



# WORAWAT POLTABTIM

DEPARTMENT OF RADIOLOGIC TECHNOLOGY



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## Education

2021-2024 **Hirosaki University, Aomori, Japan.**  
Ph.D. in Radiological Health Sciences, Thesis title: "Development and feasibility study using Gafchromic XR-QA2 film as a novel passive radon measurement technique."

2018-2020 **Tsinghua University, Beijing, China.**  
M.Eng. in Nuclear Energy and Nuclear Technique Engineering, Thesis title: "Experimental Investigation of the Mechanism of Critical Heat Flux on Downward Facing Rough Surface of Reactor Core."

2014-2018 **kasetsart University, Bangkok, Thailand.**  
B.Sc. with 1<sup>st</sup> Class Hons in Nuclear Science, Thesis title: "Properties of lead-free gamma ray shielding materials from metal oxide/EPDM rubber composites."

## Research area of interest

Radiation Physics and Measurement;  
Radiation Protection and Shielding;  
Advanced Functional Materials;  
Medical and Applied Radiological  
Technology

## Research theme

1. Radiation shielding material and Materials composite development Research on innovative composite materials combining natural or synthetic polymers with fillers for enhanced radiation shielding and mechanical properties.
2. Radiation detection, measurement and Environmental radiation Development radiation surveys.
3. Environment Health and Radiation Protection Studies relating environmental radiation exposure to potential health risks.

## Publication 2020-2025

1. Moonlek, C., Wmolmala, E., Herwichian, K., Mahathanabodee, S., Poltabtim, W., Toyen, D., Lertsarawut, P., Saenboonruang, K., PEEK nanocomposites containing B<sub>2</sub>O<sub>3</sub> or BaSO<sub>4</sub>: A complete determination of X-ray shielding mechanical, thermal and wear characteristics under harsh radiation conditions (2025) Polymer Composite.
2. S. Musikawan, W. Poltabtim, K. Kheamsiri, C. Kranrod, T. Puenjit, K. Aramrun, Y. Omori, H. Tazoe, M. Hosoda, N. Akata and S. Tokonami. Natural gamma dose rate and radioactivity concentrations at a former tin mining area in Kanchaburi, Thailand. *Journal of Radioanalytical and Nuclear Chemistry*, 2025, 334(4), pp. 2929-2935, 105756
3. C. Kranrod, T. Thumvijit, R. Yanada, W. Poltabtim, M. Kiso, S. Sriburee, S. Somboon, K. Ruktinnakorn, S. Tokonami. Changes in Particulate Matter (PM<sub>2.5</sub> and PM<sub>10</sub>) Concentrations and Ambient Dose Equivalent Rates at Different Altitudes in Chiang Mai, Thailand. *Radiation Environment and Medicine*, 2024, Volume 13, Issue 1, Pages 28-34.
4. W. Poltabtim, C. Kranrod, Y. Omori, S. Musikawan, M. Hosoda, S. Tokonami, "Development and a feasibility study using Gafchromic XRQA2 films as a novel passive radon measurement technique", *Radiation Measurements*, (2023), 168(4):107012
5. S. Tokonami, C. Kranrod, P. Kazymbet, Y. Omori, M. Bakhtin, W. Poltabtim, S. Musikawan, R. Pradana, Y. Kashkinbayev, K. Zhuma dilov, A. Pirmanova, M. Aumalikova, Z. Isa, A. Sakaguchi, H. Sato and M. Hoshi, "Residential radon exposure in Astana and Aqtau, Kazakhstan", *Journal of Radiological Protection*, (2023), 43(2):023501.
6. W. Poltabtim, S. Musikawan, A. Thumwong, Y. Omori, C. Kranrod, M. Hosoda, K. Saenboonruang, and S. Tokonami, "Estimation of Ambient Dose Equivalent Rate Distribution Map Using Walking Survey Technique in Hirosaki City, Aomori, Japan", *International Journal of Environmental Research and Public Health*, (2023), 20(3):2657.
7. W. poltabtim, C. Kranrod and S. Tokonami, "An Overview of Passive-Type Detectors for Radon and Its Progeny Measurement", *Radiation Environment and Medicina*, (2022), 11(2).
8. W. poltabtim, A. Thumwong, E. Wmolmala, C. Rattanapongs, S. Tokonami, T. Ishikawa and K. Saenboonruang, "Dual X-ray- and Neutron-Shielding Properties of Gd<sub>2</sub>O<sub>3</sub>/NR Composites with Autonomous Self-Healing Capabilities", *Polymers*, (2022), 14(21):4481.
9. A. Thumwong, W. Poktabtim, P. Kerdasag and K. Saenboonruang, "Roles of Chitosan as Bio-Fillers in Radiation-Vulcanized Natural Rubber Latex and Hybrid Radiation and Peroxide-Vulcanized Natural Rubber Latex: Physical/Mechanical Properties under Thermal Aging and Biodegradability", *Polymers*, (2021), 13.
10. W. poltabtim, E. Wmolmala, T. Markpin, N. Sombatsompop, V. Rosarpitak and K. Saenboonruang, "X-ray Shielding, Mechanical, Physical, and Water Absorption Properties of Wood/PVC Composites Containing Bismuth Oxide", *Polymers*, (2021), 13, 2212.
11. K. Saenboonruang, W. Poltabtim, A. Thumwong, T. Panpait and C. Rattanapongs, "Rare-Earth Oxides as Alternative High-Energy Photon Protective Fillers in HDPE Composites: Theoretical Aspects", *Polymers*, (2021), 13, 1930.
12. W. poltabtim, D. Toyen and K. Saenboonruang, "Theoretical Determination of High-Energy Photon Attenuation and Recommended Protective Filler Contents for Flexible and Enhanced Dimensionally Stable Wood/NR and NR Composites", *Polymers*, (2021), 13, 869.
13. W. poltabtim, D. Toyen and K. Saenboonruang, "Comparative neutron-shielding properties of metal oxide/HDPE composites using a Monte Carlo Code of PHITS", *IOP Conference Series Materials Science and Engineering*, (2019), vol.526.
14. W. poltabtim, and K. Saenboonruang "Assessment of Activity Concentrations and their Associated Radiological Health Risks in Commercial Infant Formulas in Thailand", *Chiang Mai Journal of Science*, (2019), 46(4), 778-786.
15. W. poltabtim, E. Wmolmala and K. Saenboonruang, "Properties of lead-free gamma-ray shielding materials from metal oxide/EPDM rubber composites", *Radiation Physics And Chemistry*, (2018), vol.15, pp.1-9.
16. D. Toyen, A. Rittrong, W. Poltabtim and K. Saenboonruang, "Flexible, Lead-free, Gamma-shielding materials based on natural rubber/metal oxide composites", *Iranian Polymer Journal*, (2017), vol.27(1).