



Curriculum Vitae

NAME: Racha Dejchanchaiwong	CURRENT ADDRESS: Department of Chemical Engineering & Air Pollution and Health Effect Research Center, Faculty of Engineering, Prince of Songkla University, Hat Yai, Songkhla 90112 Tel +66-89730-8887	
POSITION TITLE: Associate Professor		
E-mail address: racha.d@psu.ac.th		

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
Prince of Songkla University, Thailand	Ph.D.	2010-2016	Chemical Engineering
Prince of Songkla University, Thailand	B. Eng	2007- 2010	Chemical Engineering

POSITIONS AND EMPLOYMENT

2022-Present	Associate Professor, Department of Chemical Engineering, Faculty of Engineering, Prince of Songkla University, Thailand
2020-2022,	Assistant Professor, Department of Chemical Engineering, Faculty of Engineering, Prince of Songkla University, Thailand
2017-present,	Lecturer Department of Chemical Engineering, Faculty of Engineering, Prince of Songkla University, Thailand

COMMITTEE

2021-Present	Research and Innovation Committee, Faculty of Engineering, Prince of Songkla University, Thailand
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SCHOLARSHIP AND AWARDS:

SCHOLARSHIPS:

- Ministry of Higher Education, Science, Research and Innovation under the Reinventing University Project, and 2022 SATU-PSU JRS project, National Yang Ming Chiao Tung University, Taiwan, Year 2022.
- Short-term Internships, Taiwan Experience Education Program, Taiwan, Year 2023-2025.

AWARDS:

- Outstanding Scientific and Technological Achievement Award Year 2022, Faculty of Engineering, Prince of Songkla University
- Outstanding Young Lecturer Award Year 2024, Faculty of Engineering, Prince of Songkla University



RESEARCH AND PROJECT AWARDS AS PRINCIPAL INVESTIGATOR:

- 1. Government Research Grant** “Optimization and Evaluation energy efficiency and exergy of ribbed smoked sheet drying process using forced convection heat and mass transfer”
Budget: 440,000 Baht and **Duration:** 10/2017-12/2018
- 2. TRF Research Grant** “Flow field and filtration performance of aerosol through different configurations of granular bed filter to be used for smoke particle collection in naturally convective drying of rubber sheets.”
Budget: 600,000 Baht and **Duration:** 05/2018-05/2020
- 3. NRCT Grant** “Sources and Mapping of Nanoparticles in the Urban Atmosphere of Thailand”
Budget: 1,500,000 Baht and **Duration:** 01/2017-03/2018
- 4. TRF Research Grant** “Study of air quality and sources of major air pollution in the area of coal-fired power plant construction: case study for Thepha Power Plant in Songkhla Province”
Budget: 11,876,680 Baht and **Duration:** 05/2017-11/2019.
- 5. NRCT Grant** “Monitoring, Impact and Prevention of Kuankreng Peat Swamp Forest Fire”
Budget: 1,863,000 Baht and **Duration:** 08/2020-08/2022
- 6. TRF Research Grant** “Numerical and experimental investigations and improvement of aerosol distribution for effective protection of healthcare workers in negative pressure airborne infectious isolation room from virus infection.”
Budget: 600,000 Baht and **Duration:** 01/2021-12/2023
- 7. Fundamental Fund Year 2022** “Development of Fine and Ultrafine Particulate Matter Emission Factor from Forest Fire Emission in Northern and Southern Thailand for Emission Inventory and Source Apportionment of Atmospheric Particulate Matters”
Budget: 500,000 Baht and **Duration:** 09/2021-10/2022
- 8. Fundamental Fund Year 2022 and 2023** “Transboundary Ultrafine Aerosols, Health Effect from Peat Forest Fire in Indonesia and Empowerment of Local Communities”
Budget: 1,4500,000 Baht and **Duration:** 09/2021-10/2022
- 9. Higher Education for Industry Consortium: Hi-FI** “Development of Process and Optimal Conditions for Drying Chemical- and Bio-Sludges from Rubber Composites Industry and Feasibility Study for Solid Fuel Pellets”
Budget: 1,200,000 Baht and **Duration:** 06/2022-05/2024
- 10. Fundamental Fund Year 2024** “Development Chemical Marker for Identifications Source of Ambient Ultrafine Particles (PM_{0.1})”
Budget: 500,000 Baht and **Duration:** 09/2023-09/2024
- 11. Fundamental Fund Year 2024** “Innovation of Tissue Grossing Workstation to Reduce the Formaldehyde Dispersion in a Hospital Tissue Grossing Laboratory Room by Computational Fluid Dynamics”
Budget: 500,000 Baht and **Duration:** 09/2023-09/2024
- 12. Development, Research and Innovation (PMU-B)** “Development of an Empirical Model using PM_{2.5} concentrations to Assess Mass and Chemical Concentrations of PM_{0.1} in Southern Thailand”
Budget: 2,042,493 Baht (Y01) and 1,341,406 Baht (Y02) and **Duration:** 04/2023-03/2026
- 13. Fundamental Fund Year 2025** “Health Effect of Physio-chemical Characteristics of Nanoparticles (PM_{0.1}) and Volatile Organic Compounds in Thailand’s Economic Area”
Budget: 5,000,000 Baht and **Duration:** 09/2024-09/2025



