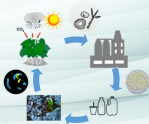
1. Department of Environmental Science Academic Staff, 2013. Kinetics of the decomposition of pollutants in the environment with an application to plasticizers. in *Environmental Science Laboratory Manual*, Chulalongkorn University Press: Thailand, 110-121. (in Thai)
2. Department of Environmental Science Academic Staff, 2018. Total phosphorus in Aquatic Environmental Science Laboratory Manual, Chulalongkorn University Press, 180 pages. (in Thai). In Press.

## Review Articles

1. Nuisin, R., Kiatkamjornwong, S., 2018. Essential Oils: Extension of Service Lifespans and Delivery Systems. *Journal of the Royal Society of Thailand* 43(3), 338-349.
2. Watcharamul, S., Nuisin, R., 2018. Energy and Sustainable Future: Opportunities and Challenges, *Journal of Environmental Management* Year 14(1), 86-103.  
DOI: 10.14456/jem.2018.6.

## Patent

- Nuisin, R., Watcharamul, S., Lalkana, C., Kittiratrakarn, T., Chuaytong, P., Kanchaitit, P., 2014. Method to prepare copper nanoparticles from guava extracted and antibacterial of product from mentioned method, Application no. 1401003517.







*ASSISTANT  
PROFESSOR*



# CHOKCHAI YACHUSRI



## Assistant Professor

☎ +66 2 218 5197

✉ Chokchai.Y@chula.ac.th

M.Sc. Chulalongkorn University 1992

B.Sc. Thammasat University 1989

## Areas of Research Interest

Air pollution control, Noise pollution and occupational noise assessment and control and Vibration exposure

## Professional Experiences

Assistant Professor, Chulalongkorn University, 2006 – present

Lecturer, Chulalongkorn University, 1996 – 2006

## Research Emphasis

Noise, disturbing and unpleasant sound, does not affect only hearing organs, but also physiological body functions e.g. disruptive effects on concentration and sleep, heart rate, blood pressure, and respiratory rate. Excessive noise and impulse noise particularly cause occupational diseases. People can find low noise levels annoying as well. On the other hand, vibration exposures are transferred from a tool/machine to individual's body. Typical symptoms from vibration include white finger, numbness, lower back pain. What people exposes to noise and vibration is up to the individual. The assessments of noise and vibration are crucial not only to comply with the National Occupational Safety and Health legislation to specifies safety zone for workplace exposure levels, but also demands the employer's responsibilities to protect their workers' health.

## Textbook

Department of Environmental Science. 2013. Environmental science laboratory. Chulalongkorn University Press, 160 pages (in Thai).

## Supervised Senior Projects

- 1.Chanprasit, K. and Yachusri, C., 2015. Efficiency of microalgae *Chlorella* sp. on the removal of pollutants from canteen wastewater.
- 2.Charatchiripat, K. and Yachusri, C., 2015. Sound absorption coefficient of rubber concrete mixed with fly ash.

### Supervised Senior Projects (Cont.)

3. Kaewpradap, N. and Yachusri, C., 2014. Efficiency of acoustic absorption board from bagasse filled natural rubber latex foam.
4. Mueanaop, A. and Yachusri, C., 2013. Determined nitrogen dioxide concentration on buses in Bangkok using passive gas sampler.
5. Lelaphaisan, K., Sukgosa, A. and Yachusri, C., 2013. The Study of efficiency of acoustic board produced by Rice husk and Coir fibers.
6. Intharapong, N. and Yachusri, C., 2013. Contents of heavy metals in particulate matter less than 2.5 microns expose to police and pedestrians around Bangkok's intersections.
7. Kaechat, P. and Yachusri, C., 2013. Exposure of parking lot security guards to particulate matter less than 2.5 microns in Bangkok.



# TASSANEE PRUEKSASIT



## Assistant Professor

☎ +66 2 218 5196

✉ Tassanee.P@chula.ac.th

Ph.D. The University of Tokyo 2001

M.Sc. Chulalongkorn University 1996

B.Sc. Chulalongkorn University 1992

## Areas of Research Interest

Ambient and indoor air pollution and Environmental health risk assessment

## Professional Experiences

Assistant Professor, Chulalongkorn University, 2014 – present

Lecturer, Chulalongkorn University, 1997 – 2013

## Research Emphasis

My research focuses on air pollution either in ambient or indoor air environments. The examples listed below highlight my research topics related to air pollution and health risk assessment.

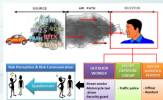
- Determination of ambient and indoor air concentrations of particulate matters, gases and volatile organic compounds
- Analysis of inorganic and organic composition (i.e. heavy metals, polycyclic aromatic hydrocarbons, etc.) of particulate matters distributed both in indoor and outdoor environments.
- Investigation on spatial and temporal variation of air pollutants particularly in urban air environment
- Estimation of inhalation exposure and health risk levels to key pollutants released from indoor and outdoor sources of residential, workplace, industrial and general areas

## Selected Publications

1. Prueksasit, T., Chanthahong, S., Kanghae, Y., 2020. Appraisalment of PM10 Concentrations at Residential Areas Influenced by Informal E-Waste Dismantling Activity, Buriram Province, Thailand. *Air, Soil and Water Research*, 13, 1-8.
2. Wongsasakul, P., Wongsasuluk, P., Prueksasit, T., 2020. Heavy metal levels in urine of e-waste dismantling workers in Buriram Province, Thailand. *International Journal of Advances in Science Engineering and Technology*, 8(1), 66-70.
3. Chowjarean, V., Prueksasit, T., Joyjamras, K., Chanvorachote, P., 2019. Isovitexin Increases Stem Cell Properties and Protects Against PM2.5 in Keratinocytes. *in vivo*, 33(6), 1833-1841.

