

# Associate Professor Vorapot Kanokkantapong, Ph.D.

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

Telephone: (+66)-2-218-5181

Email: vorapot.ka@chula.ac.th, xofhcu@gmail.com



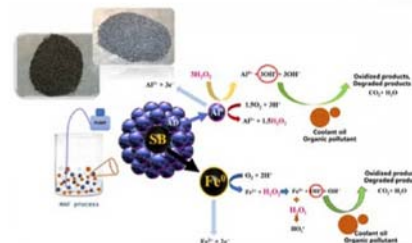
Specialization:  
Wastewater treatment,  
Waste utilization,  
Carbon footprint and storage

## Research Emphasis

My research emphasizes wastewater treatment technologies, industrial waste management, and waste valorization. I focus on applying advanced oxidation processes, such as modified air-Fenton systems, and utilizing waste-derived materials for pollutant removal. Additionally, my research explores the environmental impact of biofuel production, the presence of microplastics in environmental systems, and life cycle-based assessments. Current interests also include the assessment of carbon footprint and the investigation of carbon storage potential in materials and environmental systems.

## Professional Experiences

- 2017-present Assistant Professor, Chulalongkorn University
- 2014 - 2017 Lecturer, Chulalongkorn University
- 2012 - 2014 Lecturer, Mahidol University
- 2004 - 2010 Lecturer, Huachiew Chalermprakiet University



## Selected Publications

- Kanokkantapong, V., Marhaba, T.F., Pavasant, P., and Panyapinyophol, B. Characterization of haloacetic acid precursors in source water. *Journal of Environmental Management*, 80, 214-221, 2006.
- Kanokkantapong V., Kiatkittipong W., Panyapinyopold B., Wongsuchoto P., Pavasant P. Used lubricating oil management options based on life cycle thinking. *Resources, Conservation and Recycling* 53, 294299. 2009.
- Poopa T., Pavasant P., Kanokkantapong V. and Panyapinyopol B. Spatial distribution and mobility factor of lead in agricultural soil in the vicinity of abandoned ore dressing pant, Thailand. *EnvironmentAsia* 8(2) 94-108. 2015.
- Srimoke W., Kanokkantapong V., Supakata N., Limmun W. Optimising zero-valent iron from industrial waste using a modified air-Fenton system to treat cutting oil wastewater using response surface methodology. *Arabian Journal of Chemistry*, 2022. 15(11).
- Suwannasung K., Kanokkantapong V., Wongkiew S. Modified air-Fenton with MIL-88A for chemical oxygen demand treatment in used coolant oil. *Environmental Science and Pollution Research*, 2023. 30, 105429-105439. <https://doi.org/10.1007/s11356-023-29685-1>
- K Nakason, P Sumrannit, S Youngjan, W Wanmolee, W Kraithong, P Khemthong, V Kanokkantapong, B Panyapinyopol. Environmental impact of 5-hydroxymethylfurfural production from cellulosic sugars using biochar-based acid catalyst. *Chemical Engineering Science*, 287. 2024. 119729.
- H Suannuch, V Kanokkantapong, J Sangsanont. Optimizing coolant oil wastewater treatment via modified air-Fenton process with bimetallic particles from auto parts manufacturing waste. *Arabian Journal of Chemistry*, 2024. 17(9), 105860.
- Vibhatabandhu P, Prachayakul T, Tang-Siri J, Benmas P, Srithongouthai S, Kanokkantapong V. Effect of tidal current on the settling and accumulation of microplastics in the Chao Phraya River estuary, Thailand. *Marine Pollution Bulletin*, 2024. 200, 116068.
- P Chukaew, S Kuboon, W Kraithong, B Panyapinyopol, V Kanokkantapong, J Phanthuwongpakdee, K Nakason (2024). Enhancing biofuel production in hydrothermal liquefaction of cassava rhizome through alkaline catalyst application and water-soluble product recirculation. *Journal of the Energy Institute*. 117, 101848.





# Assistant Professor Chokchai Yachusri, M.Sc.

1992 M.Sc. Chulalongkorn University

1989 B.Sc. Thammasat University

Telephone: (+66)-2-218-5197

Email: chokchai.y@chula.ac.th



Specialization:

Air pollution control, Noise pollution control,  
Occupational noise assessment and control

## 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.

## Professional Experiences

2006-present Assistant Professor, Chulalongkorn University

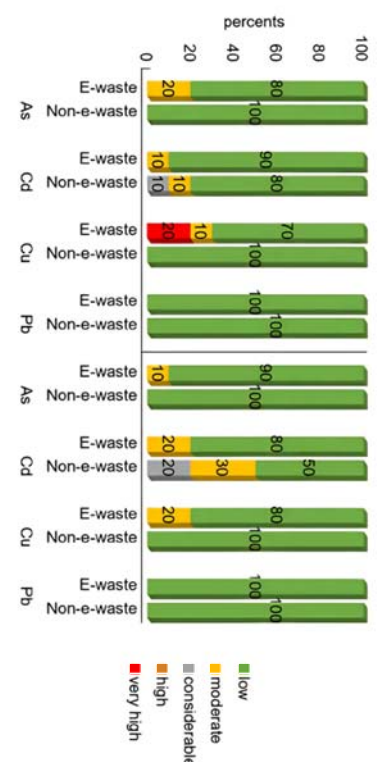
1996-2006 Lecturer, Chulalongkorn University

## Text Book

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

## Supervised Senior Projects

- Chanprasit, K. and Yachusri, C., 2015. Efficiency of microalgae *Chlorella* sp. on the removal of pollutants from canteen wastewater.
- Charatchiripat, K. and Yachusri, C., 2015. Sound absorption coefficient of rubber concrete mixed with fly ash.
- Kaewpradap, N. and Yachusri, C., 2014. Efficiency of acoustic absorption board from bagasse filled natural rubber latex foam.
- Mueanaop, A. and Yachusri, C., 2013. Determined nitrogen dioxide concentration on buses in Bangkok using passive gas sampler.
- Lelaphaisan, K., Sukgosa, A. and Yachusri, C., 2013. The Study of efficiency of acoustic board produced by Rice husk and Coir fibers.
- Intharapong, N. and Yachusri, C., 2013. Contents of heavy metals in particulate matter less than 2.5 micronsexpose to police and pedestrians around Bangkok's intersections.
- Kaechat, P. and Yachusri, C., 2013. Exposure of parking lot security guards to particulate matter less than 2.5 microns in Bangkok.
- Amphalop, N., Suwantararat, N., Prueksasit, T., Yachusri, C., & Sithongouthai, S. 2020. Ecological risk assessment of arsenic, cadmium, copper, and lead contamination in soil in e-waste separating household area, Buriram province, Thailand. *Environmental Science and Pollution Research*, 27, 44396-44411.



# Associate Professor Naiyanan Ariyakanon, Ph.D.

2000 Ph.D. (Forest Science), University of Tokyo, Japan

1995 M.Sc. Chulalongkorn University

1993 B.Sc. (2nd Honor) Chulalongkorn University

Telephone: (+66)-2-218-5190

Email: anaiyanan@yahoo.com



Specialization:  
Phytoremediation  
Soil pollution

## Research Emphasis

My research focuses on the removal/transformation of the pollutants in soil, water, and air into less toxic forms using local plants. The research also involved human health risk assessment and ecological risk assessment. The current research is related to the application of wetlands for sustainable wastewater treatment and carbon storage in peat soil.

## Professional Experiences

2017-present Associate Professor, Chulalongkorn University

2006-2016 Assistant Professor, Chulalongkorn University

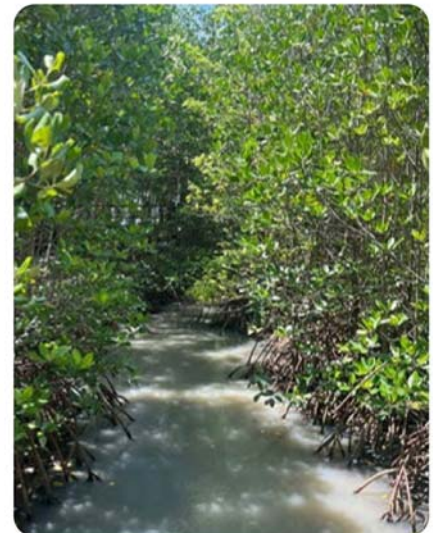
1995-2006 Lecturer, Chulalongkorn University

## Measure of Esteem

1. Best Paper Award from International Journal of Science and Innovative Technology, 2021.
2. Outstanding Advisor Award from the Faculty of Science, Chulalongkorn University, 2014.