ORGANIZING INTERNATIONAL WORKSHOPS OR MEETINGS

Date	Topics
24-25 March 2021	Environmental Science, Engineering and EA-NanoNet, The 8th Prince of Songkla University - Kanazawa University Joint Workshop (8th PSU-KZU-JWS), the 8th Workshop on East Asia Nanoparticle Monitoring Network (EA-NanoNet-8) and the 8th Workshop on Environmental Issues related to Agriculture and Agro-industries in Southeast Asia (EIAA-8).
9-14 February 2022	Transboundary Ultrafine Aerosols, Health Effect from Peat Forest Fire in Indonesia and Empowerment of Local Communities, The State Islamic University of Sultan Syarif Kasim, Pekanbaru, Riau (SUSKA RIAU) & University of Riau, Indonesia
2-4 February 2024	Editor, The 10th International Conference on Engineering and Technology (ICET-2024)

SERVING AS AN INTERNATIONAL REVIEWER:

- Aerosol and Air Quality Research (Review date: 23 Jan 2023)
- ACS Applied Nano Materials (Review date: 9 Apr 2023)
- Atmospheric Pollution Research (Review date: 7 Feb 2024)
- Journal of Environmental Pollution (Review date: 11 Jul 2024)
- Journal of Building and Environment (Review date: 12 Sep 2024)
- Journal of Environmental Sciences (Review date: 4 Apr 2025)
- Journal of Environmental Pollution (Review date: 7 Apr 2025)

POSTGRADUATE ADVISORY:

Master's degree:

1. Mr. Chaivot Sresawrad (Year 2019-2021)
2. Miss Preyapron Promsiri (Year 2019-2022)
3. Miss Napawan Mahasakpan (Year 2019-2021)
4. Miss Phatsarakron Chaisongkeaw (Year 2019-2022)
5. Mr. Pengneung Inthararuk (Year 2020-2023)
6. Miss Thanchanok Kaeopphet (Year 2020-2023)
7. Mr. Tulyatut Naruephai (Year 2022-2023)
8. Miss Panita Kwanmeung (Year 2022-2024)
9. Mr. Thongchai Phonsawas (Year 2022-2024)
10. Mr. Chayakorn Siripaisan (Year 2022-Present)
11. Miss Chanakarn Boonyarit (Year 2023-Present)
12. Mr. Jirapat Khongsong (Year 2023-Present)
13. Mr. Ratchanon Lukkanapan (Year 2024-Present)

Doctoral degree:

1. Miss Nodchonee Nim (Year 2019-2024)
2. Miss Laddawan Noynoo (Year 2021-Present)
3. Miss Nichakarn Vichayarom (Year 2021-Present)
4. Mr. Rachane Malinee (Year 2022-Present)