## Selected Publications (Cont.)

4. Bangdaeng, S., Pruksasit, T., Siriwong, W., 2019. Inhalation exposure to respirable particulate matter among workers in relation to their e-waste open burning activities in Buriram Province, Thailand. *Sustainable Environment Research*, 29(1), 26.
5. Puangprasert, S., Pruksasit, T., 2019. Health risk assessment of airborne Cd, Cu, Ni and Pb for electronic waste dismantling workers in Buriram Province, Thailand. *Journal of environmental management*, 252, 109601.
6. Sahanavin, N., Pruksasit, T., Tantrakarnapa, K., 2018. Relationship between PM10 and PM2.5 levels in high-traffic area determined using path analysis and linear regression. *Journal of Environmental Sciences*, 69, 105-114.
7. Siriratrungnuak, W., Furuvachi, M., Pruksasit, T., Loepromchai, E., 2017. Potential of Pyrene Removal from Urban Environments by the Activities of Bacteria and Biosurfactant on Ornamental Plant Leaves. *Water, Air, & Soil Pollution*, 228:264.
8. Bangdaeng, S., Pruksasit, T., Siriwong, W., 2017. The Occupational Inhalation Exposure of Fine (PM2.5) and Coarse (PM2.5-10) Particulate Matter Emitted from E-Waste Burning Activity in Local E-waste Dismantling Site, Buriram Province, Thailand. *Proceeding of International Conference on Natural Science and Environment (ICNSE)*, Osaka, Japan.
9. Thongkaew, P., Pruksasit, T., Siriwong, W., 2017. Material flow of informal electronic waste dismantling in rural area of Northeastern Thailand. *Proceeding of International Conference on Natural Science and Environment (ICNSE)*, Osaka, Japan.
10. Sangpongschai, S., Pruksasit, T., 2017. Adsorption Efficiency of the Activated Charcoal Produced from Spent Coffee Ground for Removal of the BTEX Released from Indoor Paint. *EnvironmentAsia* 10(1), 99-108.
11. Kanjanasiranont, N., Pruksasit, T., Mockney, D., 2017. Inhalation exposure and health risk levels to BTEX and carbonyl compounds of traffic policeman working in the inner city of Bangkok, Thailand. *Atmospheric Environment* 152, 111-120.
12. Sahanavin, N., Tantrakarnapa, K., Pruksasit, T., 2016. Ambient PM10 and PM2.5 concentrations at different high traffic-related street configurations in Bangkok, Thailand. *The Southeast Asian Journal of Tropical Medicine and Public Health* 47(3), 528-535.
13. Kanjanasiranont, N., Pruksasit, T., Mockney, D., Tamsaringkarn, T., Sematong, S., Siriwong, W., Zapuang, K., Rungsithyotin, A., 2016. Determination of ambient air concentrations and personal exposure risk levels of outdoor workers to carbonyl compounds and BTEX in the inner city of Bangkok, Thailand. *Atmospheric Pollution Research* 7, 268-277.



# SITTHICHOK PUANGTHONGTHUB



## Assistant Professor

☎ +66 2 218 5189

✉ Sitthichok.P@chula.ac.th

Ph.D. University of North Carolina at Chapel Hill 2006

M.Sc. University of North Carolina at Chapel Hill 2002

M.Sc. Mahidol University 1999

B.Sc. Mahidol University 1995

### Areas of Research Interest

Climate change to enhance air pollution, Health risk assessment related to occupational and air pollution exposure and Environmental epidemiology of landfill and electronic waste communities

### Professional Experiences

Board of Directors, The Thai Society of Higher Education Institute on Environment, 2013-present

Head, Department of Environmental Science, Chulalongkorn University, 2014-2018

Working committee, The 2nd, 3rd and 4th EnvironmentAsia International Conferences, 2013, 2015, and 2017

Working committee of Thai Qualifications Framework for Higher Education (Environmental Science), The Higher Education Commission, 2013-2014

Environmental and Health Impact Assessment (EHIA) working committee of The Independent Commission on Environment and Health to review a Phenol Production Facility (Extension 2) by PTT Phenol Company Limited, 2012

Secretary, Department of Environmental Science, Chulalongkorn University, 2006-2010

Occupational Health and Safety Officer, The CPAC Roof Tile Company Limited, Siam Cement Group, 1995-1996

### Research Emphasis

I am currently working on how to predict ambient air pollutants such as ozone and fine particulate matters using data over decades of their co-pollutants and metrological parameters through multivariate regression models. Results can be used to understand how these pollutants would be fluctuating over different climate change conditions and for authorities to plan to mitigate community's related health risks. Also, I have recently investigated the associated increased risks of sensitive population residing in communities of solid-waste landfills and electronic waste sites such as pre-school and school children and pregnant women of unfavorable outcomes of nervous system disorders, respiratory symptoms, and adverse birth outcomes. Its findings could be used for policy makers to alleviate specific factors posting to health risks of those.

