

SIWAPORN MEEJOO SMITH

ศิวพร มีजू สมิธ

Center of Sustainable Energy and Green Materials and Department of Chemistry,
Faculty of Science, Mahidol University
999 Phuttamonthon Sai 4 Road, Salaya, Nakorn Pathom, Thailand, 73170
Mobile: +66 (0)935939449, E-mail: siwaporn.smi@mahidol.edu

EDUCATION

- 2003 PhD, Chemistry, University of Birmingham, United Kingdom
- 1997 Bachelor of Science (B. Sc.), Chemistry, Mahidol University, Thailand

PROFESSIONAL APPOINTMENT

- 2018-Present Professor, Materials Technology
Mahidol University
- 2015-Present Head, Center of Sustainable Energy and Green Materials,
Faculty of Science, Mahidol University
- 2016-2019 Deputy Head
Department of Chemistry, Faculty of Science, Mahidol University, Thailand
- 2014 – 2018 Associate Professor, Physical Chemistry
- 2012-2019 Committee, Research and Administrative Affairs, Department of Chemistry,
Mahidol University
- 2012-2019 Committee, Quality Assurance, Faculty of Science, Mahidol University
- 2008 – 2018 Committee, Administrative Affairs, Materials Science and Engineering
Postgraduate Program, Mahidol University
- 2005 – 2014 Assistant Professor, Physical Chemistry
- 2006 -2008 Chairperson, Physical Chemistry Postgraduate Program,
Mahidol University
- 1998 – 2005 Lecturer, Department of Chemistry,
Faculty of Science, Mahidol University

AWARD AND HONORS

- 2024 Mahidol University's Top 1% Researcher 2024
- 2023 2023 Science and Technology Research Grant from Thailand Toray Science
Foundation
- 2022 Outstanding Staff Award, Faculty of Science, Mahidol University

2017	Endeavour Executive Fellowship, Australian Government
2016	ASEAN Science Leadership Program Fellowship, Global Yong Academy
2016	Newton Fund Professional Development Programme for Midcareer Researchers, British Council
2015	Wiley-CST Award for Contribution to Green Chemistry
2015	L'Oréal Thailand For Women in Science Fellowship Award for Materials Science Research, Thai National Commission for UNESCO
2015	Japan Science and Technology Agency (JST-Sakura) Fellowship
2015	Certified Trainer in Publishing Research, American Chemical Society
2008	Australian Leadership Award-Fellowship
2007	ASEM-Duo Fellowship
2006	University Mobility in Asia and the Pacific Program (UMAP) Fellowship
1996-2003	Full scholarship from the Development and Promotion of Science and Technology Talents Project, Thailand

RESEARCH PROJECT

2024	Principal investigator, Project: Intensification of biodiesel production from low-quality feedstocks using microwave compared with ultrasonic irradiation, The 30th Science & Technology Research Grant, Thailand Toray Science Foundation
2023-2024	Principal investigator, Project: Tailored porous catalysts derived from two-dimensional materials, Fundamental fund: Basic research grant, Thailand Science Research and Innovation Fiscal year : 2023-2024
2021-2023	Principal investigator, Project: Investigation of the catalytic combustion of Vietnam coals using metal incorporated CaO nanocatalysts, Prime Group Joint Stock Company, Vietnam.
2021-2024	Researcher and Project coordinator, Project: Creation of added value products from pineapple field residue for circular economy, Fundamental fund: Basic research grant, Thailand Science Research and Innovation Fiscal year : 2022 and 2023
2020-2022	Researcher and Sub-Project coordinator, Project: Biomass derived materials for remediation of pesticide contaminated soil and water, Global Partnership, Thailand Science Research and Innovation.
2019-2022	Researcher and Sub-Project coordinator,, International Research Network-Green Technologies Network for Sustainable Environment: Food-Water-Energy Nexus, Thailand Science Research and Innovation.
2018-2021	Principal investigator, Project: Green Adhesive derived from Cassava, National Science and Technology Development Agency, Thailand
2019-2020	Researcher, Project: Fabrication of smart composite films from nanocellulose, Agricultural Research Development Agency (Public Organization), Thailand.

2020	Researcher, Project: Effects of grinding on the ZnO properties, The Research, IRPC Public Company Limited, Thailand.
2018-2020	Researcher, The Research, Development & Innovation, 2Dto3D S.r.l.s., Italy, under EU Funds, POR FESR 2014/2020 "Innovation Poles - Strategic Research Agenda 2016 - Line B.
2015	Visiting scholar, Department of Earth Resources Engineering, Kyushu University, Japan in the group of Prof. Keiko Sasaki (3 weeks)
2019-2018	Researcher, Projected supported by the Environmental Research Group at PTT PLC. Investigating new remediation technologies for water and air pollution
2008	Visiting scholar, Institute of Nanoscale Technology, University of Technology Sydney, Australia. Hosts: Prof. Matthew Phillips and Prof. Tony Moon (8 weeks)
2007	Visiting scholar, Institute of Physical and Theoretical Chemistry, Graz University of Technology, Austria in the group of Prof. Günter Grampp (1 month)
2006	Visiting scholar, School of Chemistry, University of Sydney, Australia in the group of Prof. Peter Lay (4 months)

RESEARCH INTEREST

- Real practice innovation for circular bioeconomy
- Value creations of waste and natural resources
- Environmental materials
- Structural materials
- Semiconductors for photocatalysis and photoelectrochemical processes