Post-Doctoral degree:

1. Miss Nodchonee Nim (Year 2025-Present)

COMPUTER SKILLS

- Computational Fluid Dynamics (CFD): Fluent, Ansys and COMSOL Multi-physical models
- Air pollution transport model: Weather Research and Forecasting (WRF) model coupled with Chemistry (WRF-Chem)

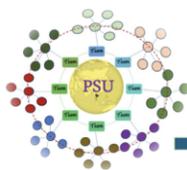


SCOPUS H INDEX:

H-index = 12

PUBLICATIONS:

1. **Dejchanchaiwong, R.**, Tirawanichakul, Y., Tirawanichakul, S. and Tekasakul, P. "Single-phase and multiphase models for temperature and relative humidity calculations during forced convection in a rubber-sheet drying chamber," *Maejo International Journal of Science and Technology*, 8 (2), 207-220, 2014. ISI, IF (2016): 0.312, Q:3
2. Tekasakul, P., **Dejchanchaiwong, R.**, Tirawanichakul, Y., Tirawanichakul, S. "Three-dimensional numerical modeling of heat and moisture transfer in natural rubber sheet drying process," *Drying Technology*, 33, 1124-1137, 2015. ISI, IF (2016): 1.976, Q:1
3. **Dejchanchaiwong, R.**, Arkasuwan, A., Kumar, A. and Tekasakul, P. "Mathematical modeling and performance investigation of mixed-mode and indirect solar dryers for natural rubber sheet drying," *Energy Sustainable Development*, 34, 44-53, 2016. ISI, IF (2016): 2.790, Q:1
4. **Dejchanchaiwong, R.**, Tirawanichakul, Y., Tirawanichakul, S., Kumar, A. and Tekasakul, P. "Techno-Economic Assessment of Forced-Convection Rubber Smoking Room for Rubber Cooperatives Energy, 137, 152-159, 2017. ISI, IF (2016): 4.520, Q:1
5. **Dejchanchaiwong, R.**, Tirawanichakul, Y., Tirawanichakul, S., Kumar, A. and Tekasakul, P. "Conjugate heat and mass transfer modeling of a new rubber smoking room and experimental validation," *Applied Thermal Engineering*, 102, 761-770, 2017. : ISI, IF (2016): 3.356, Q:1
6. **Dejchanchaiwong, R.**, A, Kumar, A., Tekasakul, P. "Performance and economic analysis of natural convection-based rubber smoking room for rubber cooperatives in Thailand," *Renewable Energy*, 132, 233-242, 2019. ISI, IF (2019): 4.9, Q:1
7. Ajani, C., Curcio, S., **Dejchanchaiwong, R.**, Tekasakul, P. "Influence of shrinkage during natural rubber sheet drying: Numerical modeling of heat and mass transfer," *Applied Thermal Engineering*, 149, pp.798-806, 2019. ISI, IF (2019): 3.771, Q:1