## Selected Publications

1. Theapiriyakit, J., Suwannakoot, S., Puangthongtub, S., 2017. Multiple Linear Regression in Modeling of Day Time Ozone and Daily Maximum Ozone in Bangkok and Samutprakarn EnvironmentAsia 10(2), 105-117.
2. Suksabayjai, W., Puangthongtub, S., 2017. Adverse Birth Outcomes among Infants Born to Women Living Near a Sanitary Landfill Site in Nonthaburi, Thailand. Paper presented at The 4th EnvironmentAsia International Conference on Practical Global Policy and Environmental Dynamics; Bangkok, Thailand. 2017, 468-479.
3. Charoenchua, P., Puangthongtub, S., 2017. Respiratory Hospitalizations of Children Living near a Sanitary Landfill in Nonthaburi, Thailand: A Case Control Study. Paper presented at The 4th EnvironmentAsia International Conference on Practical Global Policy and Environmental Dynamics; Bangkok, Thailand. 2017, 480-490.
4. Pratooma, N., Puangthongtub, S., 2017. Health Survey of Primary-School Children in the Vicinity of a Sanitary Landfill in Nonthaburi Thailand Paper presented at The 4th EnvironmentAsia International Conference on Practical Global Policy and Environmental Dynamics; Bangkok, Thailand. 2017, 432-445.
5. Loonsamrong, W., Taneepanichskul, N., Puangthongtub, S., Tungsaringkarn, T., 2015. Health Risk Assessment and BTEX Exposure among Car Park Workers at a Parking Structure in Bangkok, Thailand. Journal of Health Research 29(4), 285-292.
6. Apismajarakul, B., Puangthongtub, S., 2014. Meteorological Effects on Urban Ground-levels Ozone Concentrations Metrics in Bangkok Metropolis Regions. International Journal of Environmental Engineering 1, 17-23.



# SARAWUT SRITHONGOUTHAI



## Assistant Professor

☎ +66 2 218 5194

✉ Sarawut.Sr@chula.ac.th

Ph.D. Ehime University 2004

M.Sc. Kagawa University 2001

B.Sc. Kasetsart University 1996

## Areas of Research Interest

Water pollution and thier effects on aquatic ecology, Aquatic toxicology and risk assessment, Eco-friendly technologies for wastewater treatment and Applied microscopic bubbles for mari-culture management

## Professional Experiences

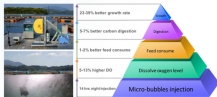
Assistant Professor, Department of Environmental Science, Chulalongkorn University, 2016-present

Lecturer, Department of Environmental Science, Chulalongkorn University, 2008-2016

Post Doctorial Researcher, Prefectural University of Kumamoto, Japan, 2004-2008

## Research Emphasis

Microscopic bubbles (MB) injection in the polluted cage farms was improved 5-13% higher DO, 1-2% better feed consumption, 5-7% better carbon digestion and 23-39% better growth rate. Subsequently, the MB injection makes more food, good profit and improves better environment.



## Selected Publications

1. Vibhatabandhu, P., Srithongouthai, S., 2018. Biosorption of Cr (III) and Ni (II) from an aqueous solution using cuttlebone and application for battery manufacturing wastewater treatment. *EnvironmentAsia* 11(1), 1-14.
2. Chaikaew, P., Nawatirairat, N., Srithongouthai, S., 2017. Modeling spatio-vertical distribution of sulfate and total sulfide based on sediment properties and environmental covariates along the mangrove intertidal zone. *EnvironmentAsia* 10(2), 1-8.
3. Srithongouthai, S., Tada, K., 2017. Impacts of organic waste from a yellowtail cage farm on surface sediment and bottom water in Shido Bay (the Seto Inland Sea, Japan)\* *Aquaculture* 471, 140-145.
4. Vibhatabandhu, P., Srithongouthai, S., 2017. Removal of Pb (II) from an aqueous solution using modified cuttlebone as a biosorbent. *EnvironmentAsia* 10(1), 34-43.
5. Vibhatabandhu, P., Srithongouthai, S., 2016. Removal of copper (II) from aqueous solutions using cuttlebone as bio-adsorbent. *Applied Environmental Research* 38(3), 39-47.
6. Supakata, N., Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., 2016. Environmental camp as a comprehensive communication tool to promote the RRR concept to elementary education students at Koh Si Chang School. *Applied Environmental Education & Communication* 15(2), 84-194.

## Academic Articles

1. Srithongouthai, S., 2016. Microscopic bubbles development for aquaculture. *Environmental Journal* Volume 20, Issue 3, 51-57. (in Thai).
2. Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Supakata, N., Saengkaew, T., Pantama, J., Vibhatabandhu, P., 2016. Management of solid, food, plastic and glass wastes. *Journal of Science*, Volume 70, Issue 4, 83-77. (in Thai)

## Textbooks

1. Supakata, N., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Wattananukulij, R., 2017. *Strategy of Life*. Chulalongkorn University Press, 166 pages (in Thai).
2. Tsutsumi, H., Srithongouthai, S., Hama, D., Takase, I., and Nishi, T., 2014. Chapter 8: Application of a microbubble generator to aquaculture farming. In: *Micro- and nanobubbles-fundamentals and applications 2014*, Taylor&Francis, ISBN 978-981-4463-10-2, 12-25.
3. Department of Environmental Science. 2013. *Environmental science laboratory*. Chulalongkorn University Press, 160 pages (in Thai).



# PASICHA CHAIKAEW



## Assistant Professor

+66 2 218 5191

Pasicha.C@chula.ac.th

Ph.D. University of Florida 2014

M.Sc. Mahidol University 2005

BBA. Maejo University 2004

## Areas of Research Interest

Pedometrics, Environmental mapping and modeling, Soil security and Sediment contamination

## Professional Experiences

Assistant Professor, Chulalongkorn University, 2017 – present

Lecturer, Chulalongkorn University, 2014 – 2017

## Research Emphasis

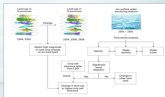
My research focuses on the application of statistical and geostatistical methods applicable to empirical and legacy data analysis in large scale areas of: 1) soil security, and 2) sediment contamination. Applying geostatistics in soil science addresses keys to understand the pattern of soil quality distribution and change in soil fertility due to environmental and/or anthropogenic forces. Assessing behavior of sediment contamination (nutrient enrichment, acid volatile sulfide, and heavy metals) in sediment is another aspect of my recent studies. The implication ranges from a small scale farming to the extent of regional and national levels.