RESEARCH EXPERTISE

- Photocatalytic degradation
- Advanced oxidation processes
- Catalysts and sorbents for wastewater treatments
- Esterified starch for adhesive applications
- Immobilization and surface functionalization of carbonaceous materials
- Two-dimensional materials; layered double hydroxide, graphitic carbon nitride

RESEARCH PROFILE

ORCID ID : 0000-0001-7571-3636

Scopus Author Identifier: 57195727172 *h* index: 25 (Scopus, 07 June 2024)

Citation : 1,997 (Scopus, 07 June 2024)

PUBLICATIONS (101 Documents)

1. Panchakhant, P., Wannapop, S., Yana, J., Smith, S. M., Somdee, J. Strontium ferrite oxide (Sr₃Fe₂O₇) decorated TiO₂ photoanode improves the photo-absorption and photoelectrochemical cell efficiency, *Ceramic International*, **2024**, **Accepted**
2. Yonchai, C., Kidkhunthod, P., Siriroj, S., Padchasri, J., Sonsupap, S., Nijpanich, S., Pakawanit, P., Chanlek, N., Maensiri, S., & Smith, S. M. (2024). Customized electrospun multilayer composite polymer electrolytes: PEO-PAN-NbO₂ nanofiber membrane for enhancing the performance of lithium-ion batteries. **2024**, *Materialia*, 35, 102114. <https://doi.org/10.1016/j.mtla.2024.102114>
3. Pinyo, J., Wongsagonsup, R., Boonsanong, N., Hongsanyatham, S., Somprasong, N., Khunoad, P., Suphantharika, M., Smith, S. M., Amornsakchai, T. Noodles made from blends of rice flour and pineapple stem starch: physical properties, cooking qualities, in vitro starch digestibility and sensory properties. *International Journal of Food Science and Technology*. **2024**, <https://doi.org/10.1111/ijfs.17249>
4. Nisitthichai, J., Wannaphruek, P., Sriprablom, J., Suphantharika, M., **Smith, S. M.**, Amornsakchai, T., Wongsagonsup, R.* Impact of oil addition on physicochemical properties and in vitro digestibility of extruded pineapple stem starch. *Polymers*, **2024**, 16 (2), 210. <https://doi.org/10.3390/polym16020210>
5. Han, Y.; Trakulmututa, J.; Amornsakchai, T.; Boonyuen, S.; Prigyai, N.; **Smith, S.M.*** Eggshell-derived copper calcium hydroxy double salts and their activity for treatment of highly polluted wastewater. *ACS Omega*, **2023**, 8, 49, 46663–46675. <https://doi.org/10.1021/acsomega.3c05758>
6. Srida, M.; Chen, S.-Y. ; **Smith, S. M.**; Ngamcharussrivichai, C.; Boonyuen, S.; Tateno, H.; Mochizuki, T.; Luengnaruemitchai, A.* Bifunctional mesoporous silica solid acids for transformation of glucose to 5-hydroxymethylfurfural. *Materials Today Sustainability*, **2023**, 24, 100470. <https://doi.org/10.1016/j.mtsust.2023.100470>
7. Worakitjaroenphon, S.; Shanmugam, P.; Boonyuen, S.*; **Smith, S. M.**; Chookamnerd, K. Green synthesis of silver and gold nanoparticles using *Oroxylum Indicum* plant extract for catalytic and antimicrobial activity. *Biomass Conversion and Biorefinery*, **2023**. <https://doi.org/10.1007/s13399-023-04734-4>
8. Maluangnont, T.; Pulphol, P.; Chaithawee, K.; Dabsamut, K.; Kobkeatthawin, T.; **Smith, S. M.**; Boonchun, A.; Vittayakorn, N. Alternating current properties of bulk- and nanosheet-graphitic carbon nitride compacts at elevated temperatures. *RSC Advances*, **2023**, 13, 25276–25283. <http://dx.doi.org/10.1039/D3RA04520J>
9. Srida, M.; Chen, S.-Y.; **Smith, S. M.**; Ngamcharussrivichai, C.; Boonyuen, S.; Tateno, H.; Mochizuki, T.; Luengnaruemitchai, A. Bifunctional mesoporous silica solid acids for transformation of glucose to 5-hydroxymethylfurfural. *Materials Today Sustainability*, **2023**, 24, 100470. <http://dx.doi.org/10.1016/j.mtsust.2023.100470>
10. Chaveanghong, S., Kobkeatthawin, T., Trakulmututa, J., Amornsakchai, T., Kajitvichyanukul, P., **Smith, S. M.*** Photocatalytic removal of 2-chlorophenol from water by using waste eggshell-derived calcium ferrite. *RSC Advances* **2023**, 13(26), 17565–17574. <https://doi.org/10.1039/d3ra01357j>
11. Watcharakitti, J., Nimnuan, J., Krusong, K., Nanan, S., **Smith, S. M.*** Insight into the molecular weight of hydrophobic starch laurate-based adhesives for Paper. *Polymers*, **2023**, 15 (7), 1754. <https://doi.org/10.3390/polym15071754>
12. Srikhaow, A.; Win, E. E.; Amornsakchai, T.; Kiatsiriroat, T.; Kajitvichyanukul, T.; **Smith, S. M.*** Biochar derived from pineapple leaf non-fibrous materials and its adsorption capability for

