Faculty of Science
Department of Chemistry
Curriculum Title: Master of Science Program in Chemistry (International Program)

Curriculum Description:

The curriculums of the Master of Science Program in Chemistry is designed to offer students outstanding benefits of an interdisciplinary (multidisciplinary) education. The curriculum of the program is grounded in core courses devoted to the critical study of the main concepts and methodologies related to chemistry. Students are able to have options of choosing elective courses that cover various aspects of chemistry.

Type of Program
☐ Regular Program (Monday-Friday)
☐ Regular Program (Monday-Friday) and International Program
☐ Special Program (Saturday-Sunday)

Dissertation Themes:

Analytical Chemistry: Research topics in Analytical Chemistry cover several broad areas as follows.

- Analysis of trace organics such as pesticide residues, phenolic compounds in natural waters, food and drugs employing gas chromatographic and high performance liquid chromatographic methods.
- Analysis of trace metals, trace elements, and related aspects: stripping potentiometric and atomic absorption spectrophotometric methods for heavy metals and trace elements in food and environmental samples; electrochemical methods for speciation of trace metals and organic matters in water samples; investigations of electrochemical behaviors and corrosion; analysis of greenhouse gas emissions in terrestrial ecosystems.
- Technical innovations: development of flow injection systems, biosensors, nanomaterials and other analytical techniques for environmental monitoring, sample preparations and treatments.

Physical Chemistry: The Physical Chemistry group has a broad range of interests covering surface chemistry, structural chemistry, thermochemical conversion of biomass and separation of aerosol particles.

- Surface chemistry concerned with adsorption of certain metal ions by activated carbon (from local materials) which gives rise to different adsorptive capacities.
- Structural chemistry covering single-crystal X-ray diffraction of solids.
Particulate matters and associated polycyclic aromatic hydrocarbons from biomass combustion: characterization and control.

**Organic Chemistry:** The Organic Chemistry staff have strong interests in bioactive natural products and organic synthesis in various aspects as follows.

- Bioactive secondary metabolites from endophytic, marine-derived and soil fungi.
- Structural determination of naturally occurring compounds from Southern Thai plants.
- Total synthesis of bioactive natural products.
- Structural modification of bioactive natural products.
- Synthetic methodologies for the synthesis of heterocyclic compounds.
- Synthesis of colored and photoactive compounds and polymers for sensor and smart thin film applications.

**Inorganic Chemistry:** Major research interests of Inorganic disciplinary focus on the syntheses of new coordination compounds of transition metals which can be categorized as follows.

- Syntheses of organic molecules and inorganic complexes for biological activities in vitro of bacteria, virus, fungus, tumor and cancer cells or enzymic inhibition.
- Studies of luminescent properties and applications of emissive organic molecules and inorganic complexes.

**Material Chemistry and Energy Chemistry**

- Porous carbon materials from natural resources and mesoporous carbon materials by soft-templating.
- Thermochemical conversion of biomass into fuels and energy: characterization, operating process, kinetic study and applications.
- Studies of some metal oxide photocatalysts, TiO\(_2\) and ZnO included, with possible applications in wastewater treatment, solar cell and electronics applications.

**Prospective students:**

**Plan A 2**

1. Graduates of a Bachelor of Science degree in chemistry or an equivalent, with GPA of not less than 2.50.
2. Pass an English test (Valid within 2 years) with a minimum as follows:
   - TOEFL: 500 (paper based) or 173 (computer based) or 61 (international based) or IELTS: 5.0
3. Other qualifications as following the Prince of Songkla University’s regulations on
Graduate Study B.E. 2556 and with the approval of the program committee.