## Selected Publications

1. Chaikae, P., Adeyemi, O., Hamilton, A.O., Clifford, O., 2020. Spatial characteristics and economic value of threatened species (*Khaya ivorensis*). Scientific Reports, 10:6266.
2. Chaikae, P., Rugkarn, N., Pongpipatwattana, V., Kanokkantapong, V., 2019. Enhancing ecological-economic efficiency of intensive shrimp farm through in-out nutrient budget and feed conversion ratio. Sustainable Environment Research, 29:28.
3. Yottiam, A., Chaikae, P., Srithongouthai, S., 2019. Arsenic pollution assessment in surface sediment of the inner Gulf of Thailand. IOP Conf. Series: Earth and Environmental Science.

## Selected Publications (Cont.)

4. Chaikaew, P., Salem, J., 2019. Chapter 1: Introduction to circular economy. In Asian Circular Economy for Tertiary Education. UN Environment, Bangkok.
5. Chaikaew, P., Sompongchaiyakul, P., 2018. Acid volatile sulfide estimation using spatial sediment covariates in the Eastern Upper Gulf of Thailand: Multiple geostatistical approaches. *Oceanologia*, 60(4), 478-487.
6. Chaikaew, P. 2018. Route optimization of MSW collection and transport using a GIS-based analysis on the tourism island. *Sustainability in Environment*, 3(3): 197-206.
7. Chaikaew, P., Hodges, A.W., Grunwald, S., 2017. Estimating the value of ecosystem services in a mixed-used watershed: a choice experiment approach. *Ecosystem Services* 23, 228-237.
8. Chaikaew, P., Chavanich, P., 2017. Spatial variability and relationship of mangrove soil organic matter to organic carbon. *Applied and Environmental Soil Science*. Article ID 4010381, 9 pages.
9. Chaikaew, P., Nawatnairat, N., Srithongouthai, S., 2017. Modeling spatio-vertical distribution of sulfate and total sulfide based on sediment properties and environmental covariates along the mangrove intertidal zone. *EnvironmentAsia* 10(2), 228-237.
10. Chaikaew, P., 2017. Evolution of digital soil mapping in a changing world. *Naresuan Phayao Journal* 10(2), 57-64.
11. Supakata, N., Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., 2016. Environmental camp as a comprehensive communication tool to promote the RRR concept to elementary education students at Koh Si Chang School. *Applied Environmental Education & Communication* 15(2), 184-194.
12. Chaikaew, P., Grunwald, S., Xiong, X., 2016. Chapter 13: Estimation of the actual and attainable terrestrial carbon budget. In: *Digital Soil Mapping Across Paradigms, Scales and Boundaries*, 153-164.
13. Grunwald, S., Chaikaew, P., Cao, B., Xiong, X., Vasques, G.M., Kim, J., Ross, C.W., Clingensmith, C.M., Xu, Y., Gavilan, C., 2016. Chapter 14: The meta soil model – An integrative framework to model soil carbon across various ecosystems and scales. In: *Digital Soil Mapping Across Paradigms, Scales and Boundaries*, 165-179.



# VORAPOT KANOKKANTAPONG



## Assistant Professor

☎ +66 2 218 5186

✉ Vorapot.Ka@chula.ac.th

Ph.D.	Chulalongkorn University	2005
M.Eng.	Kasetsart University	2001
B.Eng.	Kasetsart University	1998
B.PH.	Sukhothai Thammathirat Open University	2006

## Areas of Research Interest

Wastewater treatment technology, Industrial waste utilization, Solid waste management, Biomass utilization and Life cycle assessment

## Professional Experiences

Assistant Professor, Chulalongkorn University, 2018 – Present

Lecturer, Chulalongkorn University, 2014 – 2018

Lecturer, Mahidol University, 2012 – 2014

Lecturer, Huachiew Chalermprakiet University, 2004 – 2010

## Research Emphasis

My research interest is to solve the environmental problems in industries especially on waste and wastewater. The description of my current research areas is

- Application of industrial waste to treat wastewater in its factory via advanced oxidation and adsorption process.
- Utilization of biomass waste from industry via hydrothermal carbonization to be as peat moss or super adsorbent.

## Selected Publications

1. Warnphen, H., Supakata, N., Kanokkantapong, V., 2019. The Reuse of Waste Glass as Aggregate Replacement for Producing Concrete Bricks as an Alternative for Waste Glass Management on Koh Sichang. *Engineering Journal*, 23 (5), 43-58.
2. Sangatch, T., Supakata, N., Kanokkantapong, V., Jongsomjit, B., 2019. Fuel oil generated from the cogon grass-derived Al-Si (*Imperata cylindrica* (L.) Beauv) catalysed pyrolysis of waste plastics. *Heliyon*, 5, 1-8.
3. Punthama, C., Supakata, N., Kanokkantapong, V., 2019. Characteristics of Concrete Bricks After Partially Substituting Portland Cement Type 1 with Cement and Seashell Waste and Partially Substituting Sand with Glass Waste. *EnvironmentAsia*, 12 (1), 36-48.