## Selected Publications

1. Ariyakanon, N. (2023). Application of local species for sustainable phytoremediation. *Environment and Natural Resources Journal (EnNRJ)*, 21(5), 381-389.
2. Kliangklaio, P., & Ariyakanon, N. (2022). Human Health Risk Assessment of Heavy Metal Accumulation in Aquatic Plants Grown in the Tha Chin River. *EnvironmentAsia*, 15(2).
3. Ariyakanon, N. (2021). Correlation of water quality and heavy metal concentration in Chao Phraya River Basin: An effect on human health. *International Journal of Science and Innovative Technology*, 4(2), 18-24.
4. Wattanapanich, C., Durongpongton, N., & Ariyakanon, N. (2020). Performance of Water Hyacinth (*Eichhornia crassipes*) in the Treatment of Residential and Surimi wastewater. *EnvironmentAsia*, 12(2).
5. Ariyakanon, N. Water hyacinth for wastewater treatment. (2018) *Environmental Journal*. 22(3): 49-55.
6. Ariyakanon, N., & Vikrompanitkul, C. (2018). Application of agricultural waste biochar for canteen wastewater treatment in Chulalongkorn University.



# Assistant Professor Supawin Watcharamul, Ph.D.

2005 Ph.D. University of Newcastle upon Tyne

1996 M.Sc. Chulalongkorn University

1992 B.Sc. Chulalongkorn University

Telephone: (+66)-2-218-5185

Email: supawin.w@chula.ac.th



Specialization:  
Soil microbial ecology,  
Biodegradation and bioremediation

## Research Emphasis

The plant cell wall (PCW) is a complex macromolecule comprising crystalline cellulose imbedded in matrix poly-saccharides 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) rhamnagalacturan hydrolases (and lyases) and an array of biocatalysts that remove the side chains from decorated hemicellulases and pectins. In addition, PCW-degrading microorganisms express numerous iso-forms of all the major endo-acting and certain key side-chain cleaving 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.

## Professional Experiences

2025-present Assistant Professor, Chulalongkorn University

1996-2025 Lecturer, Chulalongkorn University

2010-2014 Head, Department of Environmental Science

2015-2023 Assistant Dean for Academic Affairs, Faculty of Science

2007-2010 Assistant Dean for Research Affairs, Faculty of Science

2007-2010 Assistant Dean for International Affairs, Faculty of Science

2005-2007 Secretary, The Science Dean Consortium of Thailand

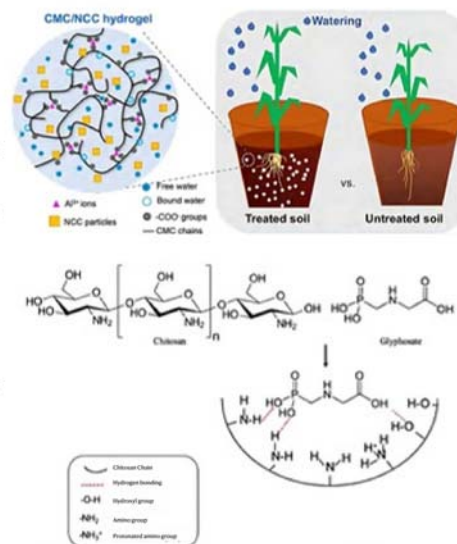
1997-2000 Assistant Dean for Student Affairs, Faculty of Science

## Measure of Esteem

1. University Recognition Award for Student Affairs Excellence, Chulalongkorn University, 2018
2. Faculty Recognition Award for Student Affairs Excellence, Faculty of Science, 2012

## Selected Publications

1. Watcharamul, S., Lerddamrongchai, S., Siripongpreda, T., Rodtassana, C., Nuisin, R., & Kiatkamjornwong, S. (2022). Effects of carboxymethyl cellulose/rano-calcium carbonate hydrogel amendment of loamy sand soil for maize growth. *ACS Agricultural Science & Technology*, 2(5), 1071-1080.
2. Nuisin, R., Siripongpreda, T., Watcharamul, S., Siralermukul, K., & Kiatkamjornwong, S. (2022). Facile syntheses of physically crosslinked carboxymethyl cellulose hydrogels and nanocomposite hydrogels for enhancing water absorbency and adsorption of sappan wood dye. *ChemistrySelect*, 7(10), e202104598.
3. Siralermukul, K., Yuenyaw, N., Watcharamul, S., & Nuisin, R. (2021). Facile Fabrication of Chitosan/Starch Composite Films with Fumed Silica as an Additive. *Engineering Journal*, 25(9), 45-53.
4. Saelim, T., Sairiam, S., Siralermukul, K., Watcharamul, S., & Nuisin, R. (2020). Chitosan beads as the adsorbent for glyphosate removal from an aqueous solution. *Journal of Metals, Materials and Minerals*, 30(3).



# Associate Professor Tassanee Chetwittayachan, Ph.D.

2001 Ph.D. The University of Tokyo

1996 M.Sc. Chulalongkorn University

1992 B.Sc. Chulalongkorn University

Telephone: (+66)-2-218-5196

Email: tassanee.c@chula.ac.th



Specialization:  
Air pollution and  
Environmental risk assessment

## 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

## Professional Experiences

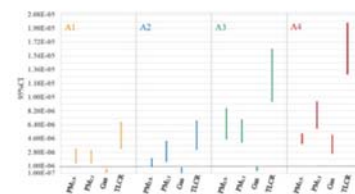
2022-present Associate Professor, Chulalongkorn University

2014-2022 Assistant Professor, Chulalongkorn University

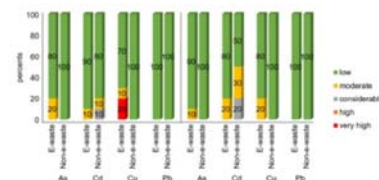
1997-2013 Lecturer, Chulalongkorn University

## Selected Publications

1. Kewcharoenwong, C., Khongmee, A., Nithichanon, A., Palaga, T., Prueksasit, T., Mudway, I. S., ... & Lertmemongkolchai, G. (2023). Vitamin D3 regulates PM-driven primary human neutrophil inflammatory responses. *Scientific Reports*, 13(1), 15850.
2. Kuson, M., Mahujchariyawong, J., Satapanajaru, T., & Prueksasit, T. (2023). Assessment and Management of Air Pollutant Emissions from Vehicles in the Bangkok Metropolitan Region. *Science & Technology Asia*, 144-155.
3. Jirabanjerdhiri, B., Sriratanasak, N., Towiwat, P., Prueksasit, T., Sukrong, S., & Chanvorachote, P. (2022). Standardized *Thunbergia laurifolia* Extract Inhibits PM2.5-Induced Oxidative Stress by Regulating p62-KEAP1-NRF2 Signaling Pathway. *in vivo*, 36(6), 2730-2739.
4. Thongkaew, P., Prueksasit, T., & Siriwong, W. (2022). Activity-based exposure levels and lifetime cancer risk for workers exposed to polychlorinated biphenyls during electronic waste dismantling in Buriram province, Thailand. *Atmospheric Environment*, 287, 119289.
5. Thongkaew, P., Prueksasit, T., & Siriwong, W. (2022). Quantification and characterization of recovered materials in the cycle of the informal household electronic waste dismantling in Buriram province, Thailand: A challenge towards sustainable management and circular economy. *Waste Management & Research*, 40(12), 1766-1776.
6. Kanjanasiranont, N., Prueksasit, T., & Sahanavin, N. (2021). Ambient and indoor pm10 and pm10-bound pahs around the vicinity of an industrial estate in rayong, thailand: Concentration and source identification. *Applied Environmental Research*, 43(2), 15-29.
7. Makkwao, K., & Prueksasit, T. (2021). PM10 concentration emitted from blasting and crushing processes of limestone mines in Saraburi Province, Thailand. *International Scholarly and Scientific Research & Innovation*, 15(1), 44-51.
8. Amphalop, N., Suwantarap, N., Prueksasit, T., Yachusri, C., & Srithongouthai, S. (2020). Ecological risk assessment of arsenic, cadmium, copper, and lead contamination in soil in e-waste separating household area, Buriram province, Thailand. *Environmental Science and Pollution Research*, 27, 44396-44411.
9. Amphalop, N., Prueksasit, T., & Assawadithalerd, M. (2020). Spatial Variation of Heavy Metals Contamination in Soil at E-waste Dismantling Site, Buriram Province, Thailand. In *Sustainable Development of Water and Environment: Proceedings of the ICSDWE2020* (pp. 333-343). Springer International Publishing.
10. Prueksasit, T., Chanthahong, S., & Kanghae, Y. (2020). Appraisal of PM10 concentrations at residential areas influenced by informal E-waste dismantling activity, Buriram Province, Thailand. *Air, Soil and Water Research*, 13, 1178622120931081
11. Somprasong, K., Chitwiwat, S., Assawadithalerd, M., & Prueksasit, T. (2020). Geographic Information System and Integrated Spatial Analysis on Area Selection for WEEE Collection Site at Buriram Province, Thailand. In *Sustainable Development of Water and Environment: Proceedings of the ICSDWE2020* (pp. 201-211). Springer International Publishing.
12. Sirichai, T., Prueksasit, T., & Sangsuthum, S. (2020). Blood lead and cadmium levels of e-waste dismantling workers, Buriram Province, Thailand. In *Sustainable Development of Water and Environment: Proceedings of the ICSDWE2020* (pp. 381-390). Springer International Publishing.
13. Bungadaeng, S., Prueksasit, 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, 1-12.
14. Chowjarean, V., Prueksasit, T., Joyjamras, K., & Chanvorachote, P. (2019). Isovitecin increases stem cell properties and protects against PM2.5 in keratinocytes. *in vivo*, 33(6), 1833-1841.
15. Puangprasert, S., & Prueksasit, 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.