- pesticides. *ACS Omega*, **2023**, 8 (29), 26147–26157.
<https://doi.org/10.1021/acsomega.3c02328>
13. Namnoud, P.; Kongkaew, M.; Pikulthong, S.; Wongsagonsup, R.; Amornsakchai, T.; **Smith, S. M.***; Bunchuay, T.; Synthesis of tosyl starch in eco-friendly media. *New Journal in Chemistry*, **2023**. *New Journal of Chemistry*, **2023**, 47, 14134–14141.
<https://doi.org/10.1039/d3nj00830d>
 14. Namphonsane, A.; Amornsakchai, T.; Chia, C.H.; Goh, K.L.; Thanawan, S.; Wongsagonsup, R.; **Smith, S.M.** Development of biodegradable rigid foams from pineapple field waste. *Polymers* **2023**, 15(13), 2895. <http://dx.doi.org/10.3390/polym15132895>
 15. Bumrungrnok, K.; Threepopnatkul, P.; Amornsakchai, T.; Chia, C. H.; Wongsagonsup, R.; **Smith, S. M.** Toward a circular bioeconomy: exploring pineapple stem starch film as protective coating for fruits and vegetables. *Polymers*, **2023**, 15, 2493.
<https://doi.org/10.3390/polym15112493>
 16. Thongphang, C.; Namphonsane, A.; Thanawan, S.; Chia, C. H.; Wongsagonsup, R.; **Smith, S. M.**; Amornsakchai, T. Toward a circular bioeconomy: development of pineapple stem starch composite as a plastic-sheet substitute for single-use applications. *Polymers*, **2023**, 15, 2388.
<https://doi.org/10.3390/polym15102388>
 17. Sriprablom, J.; Suphantharika, M.; **Smith, S. M.**; Amornsakchai, T.; Pinyo, J.; Wongsagonsup, R. Physicochemical, Rheological, *In-vitro* digestibility, and emulsifying properties of starch extracted from pineapple stem agricultural waste. *Foods*, **2023**, 12, 2028.
<https://doi.org/10.3390/foods12102028>
 18. Namphonsane, A.; Suwannachat, P.; Chia, C. H.; Wongsagonsup, R.; **Smith, S. M.**; Amornsakchai, T. Toward a circular bioeconomy: Exploring pineapple stem starch film as a plastic substitute in single use applications. *Membranes*, **2023**, 13, 458.
<https://doi.org/10.3390/membranes13050458>
 19. **Smith, S. M.***; Lerdrittpong, W.; Woranuch, W.; Chaveanghong, S.; Ganesan, S. Synergistic Effects between acidity and the crystalline phases of thermally activated layered zn hydroxide nitrate on the methanolysis of acidic soybean oils. *Heliyon*, **2023**, 9, e15330.
<https://doi.org/10.1016/j.heliyon.2023.e15330>
 20. Ninsuwan, K.; Nimnuan, J.; Watcharakitti, J.; Siriwong, C.; Amornsakchai, T.; **Smith, S. M.*** Antifungal activity of water-based adhesives derived from pineapple stem flour with apple cider vinegar as an additive. *Polymers*, **2023**, 15, 1735. <https://doi.org/10.3390/polym15071735>
 21. Shanmugam, P.; Ngullie, R. C.; **Meejoo Smith, S.**; Boonyuen, S.; Boddula, R.; Pothu, R. Visible-light induced photocatalytic removal of methylene blue dye by copper oxide decorated zinc oxide nanorods. *Materials Science for Energy Technologies*, **2023**, 6, 359–367.
<https://doi.org/10.1016/j.mset.2023.03.001>
 22. Maluangnont, T.; Pulphol, P.; Pongampai, S.; Kobkeatthawin, T.; **Smith, S. M.**; Vittayakorn, N. TiO₂/Graphitic carbon nitride nanosheet composite with enhanced sensitivity to atmospheric water. *RSC Advances*, **2023**, 13, 6143–6152. <https://doi.org/10.1039/d3ra00045a>
 23. Shanmugam, P.; **Smith, S. M.**; Boonyuen, S.; Luengnaruemitchai, A. In-situ development of boron doped g-C₃N₄ supported SBA-15 nanocomposites for photocatalytic degradation of tetracycline. *Environmental Research*, **2023**, 224, 115496.
<https://doi.org/10.1016/j.envres.2023.115496>
 24. Trakulmututa, J., Uraisin, K.,* Pornsuwan, S., **Smith, S. M.*** Effects of acetate and nitrate ions on radical and intercalation reactions initiated by CuZn hydroxy double salts. *Materials Research Bulletin*. **2023**, 162, 112181. <https://doi.org/10.1016/j.materresbull.2023.112181>
 25. Tangsrianugul, N., Hongsanyatham, S., Kapcum, C., Sungayuth, N., Boonsanong, N., Somprasong, N., **Smith, S. M.**, Amornsakchai, T., Pinyo, J., Wongsagonsup, R.* Physicochemical and sensory properties of corn grits and pineapple stem starch-based extruded snacks enriched with oyster mushroom powder. *International Journal of Food Science and Technology*. **2023**, <https://doi.org/10.1111/ijfs.16322>
 26. Atjayutpokin, T., Eaimsumang, S., **Smith, S. M.**, Boonyuen, S., & Luengnaruemitchai, A.* Gold nanoparticles-assisted sodium borohydride supported on titania as a catalyst for the oxidative steam reforming of methanol and CO oxidation. *Materials Today Communications*. **2022**, 33, 105019. <https://doi.org/10.1016/j.mtcomm.2022.105019>