**Prospective advisors:**

1. Prof. Dr. VATCHARIN RUKACHAISIRIKUL
2. Assoc. Prof. Dr. KANDA PANTHONG
3. Assoc. Prof. Dr. PANOTE THAVARUNGKUL
4. Assoc. Prof. Dr. WILAWAN MAHABUSARAKAM
5. Asst. Prof. Dr. KWANRUTHAI TADPETCH
6. Asst. Prof. Dr. CHONGDEE BURANACHAI
7. Asst. Prof. Dr. JUTHANAT KAEOBAMRUNG
8. Asst. Prof. Dr. NARARAK LEESAKUL
9. Asst. Prof. Dr. OPAS BUNKOED
10. Asst. Prof. Dr. PIPAT CHOOTO
11. Asst. Prof. Dr. SAOWANIT SAITHONG
12. Asst. Prof. Dr. SUDA CHAKTHONG
13. Asst. Prof. Dr. APON NUMNUAM
14. Asst. Prof. Dr. WARAKORN LIMBUT
15. Asst. Prof. Dr. YAOWAPA SUKPONDMA
16. Dr. CHITTREEYA TANSAKUL
17. Dr. LAEMTHONG CHUENCHOM
18. Dr. NEERANUCH PHUSUNTI
19. Dr. PUCHONG WARARATANANURUK
20. Dr. SUPUNNEE DUANGTHONG
21. Dr. THITIMA RUJIRALAI
22. Dr. URAIWAN SIRIMAHACHAI

**Contact Information:**

Asst. Prof. Dr. SUDA CHAKTHONG  
Department of Chemistry, Faculty of Science  
Prince of Songkla University, Hat Yai, Songkhla, 90112, Thailand.  
E-mail: suda.ch@psu.ac.th
VATCHARIN RUKACHAISIRIKUL

POSITION: Professor (Organic Chemistry)

CONTACT ADDRESS
Department of Chemistry, Faculty of Science,
Prince of Songkla University, Hat Yai, Songkhla, 90112, Thailand
Phone: 074-288-435
Fax: 074-558-841
E-mail: vatcharin.r@psu.ac.th

RESEARCH INTEREST
- Bioactive Natural Products from Fungi
- Drug Discovery

PUBLICATIONS (2013–present)


26. Arunpanichlert, J.; Rukachaisirikul, V.*; Phongpaichit, S.; Supaphon, O.; Sakayaroj, J. Meroterpenoid, isocoumarin, and phenol derivatives from the


Curriculum Vitae

NAME (English): Kanda Panthong

ACADEMIC POSITION: Associate Professor

CONTACT ADDRESS
Department of Chemistry,
Faculty of Science, Prince of Songkla University,
Hat Yai, Songkhla, 90112, Thailand
Tel.: 66-74-288-433
Fax.: 66-74-558-841
E-mail address: kanda.p@psu.ac.th

EDUCATION
- B.Sc. (Chemistry), 1987, Prince of Songkla University, Thailand
- Ph.D. (Organic Chemistry), 1999, Mahidol University, Thailand

RESEARCH INTEREST
-Bioactive Natural Products

PUBLICATIONS (2004-2018)


Assoc. Prof. Dr. Panote Thavarungkul

Biophysics
Department of Physics, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla 90112
E-mail: panote.t@psu.ac.th
Research interests: Biosensors for medical, environmental and -industrial applications

Recent publications (2016-2018)

Siritham, C., Thammakhet-Buranachai, C., Thavarungkul, P., Kanatharana, P., 2018. A stir foam composed of graphene oxide, poly(ethylene glycol) and natural latex for the extraction of preservatives and antioxidant, Microchimica Acta, 185:148


Aksornneam L, Kanatharana P, Thavarungkul P, Thammakhet C. 2016. 5-Aminofluorescein doped polyvinyl alcohol film for the detection of formaldehyde in vegetables and seafood. Analytical Methods, 8, 1249


WILAWAN MAHABUSARAKAM

Position: Associate Professor (Organic Chemistry)

CONTACT ADDRESS
Department of Chemistry, Faculty of Science, Prince of Songkla University,
Hat-Yai, Songkhla, 90112
E-mail: wilawan.m@psu.ac.th

EDUCATION

# BSc (Chemistry), 1982, Prince of Songkla University, Thailand
# MS (Organic Chemistry), 1985, Prince of Songkla University, Thailand
# PhD (Organic Chemistry), 1992, University of Sydney, Australia

PUBLICATIONS


Kwanruthai Tadpetch
Department of Chemistry, Faculty of Science
Prince of Songkla University
Hat Yai, Songkhla 90112 Thailand
Tel: (66)74 288437 Fax: (66)74 558841
E-mail: kwanruthai.t@psu.ac.th

Education:
- Ph.D. (Chemistry), University of California, Irvine, 2010
- M.S. (Chemistry), California State University, Fullerton, USA, 2005
- B.Sc. (Chemistry) (First Class Honors), Prince of Songkla University, Thailand, 2003