The LCR of inhalation exposure to PCBs of e-waste dismantling workers.



Percent contribution of the houses with different ecological risk categories

# Associate Professor Nuta Supakata, Ph.D.

2011 Ph.D. Kasetsart University  
1999 M.S. Colorado School of Mines  
1995 B.Ed. Chulalongkorn University

Telephone: (+66)-2-218-5187

Email: nuta.s@chula.ac.th



LEARN MORE



Specialization:

Waste Utilization, Environmental  
Communication and Education

## Research Emphasis

With the increasing amount of waste worldwide, my research aims to contribute to tackling this global issue and promoting the sustainability of our communities and environment. It focuses on two major approaches: waste utilization and environmental communication and education. In the area of waste utilization, my current research explores alternative recycling methods based on the Bio-Circular-Green (BCG) economy model. This involves transforming solid waste into agricultural and construction materials. In the area of environmental communication and education, my research emphasizes the use of motivational tools and practices to promote waste separation and reduction within communities.

## Professional Experiences

2017-present Associate Professor, Chulalongkorn University  
2014-2017 Assistant Professor, Chulalongkorn University  
2000-2014 Lecturer, Chulalongkorn University

## Measure of Esteem

1. Outstanding Research Unit Award in Science and Technology, Chulalongkorn University, 2025
2. Outstanding Operational Staff Award: "Kon Dee Si Chula" in the Sustainable Waste Management
3. Group under the Chula Zero Waste Project, Chulalongkorn University, 2020
4. Outstanding Lecturer Award, Faculty of Science, Chulalongkorn University, 2014
5. Outstanding Young Lecturer Award, Chulalongkorn University, 2014

## Selected Publications

1. Choochote, P., & Supakata, N. (2025). Urban food waste generation and sustainable management strategies: A case study of Nonthaburi Municipality, Thailand. *Scientific Reports*, 15, 18405.
2. Kuekham, P., Peeraphunkuldech, N., & Supakata, N. (2024). Paving blocks produced with crushed glass and high-density polyethylene: A case study of glass bottle and plastic waste management on Si Chang Island. *Case Studies in Chemical and Environmental Engineering*, 10, 100969.
3. Kumpueng, P., Phutthimethakul, L., & Supakata, N. (2024). Production of cement mortars from glass powder and municipal incinerated bottom ash. *Scientific Reports*, 14, 1569.
4. Oludoye, O. O., & Supakata, N. (2024). Breaking the plastic habit: Drivers of single-use plastic reduction among Thai university students. *PLOS ONE*, 19(5), e0299877.
5. Oludoye, O. O., Supakata, N., Srithongouthai, S., Kanokkantaopong, V., Broucke, S., Ogunyebi, L., & Lubell, M. (2024). Pro-environmental behavior regarding single-use plastics reduction in urban-rural communities of Thailand: Implication for public policy. *Scientific Reports*, 14, 4713.
6. Oludoye, O., Broucke, S., Chen, X., Supakata, N., Ogunyebi, A., & Njoku, K. (2023). Identifying the determinants of face mask disposal behavior and policy implications: An application of the extended Theory of Planned Behavior. *Resources, Conservation & Recycling Advances*.
7. Kwanyun, P., Praditwattana, N., Phutthimethakul, L., Chart-asa, C., Intaravicha, N., & Supakata, N. (2023). Characteristics of soil amendment material from food waste disposed of in bioplastic bags. *Fermentation*, 9, 97.
8. Sukma, P., Srinok, K., Papong, S., & Supakata, N. (2022). Chula model for sustainable municipal solid waste management in university canteens. *Heliyon*, 8(10).
9. Phutthimethakul, L., & Supakata, N. (2022). Partial replacement of municipal incinerated bottom ash and PET pellets as fine aggregate in cement mortars. *Polymers*, 14, 2597.
10. Klomklang, U., Kulsirilak, N., Intaravicha, N., & Supakata, N. (2021). Vermicompost from Chula Zero Waste cup and rain tree (*Samanea saman*) leaves. *Engineering Journal*, 25, 1-10.
11. Phutthimethakul, L., Kumpueng, P., & Supakata, N. (2020). Use of flue gas desulfurization gypsum, construction and demolition waste, and oil palm waste trunks to produce concrete bricks. *Crystals*, 10.
12. Apithanyasai, S., Supakata, N., & Papong, S. (2020). The potential of industrial waste: Using foundry sand with fly ash and electric arc furnace slag for geopolymers brick production. *Heliyon*, 6, 1-11.
13. 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.
14. 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.
15. 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.



# Associate Professor Roongkan Nuisin, Ph.D.

2003 Ph.D. Chulalongkorn University

1999 M.Sc. Chulalongkorn University

1996 B.Sc. Chiang Mai University

Telephone: (+66)-2-218-5199

Email: roongkan.n@chula.ac.th



Specialization:  
Materials in environment

## Research Emphasis

My research interests focused on manufacture of bio-based polymers and their application in environmental applications, such as hydrogel for soil amendment media, absorbent for wastewater treatment, and bio-active molecules immobilization carriers.

## Professional Experiences

2019-present Associate Professor, Chulalongkorn University

2010-2019 Assistant Professor, Chulalongkorn University

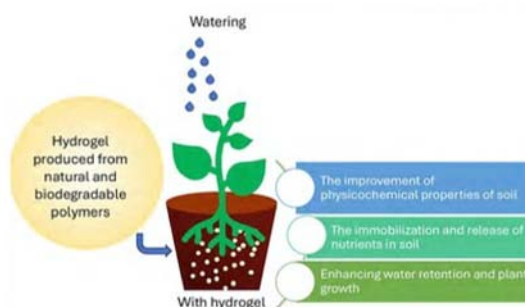
2004-2010 Lecturer, Chulalongkorn University

## Measure of Esteem

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

## Selected Publications

1. Watcharamul, S., Lerddamrongchai, S., Siripongpreda, T., Rodtassana, C., Nuisin, R., Kiatkamjornwong, S. 2022. Effects of carboxymethyl cellulose/nano-calcium carbonate hydrogel amendment of loamy sand soil for maize growth. *ACS Agricultural Science & Technology*, 2(5), 1071-1080.
2. Nuisin, R., Siripongpreda, T., Watcharamul, S., Siralermukul, K., Kiatkamjornwong, S. 2022. Facile syntheses of physically crosslinked carboxymethyl cellulose hydrogels and nanocomposite hydrogels for enhancing water absorbency and adsorption of sappan wood dye. *ChemistrySelect*, 7(10), e202104598
3. Hanh Le, T.M., Nuisin, R., Mongkolnavin, R., Painmanakul, P., Sairiam, S. 2022. Enhancing dye wastewater treatment efficiency in ozonation membrane contactors by chloro- and fluoro-organosilanes' functionality on hydrophobic PVDF membrane modification, *Separation and Purification Technology*, 120711
4. Asavasuthiphan, V., Nuisin, R., Kraiya, C., Sukwattanasinitt, M., Rashatasakhon, P. 2021. Ratio metric fluorescent sensor for copper(II) and phosphate ions from aminopyrene derivatives. *Photochemistry and Photobiology*. doi: 10.1111/php.13569.
5. Siralermukul, K., Yuenyaw, N., Watcharamul, S., Nuisin, R. 2021. Facile fabrication of chi tosan/starch composite films with fumed silica as an additive, *Engineering Journal*, 25(9), 45-53.
6. Hanh Le, T.M., Singto, S., Sajomsang, W., Mongkolnavin, R., Nuisin, R., Painmanakul, P., Sairiam, S. 2021. Hydrophobic PVDF hollow fiber membrane modified with pulse inductively coupling plasma activation and chloroalkylsilanes for efficient dye wastewater treatment by ozonation membrane contactor, *Journal of Membrane Science*, 635,
7. Saelim, T., Sairiam, S., Siralermukul, K., Watcharamul, S., Nuisin, R. 2020. Chitosan beads as the adsorbent for glyphosate removal from an aqueous solution. *Journal of Metals, Materials, and Minerals*, 30(3), 72-82.