27. Ngullie, R. C., Bhuvanewari, K., Shanmugam, P., Boonyuen, S., **Smith, S. M.**, Sathishkumar, M. Magnetically recoverable biomass-derived carbon-aerogel supported ZnO (ZnO/MNC) composites for the photodegradation of methylene blue. *Catalysts*, **2022**, 12, 9, 1073. <https://doi.org/10.3390/catal12091073>
28. Trakulmututa J., Chuaicham C., Shenoy S., Srikhaow A., Sasaki K.,* **Smith S.M.*** Effect of transformation temperature toward optical properties of derived CuO/ZnO composite from Cu-Zn hydroxide nitrate for photocatalytic ciprofloxacin degradation, *Optical Materials* **2022**, 133,112941. <https://doi.org/10.1016/j.optmat.2022.112941>
29. Kobkeatthawin T., Chaveanghong S., Trakulmututa J., Amornsakchai T., Kajitvichyanukul P.,* **Smith S.M.*** **2022**, Photocatalytic activity of TiO₂/g-C₃N₄ Nanocomposites for removal of monochlorophenols from water, *Nanomaterials* **2022**, 12(16), 2852; <https://doi.org/10.3390/nano12162852>
30. Watcharakitti J., Win E. E., Nimnuan J., **Smith S. M.*** Modified starch based adhesives: A review. *Polymers*. **2022**, 14(10), 2023; <https://doi.org/10.3390/polym14102023>
31. Srikhaow A., Chaengsawang W. Kiatsiriroat T., Kajitvichyanukul P.,* **Smith S. M.*** Adsorption kinetics of imidacloprid, acetamiprid and methomyl pesticides in aqueous solution onto eucalyptus woodchip derived biochar. *Minerals*. **2022**, 12, 5, 528; <https://doi.org/10.3390/min12050528>
32. Sakuna P., Ketwong P., Ohtani B*, Trakulmututa J., Kobkeatthawin T., Luengnaruemitchai A., **Smith S.M.*** The influence of metal-doped graphitic carbon nitride on photocatalytic conversion of acetic acid to carbon dioxide. *Frontiers in Chemistry*. **2022**, <https://doi.org/10.3389/fchem.2022.825786>
33. Kobkeatthawin T., Trakulmututa J., Amornsakchai T., Kajitvichyanukul P.,* **Smith S.M.*** Identification of Active Species in Photodegradation of Aqueous Imidacloprid over g-C₃N₄/TiO₂ Nanocomposites. *Catalysts*. **2022**, 12, 2,120. <https://doi.org/10.3390/catal12020120>
34. Esan, A. O., **Smith, S. M.**, Ganesan, S. A non-conventional sustainable process route via methyl acetate esterification for glycerol-free biodiesel production from palm oil industry wastes. *Process Safety and Environmental Protection*. **2022**, 166, 402–413. <https://doi.org/10.1016/j.psep.2022.08.040>
35. Udomkun, P., Boonupara, T., **Smith, S. M.**, Kajitvichyanukul, P. Green Ag/AgCl as an effective plasmonic photocatalyst for degradation and mineralization of methylthioninium chloride. *Separations*. **2022**, 9, 8, 191.
36. Huong, V. T. T., Atjayutpokin, T., Chinwatpaiboon, P., **Smith, S. M.**, Boonyuen, S., Luengnaruemitchai, A.* Two-stage acid-alkali pretreatment of vetiver grass to enhance the subsequent sugar release by cellulase digestion. *Renewable Energy*. **2022**, 195, 755–765. <https://doi.org/10.1016/j.renene.2022.06.069>
37. Chuaicham, C., Sekar, K., Balakumar, V., Zhang, L., Trakulmututa, J., **Smith, S. M.**, & Sasaki, K.* Fabrication of hydrotalcite-like copper hydroxyl salts as a photocatalyst and adsorbent for hexavalent chromium removal. *Minerals*. **2022**, 12, 2, 182. <https://doi.org/10.3390/min12020182>
38. Chuaicham, C., Sekar, K., Balakumar, V., Zhang, L., Trakulmututa, J., Kidkhunthod, P., **Smith, S. M.***, Sasaki, K.* Enhanced photocatalytic reduction of hexavalent chromium ions over Zn-bearing in CuZn hydroxy double salts: Insight into the structural investigation using extended X-ray absorption fine structure. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. **2022**, 645, 128893. <https://doi.org/10.1016/j.colsurfa.2022.128893>
39. Esan, A. O., **Smith, S. M.**, & Ganesan, S. Dimethyl carbonate assisted catalytic esterification of palm fatty acid distillate using catalyst derived from spent bleaching clay. *Journal of Cleaner Production*. **2022**, 337, 130574. <https://doi.org/10.1016/j.jclepro.2022.130574>
40. Prokaewa, A., **Meejoo Smith, S.**, Luengnaruemitchai, A., Kandiah, M., & Boonyuen, S. Biodiesel production from waste cooking oil using a new heterogeneous catalyst SrO doped CaO nanoparticles. *Journal of Metals, Materials and Minerals*. **2022**, 32, 1, 79–85. <https://doi.org/10.55713/jmmm.v32i1.1149>
41. Deebansok S., Amornsakchai T., Sae-Ear P., Siriphannon P., **Smith S.M.*** *Journal of Environmental Chemical Engineering*. **2021**, 9, 2, 104746. <https://doi.org/10.1016/j.jece.2020.104746>