Appointment:
- Assistant Professor, Prince of Songkla University, Thailand: 2015-present
- Lecturer of Chemistry, Prince of Songkla University, Thailand: 2011-2015

Research Interests:
- Synthesis and medicinal chemistry of bioactive natural and unnatural products
- Development of new synthetic methods for heterocyclic compounds

Fellowships:
- Predoctoral and doctoral fellowships from the Development and Promotion of Science and Technology Talents Project (DPST), Thailand (1996-2010)

Publications: (* corresponding author)


Asst. Prof. Dr. Chongdee Thammakhet-Buranachai

Analytical Chemistry

Department of Chemistry, Faculty of Science, Prince of Songkla University Hat Yai, Songkhla, 90112

E-mail: tchongdee@gmail.com, chongdee.t@psu.ac.th

Research interests: Development of sample preparation technique for trace organic compounds analysis and chemical sensors

Recent publications (2016-2018)


JUTHANAT KAOBAMRUNG

Position: Lecturer (Organic Chemistry)
Personal Data: Born, 1982; Martial Status, married

CONTACT ADDRESS

Department of Chemistry, Faculty of Science
Prince of Songkla University
Hat-Yai, Songkla, 90112, Thailand
Phone: 074-288449, 074-288193
Fax: 074-212918
E-mail address: juthanat.k@psu.ac.th

EDUCATION

2004 B.Sc. [Chemistry 1st Class Hons.], Prince of Songkla University, Hat-Yai, Songkla, Thailand
2011 PhD. [Organic Chemistry], University of Pennsylvania, Philadelphia, United States of America

RESEARCH INTEREST

• Development and Applications of New Catalytic Reactions
• Synthesis and Studies of Natural Products
• Design, Synthesis and Applications of Photosensitive Organic Molecules

EXPERIENCE

2005–2007 Part of my PhD. research, University of California at Santa Barbara, California, United States of America
2007–2011 Part of my PhD. research, University of Pennsylvania, Philadelphia, United States of America
2010–2011 Research, Swiss Federal Institute of Technology (ETH), Zürich, Switzerland

PUBLICATIONS (in scientific journals)
Rukachaisirikul, V.; Kaewbumrung, C.; Phongpaichit, S.; Hajiwangoh, Z. “Eudesmane Sesquiterpenes from the Aquatic Fungus *Beltrania rhombica*” *Chem. Pharm. Bull.* 2005, 53, 238. (Kaewbumrung, C. was misspelling, the correct one was Kaeobamrung, J.)


CURRICULUM VITAE

Asst.Prof.Dr. Nararak Leesakul

Position : Assistant Dean of Faculty of Science for international relations
& Lecturer at :
Department of Chemistry
Faculty of Science
Prince of Songkla University
Hat-Yai Songkhla, 90110
Tel.074-288421 Fax.074-558841
E-mail address: nararak.le@psu.ac.th

Academic Background
• B.Sc.(chemistry) : Prince of Songkla University, Songkhla, 1998
• M.Sc. (Inorganic chemistry) : Prince of Songkla University, Songkhla, 2001
• Dr.Techn. (Photochemistry) : Physical and Theoretical Chemistry,
  Graz University of Technology, Graz, Austria, 2007

List of Journal Publications


List of conference proceedings


Oral and poster presentations


7. Workshop on Theoretical Chemistry 14-17 February 2006, Mariapfarr, Austria.


13. Electrochemistry cooperation workshop (Prof. Dr. Alan M. Bond group) 3-16 June, 1996, Monash University, Melbourne, Australia.


List of present researches

1. A colorimetric and luminescent chemosensors for metal ions based on azo-imine compound and its Iridium(III) complex

   Granted by:

   Young Researcher grant from The Thailand research fund (TRF) associated with Office of the Higher Education Commission (OHEC) and Prince of Songkla University, 2012