# Associate Professor Sitthichok Puangthongthub, Ph.D.

- 2006 Ph.D. University of North Carolina at Chapel Hill
- 2002 M.Sc. University of North Carolina at Chapel Hill
- 1999 M.Sc. Mahidol University
- 1995 B.Sc. Mahidol University

Telephone: (+66)-2-218-5189

Email: sitthichok.p@chula.ac.th



## Specialization:

Geostatistical environmental mapping,  
Air pollution exposure and health risk assessment,  
Air pollution epidemiology, Occupational exposure  
control technology and epidemiology

## Research Emphasis

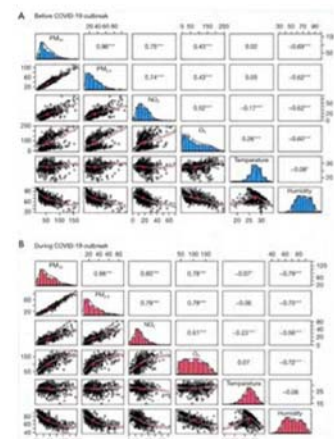
I am currently working on how to predict ambient air pollutants such as ozone and fine particulate matters using data over decades of their co-pollutants and metrological parameters through multivariate regression models. Results can be used to understand how these pollutants would be fluctuating over 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.

## Professional Experiences

- 2013-present Board of Directors, The Thai Society of Higher Education Institute on Environment
- 2014-2018 Head, Department of Environmental Science, Chulalongkorn University
- 2013,2015,2017 Working committee, The 2nd, 3rd and 4th EnvironmentAsia International Conferences
- 2013-2014 Working committee of Thai Qualifications Framework for Higher Education (Environmental Science), The Higher Education Commission
- 2012 Secretary, Department of Environmental Science, Chulalongkorn University
- 1995-1996 Occupational Health and Safety Officer, The CPAC Roof Tile Company Limited, Siam Cement Group

## Selected Publications

- 1.Roudreo, B., & Puangthongthub, S. (2024). A decreased impact of air pollution on hospital pneumonia visits during COVID-19 outbreak in northeastern Thailand. *Journal of Thoracic Disease*, 16(1), 133.
- 2.Roudreo, B., & Puangthongthub, S. (2024). Alleviation of PM2. 5-associated Risk of Daily Influenza Hospitalization by COVID-19 Lockdown Measures: A Time-series study in northeastern Thailand. *Journal of Preventive Medicine and Public Health= Yebang Uihakhoe chi*.
- 3.Sombatsawat, E., Siritwong, W., & Puangthongthub, S. (2023). Risk factors, erythrocyte acetylcholinesterase inhibition, and self-reported symptoms of pesticide intoxication among farmers in Thailand: a cross-sectional study. *Roczniki Państwowego Zakładu Higieny*, 74(1).



# Associate Professor Sarawut Srithongouthai, Ph.D.

2004 Ph.D. Ehime University  
2001 M.Sc. Kagawa University  
1996 B.Sc. Kasetsart University

Telephone: (+66)-2-218-5194  
Email: sarawut.sr@chula.ac.th



Specialization:  
Integrated Risk Assessment of Microplastics  
and Heavy Metals in Marine Ecosystem

## Research Emphasis

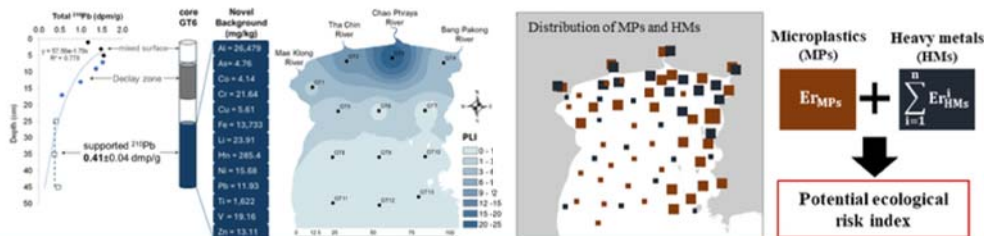
My research focuses on the combined ecological risks of microplastics and heavy metals in marine ecosystems. Microplastics act not only as physical pollutants but also as carriers for toxic metals, increasing their bioavailability and toxicity. Their co-occurrence can lead to synergistic effects, including enhanced bioaccumulation, oxidative stress, and food web contamination. My study aims to investigate their distribution, interactions, and ecotoxicological impacts, providing a foundation for integrated risk assessment and pollution management in coastal and estuarine environments.

## Professional Experiences

- 2025-present Associate Professor, Department of Environmental Science, Chulalongkorn University
- 2016-2024 Assistant Professor, Department of Environmental Science, Chulalongkorn University
- 2008-2016 Lecturer, Department of Environmental Science, Chulalongkorn University
- 2004-2008 Post Doctorial Researcher, Prefectural University of Kumamoto, Japan

## Selected Publications

- Vibhatabandhu, P., Leelakun, P., Yottiam, A., Damrong Siri, S., Hawangchu, Y., Supakata, N., Kanokkanta pong, V., & Srithongouthai, S. (2025). Impact of seasonal variations on microplastic accumulation and characteristics in sandy beaches of Sichang Island, the inner Gulf of Thailand. *Marine Pollution Bulletin*, 215. <https://doi.org/10.1016/j.marpolbul.2025.117936>.
- Vibhatabandhu, P., Leelakun, P., Yottiam, A., Kanokkanta pong, V., & Srithongouthai, S. (2025). Integration of microplastics and heavy metals in the potential ecological risk index: Spatial pollution assessment of sediments in the inner Gulf of Thailand. *Chemosphere*, 376. <https://doi.org/10.1016/j.chemosphere.2025.144280>.
- Yottiam, A., Chaikaew, P., Kulsawat, W., & Srithongouthai, S. (2025). Application of novel background criteria for assessing metal contamination in sediments of the inner Gulf of Thailand. *Chemosphere*, 375. <https://doi.org/10.1016/j.chemosphere.2025.144235>.
- Tang-siri J., Vibhatabandhu P., Srithongouthai S., (2024). Occurrence of microplastics and ecological risk assessment during tidal changes in the Chao Phraya River estuary, Thailand. *Marine Environmental Research*, 200, 106647. <https://doi.org/10.1016/j.marenvres.2024.106647>.
- Vibhatabandhu P., Prachayakul T., Tang-siri J., Benmas P., Srithongouthai S., Kanokkanta pong V. (2024). Effect of tidal current on the settling and accumulation of microplastics in the Chao Phraya River estuary, Thailand. *Marine Pollution Bulletin* 200, 116068. <https://doi.org/10.1016/j.marpolbul.2024.116068>.
- Oludoye O.O., Supakata N., Srithongouthai S., Kanokkanta pong V., Broucke Van den S., Ogunyebi L., Lubell M. (2024). Pro-environmental behavior regarding single-use plastics reduction in urban-rural communities of Thailand: Implication for public policy. *Scientific Reports*, 14:4713. <https://doi.org/10.1038/s41598-024-55192-5>.
- Vibhatabandhu, P., and Srithongouthai, S. (2022). Influence of seasonal variations on the distribution characteristics of microplastics in the surface water of the Inner Gulf of Thailand. *Marine Pollution Bulletin*, 113747. <https://doi.org/10.1016/j.marpolbul.2022.113747>.
- Vibhatabandhu, P., and Srithongouthai, S. (2022). Abundance and Characteristics of Microplastics Contaminating the Surface Water of the Inner Gulf of Thailand. *Water, Air & Soil Pollution* 2022, 1-14. <https://doi.org/10.1007/s11270-022-05531-x>.



# Associate Professor Pasicha Chaikaew, Ph.D.

2014 Ph.D. University of Florida

2005 M.Sc. Mahidol University

2004 BBA. Maejo University

Telephone: (+66)-2-218-5191; (+66)-2-218-5181

Email: pasicha.c@chula.ac.th



Specialization:

Pedometrics, Ecosystem service management,  
Environmental mapping and modeling,  
Statistics for environmental science

## Research Emphasis

My research focuses on the carbon sequestration and efflux in various soil types across continents, from tropical to the Antarctic geographical zones. My work emphasizes investigating the biogeochemical processes that control soil organic carbon stabilization and the factors influencing carbon efflux. My research also involves applying advanced statistical and geostatistical techniques, as well as predictive models, to analyze spatial and temporal variations in various environmental patterns in relation to climate change and human activities.