## Selected Publications (Cont.)

4. Nakason, K., Panyapinyopoi, B., Kanokkantapong, V., Viriya-empikul, N., Kraithong, W., Pavasant, P., 2018. Characteristics of hydrochar and hydrothermal liquid products from hydrothermal carbonization of corn cob. *Biomass Conversion and Biorefinery* 8(1), 199-220.
5. Nakason, K., Panyapinyopoi, B., Kanokkantapong, V., Viriya-empikul, N., Kraithong, W., Pavasant, P., 2018. Characteristics of hydrochar and liquid fraction from hydrothermal carbonization of cassava rhizome. *Journal of the Energy Institute* 61(2), 184-193.
6. Jan-Uthai, V., Kanokkantapong, V., 2017. Light factors affecting antioxidant production and growth of sprout sunflower. The 4th EnvironmentAsia International Conference. June 21-23, 2017 Bangkok, Thailand.
7. Intang, K., Kanokkantapong, V., 2017. Utilization of Citric Acid Manufacture Residue for Producing Mortar and Insulation. The 4th EnvironmentAsia International Conference. June 21-23, 2017, Bangkok, Thailand.
8. Nakason, K., Panyapinyopoi, B., Kanokkantapong, V., Viriya-empikul, N., Kraithong, W., Pavasant, P., 2017. Hydrothermal carbonization of unwanted biomass materials: Effect of process temperature and retention time on hydrochar and liquid fraction. *Journal of the Energy Institute*, 1-11.
9. Supakata, N., Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., 2016. Environmental camp as a comprehensive communication tool to promote the RRR concept to elementary education students at Koh Si Chang School. *Applied Environmental Education & Communication* 15(2), 184-194.
10. Rawichayasub, W., Prechthai, T., Sihabut, T., Kanokkantapong, V., 2015. Management of Fat Oil and Grease by Composting Process with Night Soil and Sawdust. *Journal of Public Health Special Issue*, 117-126. (in Thai).
11. Poopa, T., Pavasant, P., Kanokkantapong, V., Panyapinyopoi, B., 2015. Fractionation and Mobility Lead in Killy Creek Riverbank Sediments Kanchanaburi, Thailand. *Applied Environmental Research* 37(1), 1-10.
12. Poopa, T., Pavasant, P., Kanokkantapong, V., Panyapinyopoi, B., 2015. Spatial distribution and mobility factor of lead in agricultural soil in the vicinity of abandoned ore dressing plant, Thailand. 8(2), 94-108.

## Academic Article

- Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Supakata, N., Saengkaew, T., Pantama, J., Vibhatabandhu, P., 2016. Management of solid, food, plastic and glass wastes. *Journal of Science*, Volume 70, Issue 4, 83-77. (in Thai)

## Textbooks

- Supakata, N., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Wattananukulkit, R., 2017. *Strategy of Life*. Chulalongkorn University Press: Thailand, 166. (in Thai).
- Department of Environmental Science Academic Staff, 2018. *Jar test in Aquatic Environmental Science Laboratory Manual*, Chulalongkorn University Press, 180 pages. (in Thai). In Press.

# PANTANA TOR-NGERN



## Assistant Professor

☎ +66 2 218 5186

✉ Pantana.Tj@chula.ac.th

Ph.D. Duke University 2015

M.S. Duke University 2010

B.S.E. Duke University 2009

### Areas of Research Interest

Hydrologic and carbon cycling, Impacts of climate change and climate variability on terrestrial hydrologic and carbon cycles and Dynamic Global Vegetation Models

### Professional Experiences

Assistant Professor, Chulalongkorn University, 2017-present

Lecturer, Chulalongkorn University, 2015 – 2017

### Research Emphasis

My research focuses on water and carbon flows in forest ecosystems and their variations with environmental impacts including climate change, land-use change and extreme events. The main technique is measuring water flow in individual trees with self-constructed probes and then applying modeling approaches to estimate water loss and carbon absorption of forests. This method is performed across spatial scales and with high temporal resolution (at 30-minute intervals). Findings of mechanisms that control variations of water and carbon flows in forests can be used to improve the modeling of climate-vegetation feedbacks in the earth system models which is used to simulate climate change impacts on water-use and productivity of terrestrial ecosystems.

### Measure of Esteem

Outstanding Young Researcher Award in Biological Science 2018, Faculty of Science, Chulalongkorn University

### Selected Publications

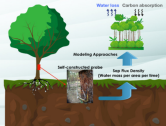
1. Tor-ngern, P., N. Leksungnoen. April 2020. Investigating carbon dioxide absorption by urban trees in a new park of Bangkok, Thailand. BMC Ecology 20(20)  
<https://doi.org/10.1186/s12898-020-00289-4>

## Selected Publications (Cont.)

2. Tor-ngern, P., L. Puangchit. December 2018. Effects of varying soil and atmospheric water deficit on water use characteristics of tropical street tree species. *Urban Forestry & Urban Greening* 36: 76-83.
3. Tor-ngern, P., Unawong, W., Tanchaoenlarp, T., Aunroj, P., Panha, S., 2018. Comparison of water-use characteristics of landscape tree (*Tabebuia argentea*) and palm (*Ptychosperma macarthurii*) species in a tropical roof garden with implications for urban water management. *Urban Ecosystems*. <https://doi.org/10.1007/s11252-018-0735-0>.
4. Tor-ngern, P., Oren, R., Palmroth, S., Novick, K., Oishi, A.C., Linder, S., Ottoson-Löfvenius, M., Näsholm, T., 2018. Water balance of pine forests: synthesis of new and published results. *Agricultural and Forest Meteorology* 295, 107-117.
5. Tor-ngern, P., Oren, R., Oishi, A.C., Uebelherr, J.M., Palmroth, S., Tarvainen, L., Ottoson-Löfvenius, M., Linder, S., Domec, J.-C., Näsholm, T., 2017. Ecophysiological variation of transpiration of pine forests: synthesis of new and published results. *Ecological Applications* 27(1), 118-133.
6. Tor-ngern, P., Oren, R., Ward, E.J., Palmroth, S., McCarthy, H.R., Domec, J.-C., 2015. Increases in atmospheric CO<sub>2</sub> have little influence on transpiration of a temperate forest canopy. *New Phytologist* 205(2), 518-525.
7. Lim, H., Oren, R., Palmroth, S., Tor-ngern, P., Mörling, T., Näsholm, T., Lundmark, T., Helmisaari, H.-S., Leppälampi-Kujansuu, J., Linder, S., 2015. Inter-annual variability of precipitation constrains the production response of boreal *Picea sylvestris* to nitrogen fertilization. *Forest Ecology and Management* 348, 31-45.