42. Esan, A. O., Olalere, O. A., Gan, C.-Y., **Smith, S. M.**, & Ganesan, S. Synthesis of biodiesel from waste palm fatty acid distillate (PFAD) and dimethyl carbonate (DMC) via Taguchi optimisation method. *Biomass and Bioenergy*. **2021**, 154, 106262). <https://doi.org/10.1016/j.biombioe.2021.106262>
43. Esan, A. O., Olabemiwo, O. M., **Smith, S. M.**, & Ganesan, S. A concise review on alternative route of biodiesel production via interesterification of different feedstocks. *International Journal of Energy Research*. **2021**, 45, 9, 12614–12637). <https://doi.org/10.1002/er.6680>
44. Dante, R. C., Trakulmututa, J., **Meejoo-Smith, S.**, Sirisit, N., Martín-Ramos, P., Chamorro-Posada, P., Rutto, D., & Dante, D. G. A solid-state glucose sensor based on Cu and Fe-doped carbon nitride. *Materials Chemistry and Physics*. **2021**, 258, 124023. <https://doi.org/10.1016/j.matchemphys.2020.124023>
45. Sriksaow A., Butburee T., Pon-On W., Sriksirin T., Uraisin K., Suttiponpanit K., Chaveanghong S., **Smith S.M.*** Efficient mercury removal at ultralow metal concentrations by cysteine functionalized carbon-coated magnetite. *Applied Science*, **2020**, 10, 22, 8262. <https://doi.org/10.3390/app10228262>
46. Wichannananon, P., Kobkeatthawin, T., & **Smith, S. M.*** visible light responsive strontium carbonate catalyst derived from solvothermal synthesis. *Catalysts*. **2020**, 10, 9, 1069. <https://doi.org/10.3390/catal10091069>
47. Nguyen, V.-H., **Smith, S. M.**, Wantala, K., & Kajitvichyanukul, P. Photocatalytic remediation of persistent organic pollutants (POPs): A review. *Arabian Journal of Chemistry*. **2020**, 13, 11, 8309–8337. <https://doi.org/10.1016/j.arabjc.2020.04.028>
48. Dechakhumwat, S., Hongmanorom, P., Thunyaratchatanon, C., **Smith, S. M.**, Boonyuen, S., & Luengnaruemitchai, A. Catalytic activity of heterogeneous acid catalysts derived from corncob in the esterification of oleic acid with methanol. *Renewable Energy*. **2020**, 148, 897–906. <https://doi.org/10.1016/j.renene.2019.10.174>
49. Weeramonkhonlert V., Sriksaow A., **Smith S.M.*** Formation of copper hydroxy double salts derived from metal oxides and their catalytic activity in degradation of methyl orange. *Ceramics International* **2019**, 45, 1, 993-1000. <https://doi.org/10.1016/j.ceramint.2018.09.278>
50. Dante, R. C., Trakulmututa, J., **Meejoo-Smith, S.**, Martín-Ramos, P., Chamorro-Posada, P., Rutto, D., & Sánchez-Arévalo, F. M. Methylene blue-carbon nitride system as a reusable air-sensor. *Materials Chemistry and Physics*. **2019**, 231, 351–356. <https://doi.org/10.1016/j.matchemphys.2019.04.031>
51. Dante, R. C., Martín-Ramos, P., Chamorro-Posada, P., **Meejoo-Smith, S.**, Vázquez-Cabo, J., Rubiños-López, Ó., Lartundo-Rojas, L., Sánchez-Árevalo, F. M., Trakulmututa, J., Rutto, D., Deebansok, S., & Sriksaow, A. Comparison of the activities of C2N and BCNO towards Congo red degradation. *Materials Chemistry and Physics*. **2019**, 221, 397–408. <https://doi.org/10.1016/j.matchemphys.2018.09.068>
52. Oopathump, C., Boonthuma, D., & **Smith, S. M.*** Effect of poly(vinyl alcohol) on thermoelectric properties of sodium cobalt oxide. *Key Engineering Materials*. **2019**, 798, 304–309. <https://doi.org/10.4028/www.scientific.net/kem.798.304>
53. Eaimsumang, S., Wongkasemjit, S., Pongstabodee, S., **Smith, S. M.**, Ratanawilai, S., Chollacoop, N., Luengnaruemitchai, A. Effect of synthesis time on morphology of CeO₂ nanoparticles and Au/CeO₂ and their activity in oxidative steam reforming of methanol. *Journal of Rare Earths*. **2019**, 37, 8, 819–828). <https://doi.org/10.1016/j.jre.2018.11.010>
54. Boonyuen, S., **Smith, S. M.**, Malaithong, M., Prokaew, A., Cherdhirunkorn, B., Luengnaruemitchai, A. Biodiesel production by a renewable catalyst from calcined Turbo jourdani (Gastropoda: Turbinidae) shells. *Journal of Cleaner Production*. **2018**, 177, 925–929. <https://doi.org/10.1016/j.jclepro.2017.10.137>
55. Carltonbird, M., Eaimsumang, S., Pongstabodee, S., Boonyuen, S., **Smith, S. M.**, Luengnaruemitchai, A. Effect of the exposed ceria morphology on the catalytic activity of gold/ceria catalysts for the preferential oxidation of carbon monoxide. *Chemical Engineering Journal*. **2018**, 344, 545–555. <https://doi.org/10.1016/j.cej.2018.03.111>
56. Chaveanghong, S., **Smith, S. M.***, Smith, C. B., Luengnaruemitchai, A., & Boonyuen, S. Simultaneous transesterification and esterification of acidic oil feedstocks catalyzed by