## Professional Experiences

2020-present Associate Professor, Chulalongkorn University

2017-2020 Assistant Professor, Chulalongkorn University

2014-2017 Lecturer, Chulalongkorn



## Selected Publications

- Mehrotra, R., Chaikaew, P., Haskin, E., Magson, K., Scott, C.M., Doherty, R. (2024). Environmental and ecological factors associated with stinging jellyfish at a tourism hotspot in the Gulf of Thailand. *Estuarine, Coastal and Shelf Science*, [Under peer-reviewing process].
- Singrakphon, V., Chart-asa, C., Chaikaew, P. (2024). Meteorological conditions and PM2.5 impact on COVID-19 case fatality ratios (CFR) in Bangkok Metropolitan Region. *Applied Environmental Research*, 46(2), 016.
- Wongkiew, S., Chaikaew, P., Takrattanasaran, N., Khamkajorn, T. (2022). Evaluation of nutrient characteristics and bacterial community in agricultural soil groups for sustainable land management. *Scientific Reports*, 12(1), 7368.
- Toolkiattiwong, P., Chaikaew, P., Chart-asa, C. (2022). Comparative human-ecotoxicological impacts and willingness to pay: A case of pesticide transition from paraquat to atrazine in sweet corn cultivation in Thailand. *EnvironmentalAsia*, 50-55.
- Moonrut, N., Takrattanasaran, N., Khamkajorn, T., Chaikaew, P. (2021). Integrated remote sensing and GIS approaches for land degradation neutrality (LDN) assessment in the agricultural area. *IOP Conference Series: Earth and Environmental Science*, 626(1), 012025.
- Chaikaew, P., Adeyemi, O., Hamilton, A.O., Clifford, O. (2020). Spatial characteristics and economic value of threatened species (*Khaya ivorensis*). *Scientific Reports*, 10(1), 6266.
- Adeyemi, O., Chriwa, P.W., Babalola, F.D., Chaikaew, P. (2020). Detecting trade-offs, synergies and bundles among ecosystem services demand using sociodemographic data in Omo Biosphere Reserve, Nigeria. *Environment, Development and Sustainability*, 23, 7310-7325.
- Chaikaew P., Rugkarn, N., Pongpipatwattana, V., Kanokkantapong, V. (2019). Enhancing ecological economic efficiency of intensive shrimp farm through in-out nutrient budget and feed conservation ratio. *Sustainable Environment Research*, 29, 1-11.
- Yottiam, A., Chaikaew, P., Srithongouthai, S. (2019). Arsenic pollution assessment in surface sediment of the inner Gulf of Thailand. *IOP Conference Series: Earth and Environmental Science*, 345(1), 012010.

## Research Outreach

- Appleby, D., Yamabe-Ledoux, A.M., Watabe, A., Arisman, Chaikaew P., Diola, B.L., Phong, D.D., Sadie, N.T., Supakata, N. (2024). Breaking the plastic habit: A guidance note and practical toolkit, Lessons from single-use plastic behaviour change interventions in Indonesia, the Philippines, Thailand, and Viet Nam. Available at: <https://www.iges.or.jp/en/pub/breaking-plastic-habit-guidance-note-and-practical-toolkit-lessons-single-use-plastic-behaviour>
- Chaikaew, P., Bunditsakulchai, P, Pongkijvorasin, S. (2022). In: Nonthaburi in 2023: Envisioning 1.5-Degree Lifestyles. Policy Report. Institute for Global Environmental Strategies, Hayama, Japan. Available at: <https://www.oneplanetnetwork.org/knowledge-centre/resources/nonthaburi-2030-envisioning-15-degree-lifestyles>

# Associate Professor Sermpong Sairiam, Ph.D.

2013 Ph.D. Chulalongkorn University

2009 M.Sc. Chulalongkorn University

2007 B.Sc. Chulalongkorn University

Telephone: (+66)-2-218-5183

Email: Sermpong.S@chula.ac.th



Specialization:

Wastewater treatment technology: Membrane technology and Advanced Oxidation Processes (AOPs) for environmental applications

## 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.

## Professional Experiences

2023-present Associate Professor, Chulalongkorn University

2020-2022 Assistant Professor, Chulalongkorn University

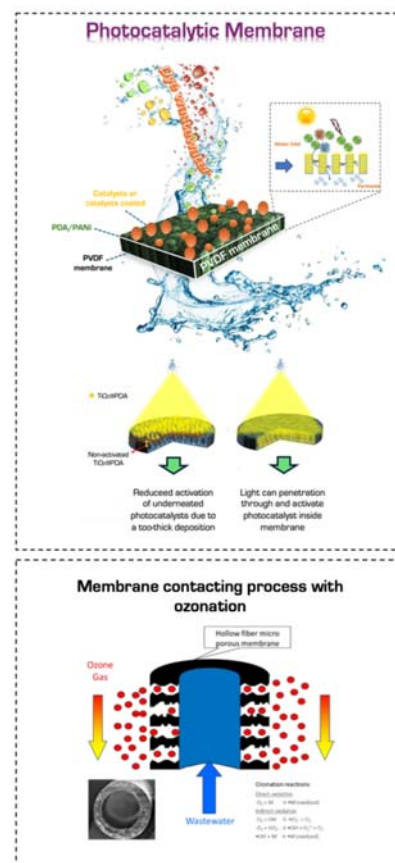
2015-2020 Lecturer, Chulalongkorn University

## Measure of Esteem

Best Young Scientist Oral Presentation Award from the 2019 International Conference on the "Challenges in Environmental Science and Engineering" (CESE-2019)

## Selected Publications

1. Le, T.H.M., Can, L., Yining, Z., Rong, W., and Sairiam, S. 2024. Durable PVDF photocatalytic membranes with  $\text{TiO}_2$ @PDA incorporated into/onto for dye degradation under visible-light. *Chemical Engineering Journal* 499: 156215.
2. Raksaman, S., Kloysuwan, C., Khruetakham, A., and Sairiam, S. 2024. Effect of spunbond nonwoven microplastics on dye wastewater treatment via hydrogen peroxide-based catalyst-assisted advanced oxidation processes. *Environmental Advances* 17: 100567.
3. Le, T.M.H., Chuchak, R. and Sairiam, S. 2024. Empowering  $\text{TiO}_2$ -coated PVDF membranes stability with polyaniline and polydopamine for synergistic separation and photocatalytic enhancement in dye wastewater purification. *Scientific Reports* 14: 15969.
4. Le, T.M.H., Rong, W., and Sairiam, S. 2023. Self-protecting PVDF-PDA- $\text{TiO}_2$  membranes towards highly efficient and prolonged dye wastewater treatment by photocatalytic membranes. *Journal of Membrane Science* 683: 121789.
5. Le, T.M.H., Mongkolnavin, R., Nuisin, R., Painmanakul, P., and Sairiam, S. 2022. Enhancing dye wastewater treatment efficiency in ozonation membrane contactors by chloro- and fluoro-organosilanes' functionality on hydrophobic PVDF membrane modification. *Separation and Purification Technology* 288: 120711.
6. Le, T.M.H., Singto, S., Sajomsang, W., Mongkolnavin, R., Nuisin, R., Painmanakul, P., and Sairiam, S. 2021. Hydrophobic PVDF hollow fiber membrane modified with pulse inductively coupling plasma activation and chloroalkylsilanes for efficient dye wastewater treatment by ozonation membrane contactor *Journal of Membrane Science*. 635: 119443.
7. Khruetakham, A., Masomboon, J., Roongruang, J., and Sairiam, S. 2021. Efficient Reactive Blue 19 decolorization by comparison of ozonation membrane contacting process and Fenton oxidation. *RSC Advances* 11(29): 17775-17788.



# Professor Pantana Tor-ngern, Ph.D.

- 2015 Duke University. Ph.D. in Environmental Science
- 2010 Duke University. M.S. in Electrical and Computer Engineering
- 2009 Duke University. B.S.E. in Electrical Engineering and B.S. Physics (secondary)

Telephone: (+66)-2-218-5175

Email: pantana.t@chula.ac.th



LEARN MORE



Specialization:

Sap flow measurements, Forest Ecophysiology,  
Water and carbon cycling in forests,  
Impacts of climate variability on water  
and carbon dynamics in forests

## Research Emphasis

Dr. Tor-ngern is an environmental scientist specializing in forest ecophysiology, investigating climate impacts on forest water and carbon cycles. Her research monitors tree water flow using custom-made sensors to estimate forest water use and productivity—critical variables for forests' climate regulation services. After gaining experience across US high- and mid-latitude forests and establishing international collaborations, she transitioned to Thailand in 2015, focusing on tropical systems. In 2020, she initiated long-term monitoring at Khao Yai National Park, a UNESCO World Heritage site, using high-resolution water flow sensors to monitor tree water use in two successional forests. This long-term dataset will address significant knowledge gaps about climate change impacts on terrestrial ecosystems in Southeast Asia, informing conservation and climate adaptation strategies in this biodiverse, climate-vulnerable region.