## Website

<https://forestfluxgroup.wordpress.com>





*LECTURER*



# SUPAWIN WATCHARAMUL



## Lecturer

☎ +66 2 218 5185

✉ Supawin.W@chula.ac.th

Ph.D. University of Newcastle upon Tyne	2005
M.Sc. Chulalongkorn University	1996
B.Sc. Chulalongkorn University	1992

## Areas of Research Interest

Environmental biotechnology, Biodegradation and bioremediation,  
Environmental toxicology and Soil microbial ecology

## Professional Experiences

Lecturer, Chulalongkorn University, 1996 – present

## Research Emphasis

The plant cell wall (PCW) is a complex macromolecule comprising crystalline cellulose imbedded in matrix polysaccharides such as pectins, xylans and mannans. In view of the complex nature of the substrate, PCW-degrading microorganisms synthesize a vast array of different glycoside hydrolases and esterases, which act synergistically to elicit complete saccharification of this recalcitrant macromolecule. Typically, PCW-degrading bacteria express endo-acting mannanases, cellulases (endoglucanases and cellobiohydrolases), xylanases, polygalacturonic acid hydrolases (and lyases) rhamnogalacturan hydrolases (and lyases) and an array of biocatalysts that remove the side chains from decorated hemicelluloses and pectins. In addition, PCW-degrading microorganisms express numerous iso-forms of all the major endo-acting and certain key side-chain clearing enzyme species. These iso-enzymes are not derivatives of a specific protein but are encoded by extensive multigene families. My research emphasizes on the diversity of these cellulases in Thai rice-field soils as determined using environmental cloning techniques in which community DNA extracted directly from a range of Thai soils has been amplified using PCR primers designed to target cellulases which belong to Glycosyl Hydrolase Families. Following construction of a clone library in pCR-TOPO, the clones were screened using a combination of denaturing gradient gel electrophoresis (DGGE) and restriction digest analysis to identify unique clones. Unique clones were sequenced and analyzed phylogenetically. These sequences have been used to design nucleic acid probes and these have been used in combination with phospholipid fatty acid analysis (PLFA), BIOLOG and microbial biomass analysis to monitor changes in the size, activity and diversity of microbial communities during the decomposition of rice straw. These highlights are providing new insights into the microbiology of decomposition in tropical soils and provide exciting new opportunities for the biotechnological exploitation of cellulases in Thailand.

## Measure of Esteem

Distinguished Award of Student Affairs, Faculty of Science, Chulalongkorn University (Academic Year 2012)

## Selected Publications

1. Saelim, T., Sairiam, S., Siralertmukul, K., Watcharamul, S., Nuisin, R., 2020. Removal of glyphosate from an aqueous solution using chitosan beads as the adsorbent. *Journal of Metals, Materials and Minerals* (Accepted, Article in Press)
2. Treeratanajaru, W., Watcharamul, S., Lipikorn, R., 2016. Comparison of ANN and SVM for prediction of biochemical oxygen demand in Chaophraya River, *Proceedings of the 31st International Technical Conference on Circuits/Systems, Computers and Communications*, pp. 791-793.
3. Siralertmukul, K., Watcharamul, S., Wichanpaisan, N., Nuisin, R., 2015. Potential antibacterial activity of polystyrene nanoparticles/chitosan coated on cotton fabrics. *Macromolecular Symposia*, 354(1), 324-333.
4. Treeratanajaru, W., Watcharamul, S., Lipikorn, R., 2012. Degenerate primer design system for gene biodiversity study using dynamic pattern matching". *HIBIT 2012, the 7th International Symposium Health Informatics and Bioinformatics, IEEE*, 102-106.  
DOI:10.1109/HIBIT.2012.6209050.

## Textbooks

1. Department of Environmental Science Academic Staff, 2013. *Microorganisms in Environment in Environmental Science Laboratory Manual*, Chulalongkorn University Press: Thailand, 79-87. (in Thai)
2. Department of Environmental Science Academic Staff, 2018. *Most Probable Number, MPN or Multiple Tube Method in Aquatic Environmental Science Laboratory Manual*, Chulalongkorn University Press, 180 pages. (in Thai). In Press.

## Review Article

1. Watcharamul, S., Nuisin, R., 2018. Energy and Sustainable Future: Opportunities and Challenges, *Journal of Environmental Management* Year 14(1), 86-103. DOI: 10.14456/jem.2018.6.

## Patent

- Nuisin, R., Watcharamul, S., Lakkana, C., Kittiratrakarn, T., Chuaytong, P., Kanchaitit, P., 2014. Method to prepare copper nanoparticles from guava extracted and antibacterial of product from mentioned method, Application no. 1401003517.