8. Chomane, J., Thongboon, K., Tekasakul, S., Furuuchi, M., **Dejchanchaiwong, R.**, Tekasakul, P., 2020. Physicochemical and toxicological characteristics of nanoparticles in aerosols in southern Thailand during recent haze episodes in lower Southeast Asia", *Journal of Environmental Sciences*, 2020: ISI, IF (2018): 3.556, Q1.
9. **Dejchanchaiwong, R.**, Tekasakul, P. Tekasakul, S., Phairuang, W., Nim, N., Thongboon, K., Rhongyen, T., Suwattiga, P., "Impact of transport of fine and ultrafine particles from biomass open burning on air quality during 2019 bangkok haze episode", *Journal of Environmental Sciences*, 2020: ISI, IF (2020): 5.565, Q1.
10. Sakulkit, P., Palamanit, A., **Dejchanchaiwong, R.**, Reubroycharoen, P., "Characteristics of pyrolysis products from pyrolysis and co-pyrolysis of rubber wood and oil palm trunk biomass for biofuel and value-added applications", *Journal of Environmental Chemical Engineering*, 8(6), 104561, 2020: ISI, IF (2018): 4.3, Q1.
11. **Dejchanchaiwong, R.**, Charoenkwan, N., Otani, Y., Tekasakul, P. "Numerical study on combined cyclone-filter aerosol collector performance", *Particulate Science and Technology*, 1-10, 2021: ISI, IF (2019): 1.424, Q3
12. **Dejchanchaiwong, R.** and Tekasakul, P. "Effects of coronavirus induced city lockdown on PM_{2.5} and gaseous pollutant concentrations in Bangkok", *Aerosol and Air Quality Research*, 2021: ISI, IF (2020): 3.063, Q2.
13. Sresawasd, C., Chetianukornkul, T., Suriyawong, P., Tekasakul, S., Furuuchi, M., Hata, M., Malinee, R., Tekasakul, P., **Dejchanchaiwong R.** 2021. Influence of meteorological conditions and fire hotspots on PM_{0.1} in northern Thailand during strong haze episodes and carbonaceous aerosol characterization. *Aerosol and Air Quality Research*, 21 (11), 210069. ISI, IF (2020): 3.063, Q2.
14. Paoin, K., Ueda, K., Vathesatogki, P., Ingviya T., Buya, S., **Dejchanchaiwong R.**, et al., 2022. Long-term air pollution exposure and decreased kidney function: A longitudinal cohort study in Bangkok Metropolitan Region, Thailand from 2002 to 2012. *Chemosphere*. 287, 132117. ISI, IF (2020): 6.765, Q1.
15. Mahasakpan, N., Chaisongkaew, P., Inerb, M., Nim, N., Phairuang, W., Tekasakul, S., Furuuchi, M., Hata, M., Kaosol, T., Tekasakul, P., **Dejchanchaiwong, R.** 2022. Fine and ultrafine particle- and gas-polycyclic aromatic hydrocarbons affecting southern Thailand air quality during transboundary haze and potential health effects. *Journal of Environmental Sciences*, 124, 253-267. ISI, IF (2020): 5.565, Q1.