## Professional Experiences

- 2019–present Associate Professor, Chulalongkorn University
- 2017–2019 Assistant Professor, Chulalongkorn University
- 2015–2017 Lecturer, Chulalongkorn University



## Measure of Esteem

1. L'Oréal-UNESCO For Women in Science International Rising Talents award (15 awardees worldwide), 2022
2. L'Oréal Thailand For Women in Science Fellowship in Biological Science, 2021
3. Best Mid-career Researcher Award in Biological Science, Faculty of Science, Chulalongkorn University, 2021
4. Best New Faculty Researcher Award in Biological Science, Faculty of Science, Chulalongkorn University, 2018

## Selected Publications

1. Teo, H.C.\*, Lamba, A., Ng, S.J.W., Nguyen, A.T., Dwiputra, A., Lim, A.J.Y., Nguyen, M.N., Tor-ngern, P., Zeng, Y., Dewi, S., Koh, L.P. Reduction of deforestation by agroforestry in high carbon stock forests of Southeast Asia. *Nature Sustainability* (January 2025) 8: 358-362.
2. Fransson, P., Lim, H., Zhao, P., Tor-ngern, P., Peichl, M., Laudon, H., Henriksson, N., Näsholm, T., Franklin, O. An eco-physiological model of forest photosynthesis and transpiration under combined nitrogen and water limitation. *Tree Physiology* (January 2025) tpae168.
3. Kulsirilak, N., Ampornpitak, R., Kasikam, N., Tor-ngern, P.\* Investigating leaf gas exchanges of common trees in two urban parks with different periods of establishment in Bangkok, Thailand. *Tropical Ecology* (January 2024) 65, 330-336.
4. Ampornpitak, R., Nathalang, A., Tor-ngern, P.\* Water-use characteristics of *Syzygium antisepticum* and *Adinandra integrerrima* in a secondary forest of Khao Yai National Park in Thailand with implications for environmental management. *PeerJ* (November 2023) 11:e16525.
5. Ampornpitak, R., Khobpee, P., Unawong, W., Leksungnoen, N., Tor-ngern, P.\* An urban tree (*Tabebuia argentea*) exhibits higher sensitivity to environmental conditions than an urban palm (*Ptychosperma macarthurii*) growing in the same roof garden: an implication for sustainable urban water use. *Applied Environmental Research* (March 2023) 45, 1: 003.
6. Yaemphum, S., Unawong, W., Tor-ngern, P.\* Sapwood area of 14 common tree species in a successional tropical forest in Thailand. *Forestry: An International Journal of Forest Research* (October 2022) 95, 4: 562-571.
7. Unawong, W., Yaemphum, S., Nathalang, A., Chen, Y., Domec, J.-C., Tor-ngern, P.\* Variations in leaf water status and drought tolerance of dominant tree species among three successional forests in Southeast Asia. *Scientific Reports* (April 2022) 12: 6882.
8. Yarnvudhi, A., Leksungnoen, N.\*, Tor-ngern, P., Premashtira, A., Thinkampheang, S., Hermhuk, S. Evaluation of regulating and provisioning services provided by a park designed to be resilient to climate change in Bangkok, Thailand. *Sustainability* (December 2021) 13: 13624
9. Surayothee, W., Buajan, S., Fu, P., Pumijumnong, N., Fan, Z., Panthi, S., Finnegan, P.M., Zhang, Y., Chen, Y., Tor-ngern, P., Chanthorn, W., Nathalang, A., Brockelman, W.Y. Growth-climate relationships and long-term growth trends of the tropical forest tree *Choerospondias axillaris* (Anacardiaceae) in East-Central Thailand. *Forests* (December 2021) 12, 12: 1655.
10. Rodtassana, C., Unawong, W., Yaemphum, S., Chanthorn, W., Chawchai, S., Nathalang, A., Brockelman, W., Tor-ngern, P.\* Different responses of soil respiration to environmental factors across forest stages in a Southeast Asian forest. *Ecology and Evolution* (October 2021) 11, 21: 15430-15443.
11. Gutierrez Lopez, J.\*, Tor-ngern, P., Oren, R., Kozii, N., Laudon, H., Hasselquist, N.J. How tree species, tree size, and topographical location influenced tree transpiration in northern boreal forests during the historic 2018 drought. *Global Change Biology* (July 2021) 27, 13: 3066-3078.
12. Tor-ngern, P.\*, Chart-asa, C., Chanthorn, W., Rodtassana, C., Yampum, S., Unawong, W., Nathalang, A., Brockelman, W., Srinoppawan, K., Chen, Y., Hasselquist, N.J. Variation of leaf-level gas exchange rates and leaf functional traits of dominant trees across three successional stages in a Southeast Asian tropical forest. *Forest Ecology and Management* (March 2021) 489: 119101.
13. Andriyas, T., Leksungnoen, N., Tor-ngern, P.\* Comparison of water-use characteristics of tropical tree saplings with implications for forest restoration. *Scientific Reports* (January 2021) 11, 1745
14. Vernay, A.\*, Tian, X., Chi, J., Linder, S., Mäkelä, A., Oren, R., Peichl, M., Stangl, Z.R., Tor-ngern, P., Marshall, J.D. Estimating canopy gross primary production by combining phloem stable isotopes with canopy and mesophyll conductances. *Plant, Cell and Environment* (June 2020) 43, 9: 2124-2142.
15. Kozii, N., Hahti, K., Tor-ngern, P., Chi, J., Hasselquist, E.M., Laudon, H., Launiainen, S., Oren, R., Peichl, M., Wallerman, J., Hasselquist, N.J.\* Partitioning growing season water balance within a forested boreal catchment using sap flux, eddy covariance, and a process-based model. *Hydrology and Earth System Sciences* (June 2020) 24: 2999-3014.
16. Tor-ngern, P.\*, N. Leksungnoen. Investigating carbon dioxide absorption by urban trees in a new park of Bangkok, Thailand. *BMC Ecology* (April 2020) 20, 1:20.



# Chidsanuphong Chart-asa, Ph.D.

- 2014 Ph.D. The University of North Carolina at Chapel Hill
- 2005 M.Sc. Mahidol University
- 2001 B.Sc. Thammasat University
- 2024 B.Sc. Sukhothai Thammathirat Open University

Telephone: (+66)-2-218-5192

Email: chidsanuphong.c@chula.ac.th, chidsanuphong@gmail.com



**Specialization:**  
Environmental data analysis,  
Environmental burden of disease assessment

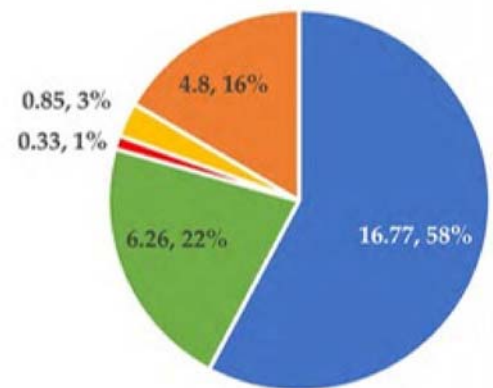
## Professional Experiences

- 2018–present Lecturer, Chulalongkorn University
- 2014–2018 Lecturer, Mae Fah Luang University

## Selected Publications

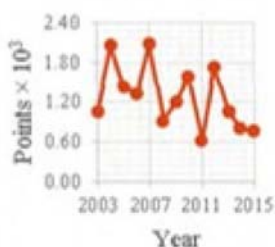
- Kwanyun, P., Praditwattana, N., Phutthimethakul, L., Chart-Asa, C., Intaravicha, N., & Supakata, N. (2023). Characteristics of Soil Amendment Material from Food Waste Disposed of in Bioplastic Bags. *Fermentation*, 9(2), 97.
- Toolkiattiwong, P., Chaikaew, P., & Chart-Asa, C. (2022). Comparative Human-Ecotoxicological Impacts and Willingness to Pay: A Case of Pesticide Transition from Paraquat to Atrazine in Sweet Corn Cultivation in Thailand. *EnvironmentAsia*, 15.
- Chart-asa, C. (2021). Spatial-temporal patterns of MODIS active fire/hotspots in Chiang Rai, upper northern Thailand and the greater mekong subregion countries during 2003-2015. *Applied Environmental Research*, 43(3), 121-131.
- Tor-ngern, P., Chart-asa, C., Chanthorn, W., Rodtassana, C., Yampum, S., Unawong, W., ... & Hasselquist, N. J. (2021). Variation of leaf-level gas exchange rates and leaf functional traits of dominant trees across three successional stages in a Southeast Asian tropical forest. *Forest Ecology and Management*, 489, 119101.