# SERMPONG SAIRIAM



## Lecturer

☎ +66 2 218 5183

✉ Sermpong.S@chula.ac.th

Ph.D. Chulalongkorn University	2013
M.Sc. Chulalongkorn University	2009
B.Sc. Chulalongkorn University	2007

## Areas of Research Interest

Wastewater treatment technology by Advanced Oxidation Processes (AOPs) and membrane technology

## Professional Experiences

Lecturer, Chulalongkorn University, 2015 – present

## Research Emphasis

As a consequence of the wastewater issues, control of wastewater emission from the industries is very important on these days. My research focus is to treat wastewater from the various industries such as textile industry by Advanced Oxidation Processes (AOPs) including Fenton processes and photocatalytic oxidation. Recently, AOPs and membrane technologies have received great attention to combine for increase the efficiency of wastewater treatment such as photocatalytic membrane and membrane contacting process with ozonation. The great efforts are to modify the suitable membrane properties for application. Modification is focused on addition of modifying agents or metals on the membrane surface and functionalization of membrane surface via chemical methods.

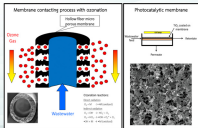
## Selected Publications

1. Saelim, T., Sairiam, S., Siradertmukul, K., Watcharamul, S., and Nuisin, R. Removal of glyphosate from an aqueous solution using chitosan beads as the adsorbent. *Journal of Metals, Materials and Minerals*. 2020.
2. Rongwong, W., and Sairiam, S. A modeling study on the effects of pH and partial wetting on the removal of ammonia nitrogen from wastewater by membrane contactors. *Journal of Environmental Chemical Engineering*. 2020. 8(5): 104240.
3. Penboon, K., Khureakham, A., and Sairiam, S. TiO<sub>2</sub> coated on PVDF membrane for dye wastewater treatment by a photocatalytic membrane. *Water Science and Technology*. 2019. 79(5): 958-966.

4. Sairiam, S., Thuptimrang, P., and Painmanakul, P. Decolorization of Reactive Black 5 from synthetic dye wastewater by Fenton Process. *EnvironmentAsia*. 2019. 12(2): 1-8.
5. Phanpa, K., Wongwailikhit, K., Dammeem, R., Sairiam, S., Jamnongwong, M., and Painmanakul, P. Study of aeration and CO<sub>2</sub> absorption using filtration membrane in terms of physical properties and mass transfer parameters. *Engineering Journal*. 2018. 22(4): 83-05.
6. Sairiam, S., Thuptimrang, P., Painmanakul, P., 2017. Decolorization of Wastewater Containing Reactive Black 5 from Synthetic Wastewater by Fenton Process. *Proceedings of the 19th International Conference on Water Pollution and Solutions (ICWPS)*, Barcelona, Spain, 2992-2994.
7. Sairiam, S., Thuptimrang, P., Painmanakul, P., 2016. Decolorization of Reactive Black 5 Wastewater by Fenton Process" *Proceedings of the 5th International Conference on Environmental Engineering, Science and Management*, Bangkok, Thailand, 127-128.
8. Suthanan, C., Larpparisudth, O., Sairiam, S., Painmanakul, P., 2016. Analysis of Cutting Oily-wastewater Treatment by Fenton Reaction: Process Type and Oil Concentration" *Proceedings of the 15th National Environmental Conference*, Bangkok, Thailand, 139-140.

## Textbook

1. Department of Environmental Science Academic Staff, 2018. *Advanced Oxidation Process for Wastewater Treatment and Determination of Heavy Metals in Water by Atomic Adsorption Spectroscopy in Aquatic Environmental Science Laboratory Manual*, Chulalongkorn University Press, 180 pages. (in Thai).



# CHIDSANUPHONG CHART-ASA



## Lecturer

+66 2 218 5192

Chidsanuphong.C@chula.ac.th

Ph.D. The University of North Carolina at Chapel Hill	2014
M.Sc. Mahidol University	2005
B.Sc. Thammasat University	2001

## Areas of Research Interest

Environmental data analysis and Environmental burden of disease assessment

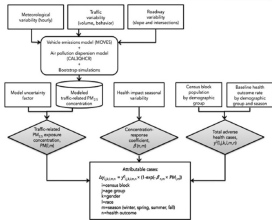
## Professional Experiences

Lecturer, Chulalongkorn University, 2018-present

Lecturer, Mae Fah Luang University, 2014-2018

## Selected Publications

- 1.Chart-asa, C., 2018. Spatio-temporal Pattern of MODIS Active Fire/hotspot in the Upper Northern Thailand and the Greater Mekong Subregion Countries During 2003-2015. Manuscript in preparation.
- 2.Manomaivibool, P., Chart-asa, C., Unroj, P., 2016. Measuring the Impacts of a Save Food Campaign to Reduce Food Waste on Campus in Thailand. Applied Environmental Research 38(2), 13-22.
- 3.Chart-asa, C., MacDonald Gibson, J., 2015. Health impact assessment of traffic-related air pollution at the urban project scale: influence of variability and uncertainty. Science of the Total Environment 506-507, 409-421.
- 4.Chart-asa, C., 2013. Quantifying health impacts of traffic-related fine particulate air pollution at the urban project scale [Doctoral dissertation]. The University of North Carolina at Chapel Hill North Carolina, USA.
- 5.Chart-asa, C., Sexton, K.G., MacDonald Gibson, J., 2013. Traffic impacts on fine particulate matter air pollution at the urban project scale: a quantitative assessment. Journal of Environmental Protection 4(12A), 49-62.



# JATUWAT SANGSANONT



## Lecturer

+66 2 218 5193

Jatuwat.S@chula.ac.th

Ph.D. University of Tokyo 2011

M.Eng. University of Tokyo 2008

B.Eng. Chulalongkorn University 2006

## Areas of Research Interest

Water disinfection, Microbial risk assessment, Microbial source tracking,  
Health-related water microbiology

## Professional Experiences

Lecturer, Chulalongkorn University, 2019 – present

Postdoctoral Researcher, University of Colorado Boulder, 2017-2018

Postdoctoral Researcher, University of Tokyo, 2012-2017

## Research Emphasis

Jatuwat's research focused on the viral disinfection mechanisms and the detection in water. He also had worked on waterborne pathogen monitoring in the water environment. He investigated the response of viruses to UV irradiation in order to improve current UV disinfection. His research involves the analysis of the effect of UV irradiation in early steps of adenovirus infection and DNA repair. Currently, his research interests include studying the prevalence of waterborne pathogens in the water environment in Thailand.