- heterogeneous tungsten loaded bovine bone under mild conditions. *Renewable Energy*. **2018**, 126, 156–162. <https://doi.org/10.1016/j.renene.2018.03.036>
57. Chaveanghong, S., **Smith, S. M.***, Oopathum, C., Smith, C. B., & Luengnaruemitchai, A. Fatty acid methyl ester (FAME) production from soybean oil under ambient conditions using strontium loaded bovine bone. *Renewable Energy*. **2017**, 109, 480–486. <https://doi.org/10.1016/j.renene.2017.03.036>
 58. Laohapornchaiphon, J., Smith, C. B., & **Smith, S. M.*** One-step Preparation of Carbon-based Solid Acid Catalyst from Water Hyacinth Leaves for Esterification of Oleic Acid and Dehydration of Xylose. *Chemistry - An Asian Journal*. **2017**, 12, Issue 24, pp. 3178–3186). <https://doi.org/10.1002/asia.201701369>
 59. Oopathump, C., Kheowan, O.-U., Charoenphakdee, A., Harnwunggmoung, A., **Smith, S. M.***, & Smith, C. B.* Thermoelectric characterization of multi-walled carbon nanotube/ Sodium cobalt oxide prepared by a low-cost flame sintering technique. *Ceramics International*. **2017**, 43, 18, 17086–17092). <https://doi.org/10.1016/j.ceramint.2017.09.123>
 60. Chaisiwamongkhol, K., Manoyen, N., Suttiponparnit, K., Nacapricha, D., **Smith, S. M.**, & Uraisin, K.* Development of gas flow reactor with on-line monitoring system for nitrogen dioxide removal. *Microchemical Journal*. **2017**, 135, 199–206. <https://doi.org/10.1016/j.microc.2017.09.011>
 61. Srikhaow, A., **Smith, S. M.***, Uraisin, K., Suttiponparnit, K., Kongmark, C., & Chuaicham, C. Catalytic remediation of phenol contaminated wastewater using Cu–Zn hydroxide nitrate. *RSC Advances*. **2016**, 6, 43, 36766–36774. <https://doi.org/10.1039/c5ra22326a>
 62. Koilraj, P., **Smith, S. M.**, Yu, Q., Ulrich, S., & Sasaki, K.* Encapsulation of a powdery spinel-type Li⁺ ion sieve derived from biogenic manganese oxide in alginate beads. *Powder Technology*. **2016**, 301, 1201–1207. <https://doi.org/10.1016/j.powtec.2016.08.009>
 63. Karn-orachai, K., **Smith, S. M.**, Saesoo, S., Treethong, A., Puttipipatkachorn, S., Pratontep, S., & Ruktanonchai, U. R.* Surfactant effect on the physicochemical characteristics of γ -oryanol-containing solid lipid nanoparticles. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. **2016**, 488, 118–128. <https://doi.org/10.1016/j.colsurfa.2015.10.011>
 64. Sodtipinta, J., Kim, H.-K., Lee, S.-W., **Smith, S. M.**, Pakawatpanurut, P., & Kim, K.-B.* Microwave solvothermal synthesis of mixed pine tree seed-like/disc-shaped microstructures of MnO_x (x = 4/3 and 1) with high specific capacitance for electrochemical capacitors. *Journal of Electroceramics*. **2015**, 35, 1–4, 111–119). <https://doi.org/10.1007/s10832-015-0002-1>
 65. Anantachaisilp, S., **Smith, S. M.**, Ton-That, C., Pornsuwan, S., Moon, A. R., Nensiel, C., Hoffmann, A., & Phillips, M. R.* Nature of red luminescence in oxygen treated hydrothermally grown zinc oxide nanorods. *Journal of Luminescence* **2015**, 168, 20–25. <https://doi.org/10.1016/j.jlumin.2015.07.025>
 66. Thamaphat, K.*, Goodman, B. A., Limsuwan, P., **Smith, S. M.** Rapid screening for anthocyanins in cane sugars using ESR spectroscopy. *Food Chemistry*. **2015**, 171, 123–127. <https://doi.org/10.1016/j.foodchem.2014.08.126>
 67. Anantachaisilp, S., **Smith, S. M.***, Ton-That, C., Osotchan, T., Moon, A. R., Phillips, M. R.* Tailoring deep level surface defects in ZnO nanorods for high sensitivity ammonia gas sensing. *The Journal of Physical Chemistry C*. **2014**, 118, 46, 27150–27156). <https://doi.org/10.1021/jp5085857>
 68. Karn-orachai, K., **Smith, S. M.**, Phunpee, S., Treethong, A., Puttipipatkachorn, S., Pratontep, S., Ruktanonchai, U. R.* (2014). The effect of surfactant composition on the chemical and structural properties of nanostructured lipid carriers. *Journal of Microencapsulation*. **2014**, 31, 6, 609–618. <https://doi.org/10.3109/02652048.2014.911374>
 69. Sodtipinta, J., Pon-On, W., Veerasai, W., **Smith, S. M.**, Pakawatpanurut, P.* Chelating agent- and surfactant-assisted synthesis of manganese oxide/carbon nanotube composite for electrochemical capacitors. *Materials Research Bulletin*. **2013**, 48, 3, 1204–1212. <https://doi.org/10.1016/j.materresbull.2012.12.042>
 70. Bartholomäus, R., Irwin, J. A., Shi, L., **Smith, S. M.**, Levina, A., Lay, P. A.* Isolation, Characterization, and nuclease activity of biologically relevant chromium(V) complexes with monosaccharides and model diols. likely intermediates in chromium-induced cancers. *Inorganic Chemistry*. **2013**, 52, 8, 4282–4292. <https://doi.org/10.1021/ic3022408>