Waste generate quantity (kg/day)

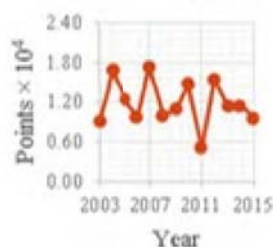


- General waste
- Food waste
- COVID-19-associated waste
- Recyclable waste
- Incinerable waste

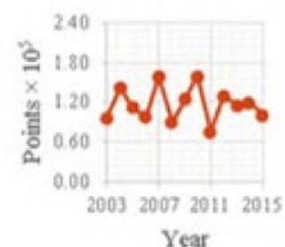
CRI study area



UNT study area



GMS study area



# Jatuwat Sangsanont, Ph.D.

- 2011 Ph.D. University of Tokyo
- 2008 M.Eng. University of Tokyo
- 2006 B.Eng. Chulalongkorn University

Telephone: (+66)-2-218-5193  
Email: jatuwat.s@chula.ac.th

Specialization:  
Health-related water microbiology,  
Disinfection, Water treatment

## Research Emphasis

Jatuwat's research focused on wastewater-based epidemiology for waterborne pathogens, water disinfection, and microbial risk assessment. His study aims to prevent illnesses associated with human exposure to viral contaminated water and to quantify disease risks and burdens.

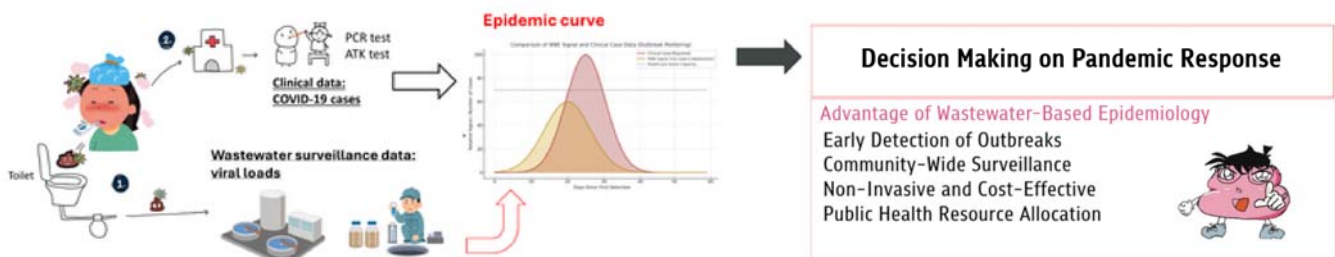
## Professional Experiences

- 2019-present Lecturer, Chulalongkorn University
- 2017-2018 Postdoctoral Researcher, University of Colorado Boulder
- 2012-2017 Postdoctoral Researcher, University of Tokyo

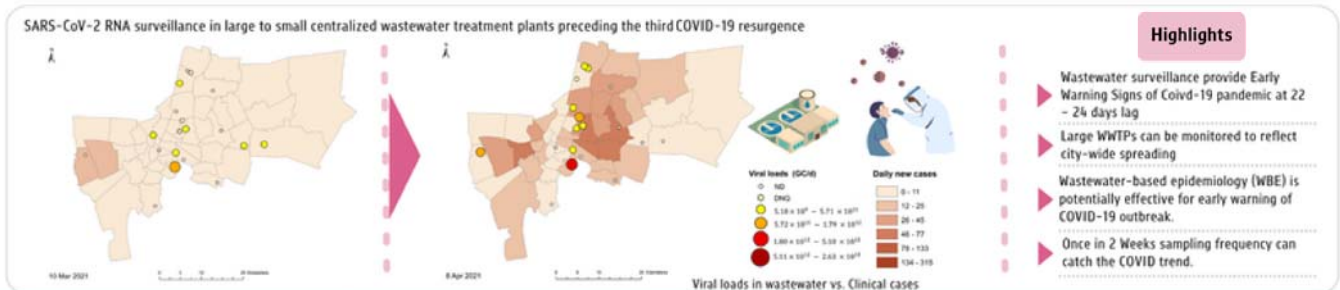
## Selected Publications

- Sangsanont, J., Rattanakul, S., Makkaew, P., Precha, N., Rukthanapitak, P., Sresung, M., ... & Sirikanchana, K. (2023). Wastewater monitoring in tourist cities as potential sentinel sites for near real-time dynamics of imported SARS-CoV-2 variants. *Science of The Total Environment*, 860, 160317.
- Sangsanont, J., Rattanakul, S., Kongprajug, A., Chyerochana, N., Sresung, M., Sriporatana, N., ... & Sirikanchana, K. (2022). SARS-CoV-2 RNA surveillance in large to small centralized wastewater treatment plants preceding the third COVID-19 resurgence in Bangkok, Thailand. *Science of The Total Environment*, 809, 151169.
- Rodriguez, R. A., Navar, C., Sangsanont, J., & Linden, K. G. (2022). UV inactivation of sewage isolated human adenovirus. *Water Research*, 218, 118496.
- Oh, Y., Sangsanont, J., Woo, H., Boczek, L. A., Linden, K. G., & Ryu, H. (2024). Inactivation efficacy and mechanisms of wavelength-specific UV sources for various strains of *Legionella pneumophila* serogroup 1. *Science of The Total Environment*, 907, 167781.

### Wastewater-Based Epidemiology (WBE) Concept



### WBE for determining early or real-time warning of SARS-CoV-2 spreading and emerging of new variants



# Associate Professor Sumeth Wongkiew, Ph.D.

- 2018 Ph.D. University of Hawai'i at Mānoa
- 2013 M.Eng. Asian Institute of Technology (AIT)
- 2011 B.Eng. Chiang Mai University
- 2024 B.Sc. Sukhothai Thammathirat Open University

Telephone: (+66)-2-2185181-2

Email: Sumeth.W@chula.ac.th



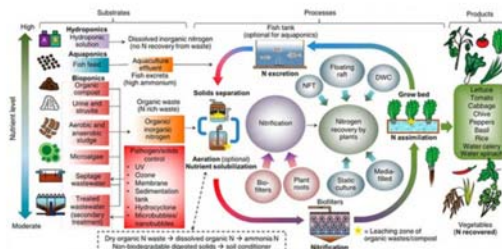
**Specialization:**  
Biological treatment, Resource recovery,  
Nitrogen cycle, Aquaponics and Bioponics

## 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.

## Professional Experiences

- 2024-present Associate Professor, Chulalongkorn University
- 2022-2024 Assistant Professor, Chulalongkorn University
- 2019-2022 Lecturer, Chulalongkorn University
- 2011, 2013 Research assistant, Asian Institute of Technology