## Selected Publications

1. Sangsanont, J., Kurisu, F., Furumai, H. and Katayama, H., 2020. Ozone disinfection kinetics of poliovirus 1 determined by cell culture assay, RT-qPCR, and Ethidium Monoazide qPCR Reduction in a Continuous Quench-Flow Reactor. *J Appl Microbiol.* <https://doi.org/10.1111/jam.14787>
2. Sangsanont, J., Dang, T.D., Nga, T.T.V., Katayama, H., and Furumai, H., 2016. Detection of pepper mild mottle virus as an indicator for drinking water quality in Hanoi, Vietnam, in large volume of water after household treatment, *Journal of environmental science and health, part A*, 51(13): 1100-1106.

## Selected Publications (Cont.)

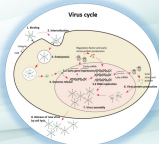
3. Sangsanont, J., Katayama, H., Kurisu, F., and Furumai, H., 2014. Capsid damaging effect of viruses after UV irradiation by quantitative PCR coupled with ethidium monoazide treatment", Food and Environmental Virology, 6(4): 269-275
4. Oguma, K., Sangsanont, J., and Katayama, H., 2014. Comparison between chlorination and UV disinfection of untreated wastewater after disasters, Journal of Water and Environmental Technology, 12(3): 321-331
5. Sangsanont, J., Oguma, K., Katayama, H., 2012. Relative Effectiveness of Ultraviolet Light Irradiation and Chlorination against Indigenous Bacteriophage and Bacteria in Primary Treated Wastewater. Journal of Environmental Science and Engineering B, 1(8): 1003-1009
6. Molla, N.A., Sangsanont, J., Thayanukul, P., Furumai, H., 2016. Proper dissemination of information to improve people awareness on flood disaster: A Case Study of 2011 Flood in Thailand", Applied Environmental Research, 38(2): 1-12

## Booklet

1. Toward the sustainability of urban water system, report of student session at SUDM & 2RHWI conference, The university of Tokyo and Seoul National university, September 7-12 2—9, Tokyo, Japan

### Disinfection

- Damage on viral genome
- Damage on viral capsid





# SUMETH WONGKIEW



## Lecturer

+66 99 458 7500

Sumeth.W@chula.ac.th

Ph.D.	University of Hawai'i at Mānoa	2018
M.Eng.	Asian Institute of Technology (AIT)	2013
B.Eng.	Chiang Mai University	2011

## Areas of Research Interest

Biological treatment, Resource recovery, Nitrogen cycle, Aquaponics and bioponics, Wastewater engineering

## Professional Experiences

Lecturer, Chulalongkorn University, 2019 - Present

Research assistant, Asian Institute of Technology, 2011 and 2013

## Research Emphasis

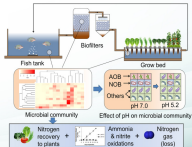
My research focuses on bio-environmental processes including biological treatment, resource recovery, bio-engineering, soilless agriculture, and applied environmental toxicology and risk assessment, with emphasis on development of sustainable innovations that fit to the way of Bio-Circular-Green (BCG) economic model. My current studies are in the field of organic waste recycling technology, namely aquaponics, bioponics, and organic smart farming using nutrient recovery approaches, which are the integrations of environmental biotechnology, agriculture, and environmental science & engineering.

## Selected Publications

1. Wongkiew, S., Hu, Z., Nhan, H.T., and Khanal, S.K., 2020. Chapter 20: Aquaponics for Resource Recovery and Organic Food Productions. In: Current Developments in Biotechnology and Bioengineering: Sustainable Bioresources for Emerging Bioeconomy, Elsevier, 475-492.
2. Wongkiew, S., Park, M.R., Chandran, K., and Khanal, S.K., 2018. Aquaponic Systems for Sustainable Resource Recovery: Linking Nitrogen Transformations to Microbial Communities. Environmental Science and Technology, 52(21), 12728-12739.

## Selected Publications (cont.)

- Wongkiew, S., Popp, B.N., & Khanal, S.K., 2018. Influences of Plant Species and Dissolved Oxygen on Nitrogen Recovery and Nitrous Oxide ( $N_2O$ ) Emissions from Aquaponic Systems. *International Biodeterioration & Biodegradation*, 134, 117-126.
- Wongkiew, S., Popp, B.N., Kim, H.J., and Khanal, S.K., 2017. Fate of Nitrogen in Floating-Raft Aquaponic Systems using Natural Abundance Nitrogen Isotopic Compositions. *International Biodeterioration & Biodegradation*, 125, 24-32.
- Wongkiew, S., Hu, Z., Chandran, K., Lee, J.W., and Khanal, S.K., 2017. Nitrogen Transformations in Aquaponic Systems: A Review. *Aquacultural Engineering*, 76, 9-19.





Published in 2020

Department of Environmental Science

Faculty of Science, Chulalongkorn University

254 Payathai Road, Wang Mai, Pathumwan, Bangkok 10330 Thailand

Tel: +66 2 218 5181-2 Fax: +66 2 218 5180

Email: [EnviSciCU@gmail.com](mailto:EnviSciCU@gmail.com)

[www.envisci.sc.chula.ac.th](http://www.envisci.sc.chula.ac.th)

<https://www.facebook.com/chulaindusttox>