71. Srikhaow, A., **Smith, S. M.*** Photocatalytic activity of flower-like ZnO derived by a *d*-glucose-assisted sonochemical method. *Research on Chemical Intermediates*. **2013**, 39, 4, 1545–1553. <https://doi.org/10.1007/s11164-012-0619-5>
72. Srikhaow, A., **Smith, S. M.*** Preparation of $\text{Cu}_2(\text{OH})_3\text{NO}_3/\text{ZnO}$, a novel catalyst for methyl orange oxidation under ambient conditions. *Applied Catalysis B: Environmental*. **2013**, 130–131, 84–92. <https://doi.org/10.1016/j.apcatb.2012.10.018>
73. **Smith, S. M.***, Oopathum, C., Weeramongkhonlert, V., Smith, C. B., Chaveanghong, S., Ketwong, P., Boonyuen, S. Transesterification of soybean oil using bovine bone waste as new catalyst. *Bioresource Technology*. **2013**, 143, 686–690. <https://doi.org/10.1016/j.biortech.2013.06.087>
74. Kullavadee, K. O., Uracha, R., **Smith, S. M.*** Effect of surfactant on characteristics of solid lipid nanoparticles (SLN). *Advanced Materials Research*. **2012**, 364, 313–316. <https://doi.org/10.4028/www.scientific.net/amr.364.313>
75. Kwamman, T., **Smith, S. M.*** Low temperature solvolthermally synthesized nitrogen-fluorine doped TiO_2 for methyl orange photodegradation. *Advanced Materials Research*. **2012**, 488–489, 98–102. <https://doi.org/10.4028/www.scientific.net/amr.488-489.98>
76. Sawasdee, K., Tiensuwan, M., Siripinyanond, A., Chirachariyavej, T., & **Smith, S. M.*** Elemental analysis of burnt human bone for classifying sex and age at death by logistic regression. *Analytical Methods*. **2012**, 4, 6, 1769. <https://doi.org/10.1039/c2ay05763h>
77. Thamaphat, K.*, Limsuwan, P., **Smith, S. M.** Electron spin resonance investigation of free radicals produced in pulverized non-irradiated sugar. *International Journal of Modern Physics B*. **2011**, 25, 17, 2383–2391. <https://doi.org/10.1142/s0217979211100813>
78. Jongwattanapisan, P., Charoenphandhu, N., Krishnamra, N., Thongbunchoo, J., Tang, I.-M., Hoonsawat, R., **Smith, S. M.**, Pon-On, W.* In vitro study of the SBF and osteoblast-like cells on hydroxyapatite/chitosan–silica nanocomposite. *Materials Science and Engineering: C*. **2011**, 31, 2, 290–299. <https://doi.org/10.1016/j.msec.2010.09.009>
79. Pon-On, W., **Meejoo, S.**, Mehtar, A., Tang, I.-M. Influence of manganese substitution into the A-site of perovskite type $\text{Ca}_{1-x}\text{Mn}_x\text{TiO}_3$ ceramic. *Ceramics International*. **2011**, 37, 7, 2075–2079). <https://doi.org/10.1016/j.ceramint.2011.05.071>
80. Anantachaisilp, S., **Smith, S. M.**, Treetong, A., Pratontep, S., Puttipipatkachorn, S., Ruktanonchai, U. R.* Chemical and structural investigation of lipid nanoparticles: drug–lipid interaction and molecular distribution. *Nanotechnology*. **2010**, 21, 12, 125102. <https://doi.org/10.1088/0957-4484/21/12/125102>
81. Pon-On, W., **Meejoo, S.**, Tang, I.-M. Formation of hydroxyapatite crystallites using organic template of polyvinyl alcohol (PVA) and sodium dodecyl sulfate (SDS). *Materials Chemistry and Physics*. **2008**, 112, 2, 453–460. <https://doi.org/10.1016/j.matchemphys.2008.05.08>
82. Rinzin, U., Singjai, P., Wilairat, P., & **Meejoo, S.*** Mechanochemical treated multi-walled carbon nanotubes for incorporation of metal ions. *Advanced Materials Research*. **2008**, 55–57, 537–540. <https://doi.org/10.4028/www.scientific.net/amr.55-57.537>
83. Youngme, S.*, Phatchimkun, J., Wannarit, N., Chaichit, N., **Meejoo, S.**, van Albada, G. A., Reedijk, J. New ferromagnetic dinuclear triply-bridged copper(II) compounds containing carboxylato bridges: Synthesis, X-ray structure and magnetic properties. *Polyhedron*. **2008**, 27, 1, 304–318. <https://doi.org/10.1016/j.poly.2007.09.009>
84. Limsuwan, P.*, **Meejoo, S.**, Somdee, A., Thamaphat, K., Kittiauchawal, T., Siripinyanond, A., & Krzystek, J. Revelation of causes of colour change in beryllium-treated sapphires. *Chinese Physics Letters*. **2008**, 25, 6, 1976–1979. <https://doi.org/10.1088/0256-307x/25/6/015>
85. **Meejoo, S.***, Pon-On, W., Charnchai, S., Amornsakchai, T. Substitution of iron in preparation of enhanced thermal property and bioactivity of hydroxyapatite. *Advanced Materials Research*. **2008**, 55–57, 689–692. <https://doi.org/10.4028/www.scientific.net/amr.55-57.689>
86. Pon-On, W., **Meejoo, S.**, Tang, I.-M. Substitution of manganese and iron into hydroxyapatite: core/shell nanoparticles. *Materials Research Bulletin*. **2008**, 43, 8–9, 2137–2144. <https://doi.org/10.1016/j.materresbull.2007.09.004>
87. Naemchanthara, K., Meejoo, S., Onreabroy, W., Limsuwan, P. Temperature effect on chicken egg shell investigated by XRD, TGA and FTIR. *Advanced Materials Research*. **2008**, 55–57, 333–336. <https://doi.org/10.4028/www.scientific.net/amr.55-57.333>