## Selected Publications

- Wongkiew, S., Aksorn, S., Amnuaychaichana, S., Polprasert, C., Noophan, P. L., Kanokkantaopong, V., ... & Khanal, S. K. (2024). Bioponic systems with biochar: Insights into nutrient recovery, heavy metal reduction, and microbial interactions in digestate-based bioponics. *Waste Management*, 178, 267-279.
- Marcelino, K. R., Ling, L., Wongkiew, S., Nhan, H. T., Surendra, K. C., Shitanaka, T., ... & Khanal, S. K. (2023). Nanobubble technology applications in environmental and agricultural systems: Opportunities and challenges. *Critical Reviews in Environmental Science and Technology*, 53(14).
- Sangsoda, C., Sawatdeenarunat, C., & Wongkiew, S. (2025). Vermicompost versus chicken manure: Comparative effects on hemp growth, heavy metal sequestration, and root microbial communities in Rosella, Superwoman S1, and Red Robin cultivars. *Bioresource Technology Reports*, 29, 102017.
- Homyok, P., Rongsayamanont, C., Wongkiew, S., & Limpiyakorn, T. (2024). Sludge floc characteristics and microbial community in high-rate activated sludge and high-rate membrane bioreactor for organic recovery. *Science of The Total Environment*, 906, 167387.
- Marcelino, K. R., Wongkiew, S., Shitanaka, T., Surendra, K. C., Song, B., & Khanal, S. K. (2023). Micronanobubble Aeration Enhances Plant Yield and Nitrification in Aquaponic Systems. *ACS ES&T Engineering*, 3(11), 2081-2096.
- Wongkiew, S., Amnuaychaichana, S., Srithadindang, K., Paisuwan, W., Ajavakom, A., Polprasert, C., ... & Khanal, S. K. (2025). Enhancing Digestate-Based Bioponics through Ceramsite Addition with and without Biochar: Effects on Water Quality, Nutrient Recovery, Heavy Metal Removal, and Microbial Community Composition. *ACS ES&T Engineering*.
- Wongkiew, S., Polprasert, C., Noophan, P. L., Koottatep, T., Kanokkantaopong, V., Surendra, K. C., & Khanal, S. K. (2023). Effects of vermicompost leachate on nitrogen, phosphorus, and microbiome in a food waste bioponic system. *Journal of Environmental Management*, 339, 117860.
- Aksorn, S., Kanokkantaopong, V., Polprasert, C., Noophan, P. L., Khanal, S. K., & Wongkiew, S. (2022). Effects of Cu and Zn contamination on chicken manure-based bioponics: Nitrogen recovery, bioaccumulation, microbial community, and health risk assessment. *Journal of Environmental Management*, 311, 114837.
- Wongkiew, S., Chaikaew, P., Takrattanasaran, N., & Khamkajorn, T. (2022). Evaluation of nutrient characteristics and bacterial community in agricultural soil groups for sustainable land management. *Scientific reports*, 12(1), 7368.
- Wongkiew, S., Polprasert, C., Koottatep, T., Limpiyakorn, T., Surendra, K. C., & Khanal, S. K. (2022). Chicken manure-based bioponics: Effects of acetic acid supplementation on nitrogen and phosphorus recoveries and microbial communities. *Waste Management*, 137, 264-274.
- Zhou, S., Marcelino, K. R., Wongkiew, S., Sun, L., Guo, W., Khanal, S. K., & Lu, H. (2022). Untapped potential: Applying microbubble and nanobubble technology in water and wastewater treatment and ecological restoration. *ACS ES&T Engineering*, 2(9), 1558-1573.
- Wongkiew, S., Hu, Z., Lee, J. W., Chandran, K., Nhan, H. T., Marcelino, K. R., & Khanal, S. K. (2021). Nitrogen recovery via aquaponics-bioponics: Engineering considerations and perspectives. *ACS ES&T Engineering*, 1(3), 326-339.
- Wongkiew, S., Koottatep, T., Polprasert, C., Prombutara, P., Jinsart, W., & Khanal, S. K. (2021). Bioponic system for nitrogen and phosphorus recovery from chicken manure: Evaluation of manure loading and microbial communities. *Waste Management*, 125, 67-76.

# Akarapan Rojjanapinun, Ph.D.

- 2024 Professional certificate program in Sustainable Health Systems, Vaaya Alongkorn Rajabhat University,
- 2021 Ph.D. University of Massachusetts Lowell
- 2016 M.Sc. University of Massachusetts Lowell
- 2012 B.Sc. Chulalongkorn University

Telephone: (+66)-2-218-5179  
Email: Akarapan.R@chula.ac.th

 Specialization:  
Wastewater-based Epidemiology (WBE), Biosensor development for environmental monitoring, Low-cost water treatment technology

## Research Emphasis

Her research focuses on environmental and health issues, particularly the health effects of emerging contaminants, the influence of human-environment interactions on water systems, and advancements in water treatment technologies.

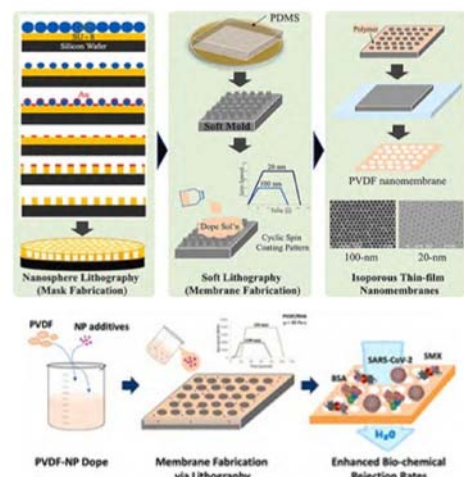
She has been developing nanocomposite membranes using hybrid lithography for the removal of organic micropollutants from water. These nanocomposite membranes are enhanced with novel materials that provide superior durability and absorptive properties, with potential applications in standard filtration processes and the photocatalytic degradation of per- and polyfluorinated alkyl substances (PFAS) and antimicrobials. In addition, the lithographic approaches were further used to functionalize quartz crystal microbalance biosensors for wastewater-based epidemiology (WBE) applications. Currently, her interest lies in adapting WBE tools to detect pathogens and drug abuse in raw sewage samples. WBE can be highly cost-efficient as it allows for tracking the prevalence of emerging infections and estimating drug abuse consumption by testing a few wastewater samples. Monitoring drug use and the transmission of pathogens through WBE can correlate with the health life-styles of community residents.

## Professional Experiences

- 2024-present Lecturer, Chulalongkorn University
- 2023-2024 Industrial Postdoctoral Researcher, National Nanotechnology Center (NANOTEC)
- 2021-2022 Postdoctoral Researcher, University of Massachusetts Lowell
- 2016-2022 Research Assistant, University of Massachusetts Lowell
- 2016-2021 Teaching Assistant, University of Massachusetts Lowell
- 2012-2013 Environmental Scientist (EIA), Thai Environmental Technique Limited

## Selected Publications

- Rojjanapinun, A., Pagsuyoin, S. A., Perman, J., & Sun, H. (2021). Low-cost nanofabrication of isoporous nanomembranes using hybrid lithography. *Polymer Testing*, 102, 107316.
- Rojjanapinun, A., & Pagsuyoin, S. A. (2021). Rice husk ash and Zr-MOF nanoparticles improve the properties and ultrafiltration performance of PVDF nanomembranes. *Results in Materials*, 12, 100234.
- Shi, X., Sadeghi, P., Lobandi, N., Emam, S., Abrishami, S. M. S., Martos-Repath, I., & Sun, N. ... X. (2023). Novel, accurate pathogen sensors for fast detection of SARS-CoV-2 in the aerosol in seconds for a breathalyzer platform. *Biosensors and Bioelectronics*: X, 14, 100369.
- Rojjanapinun, A., Pagsuyoin, S., & Luo, J. (2019, April). Occurrence of Pharmaceuticals in WWTP Influent. In 2019 Systems and Information Engineering Design Symposium (SIEDS) (pp. 1-5). IEEE.





# Kwanmanas Meethavorn, Ph.D.

- 2021 Ph.D. Chulalongkorn University
- 2013 M.Sc. The University of Nottingham
- 2011 B.Eng. Chulalongkorn University

Telephone: (+66)-2-2185181-2  
Email: Kwanmanas.M@chula.ac.th



Specialization:  
Sustainability-related policy,  
Environmental management, Sustainability,  
Circular economy, ESG, Risk management

## Research Emphasis

I am interested in public policy research for environmental management including waste management, circular economy, decarbonization but not limited.

With my passion, I would like to explore waste management/up-cycling in garment/fashion industry in the basis of circular economy principal for sustainable fashion. Additionally, I am also fascinated in sustainable tourism especially environmental management in hospitality sectors.

## Professional Experiences

**Nov '22-May'24** Consultant in Sustainability and Climate Center of Excellence, Deloitte (Thailand)

*I worked closely with Stock Exchange of Thailand (SET) to facilitate listed companies in developing their sustainability approaches in the organization through training and workshop. The examples of training and workshop are sustainability report development complying with national and international standards (i.e. form 56-1 one report and GRI) as well as ESG risks management including emerging risks and climate risks. I also do research and update sustainability-related policies to support advisory service for clients in various industries such as carbon-pricing mechanism, CBAM, energy transition, Thailand Taxonomy.*

**Mar-Oct'22** Researcher, NXPO (Office of National Higher Education Science Research and Innovation Policy Council)

*I was a team member in national water management project to reform water management structure working with TDRI and several relevant ministries. Besides, I experienced in CIRCO - circular design workshop from the Netherlands - collaborating with Global Compact Network Thailand (GCNT) to enhance sustainable products/services in Thai's factories.*

## Selected Publications

Kwanmanas Meethavorn, Chanathip Pharino (2021) Why Should Different City Characteristics Customize the Rate of Pollution Charge? Evidence of Factors Affecting Willingness-to-pay for Wastewater Management in Thailand, Applied Environmental Research, Vol 43, No.4, 2021

## Articles

Co-author - Articles: Coal Power Plant: Coal situation and technology of coal as a fuel by Chulalongkorn Engineering (4 chapters)