16. Promsiri, P., Tekasakul, S., Thongyen, T., Suwattiga, P. John M., Talib, L.M., Tekasakul, P., **Dejchanchaiwong, R.** 2023. Transboundary haze from peatland fires and local source-derived PM_{2.5} in Southern Thailand. *Atmospheric Environment*, 294, 119512.
17. **Dejchanchaiwong, R.**; Tekasakul, P.; Saejio, A.; Limna, T.; Le, T.-C.; Tsai, C.-J.; Lin, G.-Y.; Morris, J. 2023. Seasonal field calibration of low-cost PM_{2.5} sensors in different locations with different sources in Thailand. *Atmosphere* 14, 496.
18. Mishra, M., Chen, P.H., Bisquera, W., Lin, G.Y., Le, T.C., **Dejchanchaiwong, R.**, Tekasakul, P., Jhang, C.W. Wu, C.J., Tsai, C.J., 2023. Source-apportionment and spatial distribution analysis of VOCs and their role in ozone formation using machine learning in central-west Taiwan, *Environmental Research*, 232, 116329.
19. Chaisongkaew, P., **Dejchanchaiwong, R.**, Inerb, M., Mahasakpan, N., Nim, N., Samae, H., Intra, P., Morris, J., Ingviya, T., Limna, T., & Tekasakul, P. 2023. Source apportionment of PM_{2.5} in Thailand's deep south by principal component analysis and impact of transboundary haze. *Environmental science and pollution research international*, 30(38), 89180–89196.
20. Gung-Hwa Hong, Thi-Cuc Le, Guan-Yu Lin, Hung-Wen Cheng, Jhih-Yuan Yu, **Racha Dejchanchaiwong**, Perapong Tekasakul, Chuen-Jinn Tsai. 2023. Long-term field calibration of low-cost metal oxide VOC sensor: Meteorological and interference gas effects, *Atmospheric Environment*, 310, 119955.
21. Nim N., Morris, J., Tekasakul, P., **Dejchanchaiwong, R.**, Fine and ultrafine particle emission factors and new diagnostic ratios of PAHs for peat swamp forest fires, *Environmental Pollution*, 335, 2023, 122237.
22. Paramanit, A., Kongto, P., Chaiprapat, S., **Dejchanchaiwong, R.**, Chungcharoen, T., Wae-Hayee, M., 2023. Exploration of characteristics and synthesis gas suitability for heat generation of coffee biomass pellets produced by single and co-pelletization, *Environmental science and pollution research international*, 30 (60), 125889 – 125906.
23. Lin, G.Y., Cheng, Y.H., **Dejchanchaiwong, R.**, 2024. Insight into Secondary Inorganic Aerosol (SIA) production enhanced by domestic ozone using a machine learning technique, *Atmospheric Environment*, 316, 120194.
24. Mishra, M., Chen, P.H., Lin G.Y., Ngyyen, T.N., Le, T.C., **Dejchanchaiwong R.**, Tekasakul, P., Shih, S.H., Jhang, C.W., Tsai, C.J. 2024. Photochemical oxidation of VOCs and their source impact assessment on ozone under de-weather conditions in Western Taiwan. *Environmental Pollution*, 346, 123662.
25. Kaeophet, T., **Dejchanchaiwong, R.**, Tekasakul, P., Phonsahwat, T., Khongprom, P., Ingviya, T., Kongkamol, C., Morri, J. 2024 Ventilation improvement for effective protection of healthcare workers in negative pressure airborne infectious isolation room from viral aerosols. *Building and Environment* 259, 11665.
26. Stratoulia, D., Nuthammachot, N., **Dejchanchaiwong, R.**, Tekasakul, P., Carmichael, G.R., 2024 Recent Developments in Satellite Remote Sensing for Air Pollution Surveillance in Support. *Remote Sensing*. 16,2932.
27. Intharak, P., **Dejchanchaiwong, R.**, Tekasakul, P., Palamanit, A., Morris, J., 2024. Energy and exergy analysis for fast drying of ribbed smoked sheets in a novel forced-convection rubber smoking room. *Thermal Science and Engineering Process*. 15, 102953
28. Vichayarom, N., Jaruwongrungrunsee, K., Intra, P., Le, T.C., Tsai, C.J., Morris, J., **Dejchanchaiwong, R.** Tekasakul, P., 2025. Use of electric field to enhance collection of ultrafine particles using quartz crystal microbalance. *Journal of Aerosol Science*. 184 102953.
29. Tipsavak, A., Limna, T., **Dejchanchaiwong, R.**, Tekasakul, P., Yeranee, K., Sahoh, B., Kliangkhlaio M., 2025. Deep-Learning-Based Prediction System for Ultrafine Particulate Matter (PM_{0.1}) Concentration Using Meteorological Factors. *Engineered Science*. 33, 1375.
30. Phonsahwat, T., Thitasomakul, S., Tianviwat, S., Morris, J., Tekasakul, P., **Dejchanchaiwong, R.**, 2025. Using computational fluid dynamics to minimize droplet dispersion in intraoral suction devices with a dental triple syringe. *Building and Environment* 237, 112699.

BOOK CHAPTERS:

1. **Dejchanchaiwong, R.**, Tekasakul, P., John M., Ingviya T., Talib, L.M., et al. 2022. Biomass burning in Southeast Asia and influences on atmospheric nanoparticles, *Environmental Nanopollutants: Sources, Occurrence, Analysis and Fate*, Royal Society of Chemistry. 49-81.
2. Tekasakul, P., Nuthammachot, N., Malinee, R., Morris J., **Dejchanchaiwong, R.**, 2023 Estimation of ultrafine particulate matter emissions from biomass burning using satellite imaging and burn severity. *Vegetation Fires and Pollution in Asia*, Krishna Prasad Vadrevu, Toshimasa Ohara, Chris Justice, Springer.