88. Ruktanonchai, U.*, Limpakdee, S., **Meejoo, S.**, Sakulkhu, U., Bunyapraphatsara, N., Junyaprasert, V., & Puttipipatkachorn, S. The effect of cetyl palmitate crystallinity on physical properties of gamma-oryzanol encapsulated in solid lipid nanoparticles. *Nanotechnology*. **2008**, 19, 9, 095701. <https://doi.org/10.1088/0957-4484/19/9/095701>
89. Mungchamnankit, A., Limsuwan, P., Thongcham, K., **Meejoo, S.** The electron spin resonance study of Gd³⁺ in natural zircon. *Journal of Magnetism and Magnetic Materials*. **2008**, 320, 3–4, 479–482. <https://doi.org/10.1016/j.jmmm.2007.07.014>
90. Kedkaew, C., Limsuwan, P., Thongcham, K., **Meejoo, S.** The spin hamiltonian parameters calculation of ¹⁴N and ¹⁵N in natural type I diamond. *International Journal of Modern Physics B*. **2008**, 22, 25–26, 4740–4748. <https://doi.org/10.1142/s0217979208050498>
91. Thamaphat, K., Limsuwan, P., **Meejoo, S.** ESR spectrometer as a possible tool for rapid analysis of cane sugar purity. *Chinese Physics Letters*. **2007**, 24, 12, 3524–3527. <https://doi.org/10.1088/0256-307x/24/12/06>
92. Pon-On, W., **Meejoo, S.**, Tang, I.-M. Incorporation of iron into nano hydroxyapatite particles synthesized by the microwave process. *International Journal of Nanoscience*. **2007**, 06, 01, 9–16. <https://doi.org/10.1142/s0219581x07004262>
93. **Meejoo, S.***, Maneepakorn, W., Winotai, P. Phase and thermal stability of nanocrystalline hydroxyapatite prepared *via* microwave heating. *Thermochimica Acta*. **2006**, 447, 1, 115–120. <https://doi.org/10.1016/j.tca.2006.04.013>
94. Vongsavat, V., Winotai, P., **Meejoo, S.***. Phase transitions of natural corals monitored by ESR spectroscopy. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*. **2006**, 243, 1, 167–173. <https://doi.org/10.1016/j.nimb.2005.07.197>
95. Udomkan, N., Limsuwan, P., Winotai, P., **Meejoo, S.** (2005). Effects of heat treatment on blue sapphires as monitored by ESR spectroscopy. *International Journal of Modern Physics B*. **2005**, 19, 20, 3273–3284. <https://doi.org/10.1142/s021797920503205x>
96. Udomkan, N., **Meejoo, S.**, Limsuwan, P., Winotai, P., Chaimanee, Y. Electron spin resonance studies of Mn²⁺ in freshwater snail shells: Pomacea Canaliculata Lamarck and fossilized snail shell. *Chinese Physics Letters*. **2005**, 22, 7, 1780–1783. <https://doi.org/10.1088/0256-307x/22/7/060>
97. Winotai, P., Udomkan, N., & **Meejoo, S.*** Piezoelectric properties of Fe₂O₃-doped (1-x)BiScO₃-xPbTiO₃ ceramics. *Sensors and Actuators A: Physical*. **2005**, 122, 2, 257–263. <https://doi.org/10.1016/j.sna.2005.06.008>
98. Limsuwan, P., Udomkan, N., **Meejoo, S.**, Winotai, P. Surface morphology of submicron crystals in aluminum nitride films grown by dc magnetron sputtering. *International Journal of Modern Physics B*. **2005**, 19, 12, 2073–2083. <https://doi.org/10.1142/s0217979205029651>
99. **Meejoo, S.***, Udomkan, N., Winotai, P., Chaimanee, Y. Electron spin resonance studies of Mn²⁺ in freshwater snail shells: S. Ingallsiana, P. Ampullacea, P. Canaliculata Lamarck and fossilized snail shell. *International Journal of Modern Physics B*. **2004**, 18, 26, pp. 3419–3428. <https://doi.org/10.1142/s0217979204026688>
100. **Meejoo, S.**, Kariuki, B. M., Kitchin, S. J., Cheung, E. Y., Albesa-Jové, D., Harris, K. D. M.* Structural aspects of the -polymorph of (E)-4-formylcinnamic acid: Structure determination directly from powder diffraction data and elucidation of structural disorder from solid-state NMR. *Helvetica Chimica Acta*. **2003**, 86, 5, 1467–1477. <https://doi.org/10.1002/hlca.200390130>
101. **Meejoo, S.**, Kariuki, B. M., Harris, K. D. M.* The Interplay of Aryl-Perfluoroaryl Stacking Interactions and interstack hydrogen bonding in controlling the structure of a molecular cocrystal. *ChemPhysChem*. **2003**, 4, 7, 766–769. <https://doi.org/10.1002/cphc.200300762>

PATENT

ศิวพร มีจู สมิต และ อัษฎาวุธ ศรีขาว. (2566). *กรรมวิธีการผลิตวัสดุกำจัดมลพิษสีย้อมอินทรีย์ด้วยกระบวนการออกซิเดชันแบบเปียกที่สภาวะอุณหภูมิห้องและความดันบรรยากาศปกติ* สิทธิบัตรไทย เลขที่ 95295 กรุงเทพฯ: กรมทรัพย์สินทางปัญญา กระทรวงพาณิชย์. (Smith, S. M. and Srihow, A. Synthesis of materials for organic dye pollutants from water by wet oxidation under ambient conditions, 2023. IPC: C09B 26/02; No. 95295, Thailand.)

07 June, 2024