   ทุนพัฒนาศักยภาพในการทำงานวิจัยของอาจารย์รุ่นใหม่ ประจำปีงบประมาณ
2555 ได้รับการสนับสนุนเงินทุนในการทํารายงานตามที่ข้อมูลผู้สนับสนุนการวิจัย (สกว.) ร่วมกับ สำนักงานคณะกรรมการการศึกษาธิการ (สกอ.) และ มหาวิทยาลัยสงขลานครินทร์ ทุนพัฒนาศักยภาพในการทํางานวิจัยของอาจารย์รุ่นใหม่ (ทุนเงินรายได้) มหาวิทยาลัยสงขลานครินทร์ ประจำปีงบประมาณ 2556

2. Synthesis, Characterization, Photo-physical properties, Electrochemistry and Antimicrobial Activity of Ruthenium(II) Complexes with p-Cymene and azo-imine Ligands

Granted by:

Young Researcher grant from the revenue of Prince of Songkla University, 2013

ทุนพัฒนาศักยภาพในการทํางานวิจัยของอาจารย์รุ่นใหม่ (ทุนเงินรายได้) มหาวิทยาลัยสงขลานครินทร์ ประจำปีงบประมาณ 2556

Updated : 12™ March 2014
**Asst. Prof. Dr. Opas Bunkoed**

**Analytical Chemistry**

Department of Chemistry, Faculty of Science, Prince of Songkla University, Hat Yai,

Songkhla 90112

E-mail: Opas1bunkoed@hotmail.com, opas.b@psu.ac.th

**Research interests:** Chemical sensor and Chromatography Techniques

**Recent publications**


P. Raksawong, K. Chullasat, P. Nurerk, P. Kanatharana, F. Davis, **O. Bunkoed.** A hybrid molecularly imprinted polymer coated quantum dot nanocomposite optosensor for highly sensitive and selective determination of salbutamol in animal feeds and meat samples. *Analytical and Bioanalytical Chemistry*, 2017, 409, 4697–4707

W. Kaewsuwan, P. Kanatharana, **O. Bunkoed,** Dispersive magnetic solid phase extraction using octadecyl coated silica magnetite nanoparticles for the extraction of tetracyclines in water samples. *Journal of Analytical Chemistry*, 2017, 72, 957–965.


P. Nurerk, P. Kanatharana, **O. Bunkoed,** Polyaniline-coated magnetite nanoparticles incorporated in alginate beads for the extraction and enrichment of polycyclic aromatic hydrocarbons in water samples. *International Journal of Environmental Analytical Chemistry*, 2017, 97(2), 145-158


P. Nurerk, P. Kanatharana, **O. Bunkoed,** A selective determination of copper ion in water samples based on the fluorescence quenching of thiol-capped CdTe quantum dots. *Luminescence*, 2016, 31(2), 515-522.


S. Noosang, **O. Bunkoed,** P. Thavarungkul, P. Kanatharana, A new multiwalled carbon nanotubes functionalized sulfonate composites with cryogel solid phase extraction sorbent for the


Asst. Prof. Dr. Pipat Chooto

Analytical Chemistry

Department of Chemistry, Faculty of Science, Prince of Songkla University Hat Yai, Songkhla, 90112

E-mail: pipat.c@psu.ac.th

Research interests: Electrochemistry

Recent publications

Duangthong S., Rattanadaecha K., Cheewasedtham W., Wararattananurak P. **Chooto, P.** Simple digestion and visible spectrophotometry for copper determination in natural rubber latex 2017; ScienceAsia; Vol. 43; Page: 369-376.

Innuphat, C. **Chooto, P.** Determination of trace levels of Cd(II) in tap water samples by anodic stripping voltammetry with an electrografted boron-doped diamond electrode 2017; ScienceAsia; Vol. 43; Page:33-41.


**Chooto, P.** Muakhthong, D., Innuphat, C., Wararatananuruk, P. Determination of inorganic arsenic species by hydride generation-inductively coupled plasma optical emission spectrometry 2016; ScienceAsia; Vol.42; Page:275-282.

Duangthong, S., Suwanin, A. **Chooto, P.** Innuphat, C. Flow injection-differential pulse anodic stripping voltammetry to measure As(III) and As(V) in natural water samples 2016; ScienceAsia; Vol.42; Page:266-274.

**Chooto, P.** Wararatananuruk, P., Kangkamano, T., Innuphat, C., Sirinawin, W. Determination of inorganic arsenic species by hydride generation atomic absorption spectrophotometry and cathodic stripping voltammetry 2015; ScienceAsia; Vol.41; Page:187-197.

**Chooto, P.** Innuphat, C., Wararatananuruk, P., Lapinee, C. Cadmium and lead in seafood samples determined by solid phase extraction and graphite furnace atomic absorption spectrometry 2015; SCIENCEASIA; Vol.41; Page:35-41.
Wararatananuruk, **P. Chooto**, P. Sherdshoopongse, P. Innuphat, C. Lead determination in canned food by square-wave adsorptive cathodic stripping voltammetry 2014; ScienceAsia; Vol.40; Page:355-361.

**Chooto, P.** Wararatananuruk, P. Innuphat, C. Determination of trace levels of Pb(II) in tap water by anodic stripping voltammetry with boron-doped diamond electrode 2010; ScienceAsia; Vol.36; Page:150-156.
Curriculum Vitae

Asst. Prof. Dr. Saowanit Saitung

Present Address: Department of Chemistry, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla, 90110, Thailand  Tel. (074) 288451, Fax. (074) 558841
E-mail address: saowanit.sa@psu.ac.th

Education
BSc : Chemistry (Prince of Songkla university)
MSc : Physical Chemistry (Prince of Songkla university)
PhD. : Chemistry (Prince of Songkla University)

Profession : Crystallography and Structural Chemistry

Areas of Interests

• Structural crystallography
• MOF structure and molecular coordination design and Supramolecular chemistry, crystal engineering, solid-state chemistry, functional crystalline materials, intermolecular interactions
• Solid state computational chemistry, interaction energy framework

Some Topics of research:

1) Metal Organic Framework (MOFs) complexes with a hybrid multi-functional ligands and applications such as luminescence and gas storage applications and etc.

2) The variation structures, supramolecular assemblies and Hirshfeld Surface analysis of compounds influence of crystal structure upon molecular structures


18) Vittaya, L., Leesakul, N., Pakawatchai, C., Saithong, S., Hansongnern, K. (2012) Bis[5-chloro-2-(phenyldiazenyl-$\text{-K}N$)-pyridine-$\text{-K}N$] bis(thiocyanato-$\text{-K}N$)iron(II). E68, m555-m556.


Others publications : http://www.sc.psu.ac.th/New56/En/StaffDetail.asp
Name: Suda Chakthong

Academic Position: Lecturer (Assistant Professor)

E-mail: suda.c@psu.ac.th

Education:

- B.Sc. [Chemistry 2nd Class Hons.], 1998, Prince of Songkla University, Hat-Yai, Songkhla, Thailand
- Ph.D. [Organic Chemistry], 2004, Mahidol University, Rama VI Road, Bangkok, Thailand

Research interest: • Bioactive Natural Products

Contact Address:
Department of Chemistry Prince of Songkla University Hat-Yai, Songkhla, 90112, Thailand
Tel: +66(0) 74288425, Fax: +66 (0) 74558841

Publications: (*corresponding author)


Asst. Prof. Dr. Apon Numnuam

Analytical Chemistry

Department of Chemistry, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla, 90112

E-mail: anumnuam@gmail.com, apon.n@psu.ac.th

Research interests: Electrochemistry, Chemical sensor and biosensor

Recent publications (2016-2018)


Sensors and Actuators, B: Chemical 246: 854-863.
Asst. Prof. Dr. Warakorn Limbut

Analytical Chemistry

Department of Applied Science, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla, 90112

E-mail: warakorn.l@psu.ac.th

Research interests: Biosensor and chemical sensor

Electrochemical sensor

Recent publications


POSITION: Lecturer (Organic Chemistry)

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Phone: 074-288-449
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EDUCATION
- B.Sc. [Chemistry 2nd Class Hons.], 1998, Prince of Songkla University, Hat-Yai, Songkhla, Thailand
- M.Sc. [Organic Chemistry], 2001, Prince of Songkla University, Hat-Yai Songkhla, Thailand
- Ph.D. [Organic Chemistry], 2005, Prince of Songkla University, Hat-Yai Songkhla, Thailand

RESEARCH INTEREST
- Bioactive Natural Products

PUBLICATIONS (2008-2015)


Chittreeya Tansakul
Ph.D.

Academic Faculty of Organic Chemistry
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Tel: +66 74 288 446
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Professional Experience

• Academic Faculty of Organic Chemistry
  Department of Chemistry, Faculty of Science
  Prince of Songkla University
  Hat Yai, Thailand
  2012-Present
• Teaching Assistant of Organic Chemistry
  Department of Chemistry and Biochemistry, University of California, Santa Cruz, USA
  2007-2011

Education

• Ph.D. in Chemistry and Biochemistry, University of California, Santa Cruz, USA (2006-2012)
  Dissertation Title: Nitroxides: Profluorescent Sensors and Functionalized Alkoxyamine Initiators for Nitroxide Mediated Radical Polymerization
  Advisor: Prof. Rebecca Braslau

• M.Sc. in Nanoscale Science and Technology (Merit), University of Leeds, UK (2005-2006)
  Dissertation Title: Self-Assembling Properties of Biologically Derived Lipids
  Advisors: Prof. Paul Miller and Prof. Andrew Nelson

• B.Sc. in Chemistry (First Class Honors, GPA 3.96), Prince of Songkla University, Thailand (2001-2005)
  Senior Project Title: Chemical Constituents from the Fungus Lentinus Connatus BCC 8996
  Advisor: Prof. Vatcharin Rukachaisirikul

Research Interests

Organic synthesis, Organic nanomaterials, Nitroxide mediated radical polymerization, Functionalized polymers, Bioactive natural products

Publications

Publications after Ph.D. (*corresponding author)


**Publications from Bachelor’s and Ph.D. Degree**


**Conference Paper and Proceedings**

**Publications after Ph.D.** (*corresponding author)*


**Book**

Fellowships and Awards


• Winter 2010 Travel Grant Award from the UCSC Graduate Student Association (2010)

• Higher Education Strategic Scholarship for Frontier Research Network supported by the Royal Thai Government (for postgraduate program 2005-2011)

• The Development and Promotion of Science and Technology Talents Project supported by the Institute for the Promotion of Teaching Science and Technology of Thailand (for undergraduate program 2001-2005)

Presentations

After Ph.D. Presentations

• The 16th TRF-OHEC Conference, Cha-Um, Petchaburi, January 11-13, 2017. Tansakul, C.; Rukachaisirikul, V.; Tantisuwanno, C.; Yoksiri, C.; Talek, A. “Synthesis of Ionic Photochromic Red/Green/Blue Spirooxazines/Spiropyran for Self-Assembled Multilayer Thin Films” (Poster)

• The 4th NRCT-IFS Workshops: NRCT-IFS Collaborative Research in Natural Products and Agricultural Sciences, Luang Prabang, LPDR. February 19-24, 2016. Tansakul, C.; Rukachaisirikul, V.; Phongpaichit, S.; Sakayaroj, J. “Secondary Metabolites from Penicillium herquei PSU-RSPG93 and Structural Modification of Sporogen AO-1 isolated from Penicillium coptiola PSU-RSPG138” (Oral and Poster)

• Pure and Applied Chemistry International Conference, Bangkok, February 9-11, 2016. Tansakul, C.; Rukachaisirikul, V.; Roungchamchun, C. “Pro-fluorescent Two-component Sensing System for Detection of Amino Acids” (Poster)


• The 40th Congress on Science and Technology of Thailand (STT40), Khon Kaen, December 2-4, 2014. Tansakul, C.; Rukachaisirikul, V.; Daengrot, C.; Supantanapong, N.; Phongpaichit, S.; Sakayaroj, J. “Structural Modification of Bioactive Sporogen AO-1 Isolated from the Soil Fungus Penicillium coptiola PSU-RSPG138” (Oral)

• The 39th Congress on Science and Technology of Thailand (STT39), Bangkok, October 21-23, 2013. Tansakul, C.; Kongprapan, T.; Maha, A.; Phongpaichit, S.; Towatana, N.; Rukachaisirikul, V. “Phenalenone Derivatives from the Soil Fungus Penicillium herquei PSU-RSPG93” (Oral)
**Ph.D. Presentations**


Curriculum Vitae

Name: LAEMTHONG CHUENCHOM

Born: September 2, 1979; Phuket, Thailand; Male

Education:
- B.Sc. (2001) [Chemistry 2nd Class Hons.], Prince of Songkla University, Thailand
- M.Sc. (2004) [Physical Chemistry], Prince of Songkla University, Thailand
- Dr. rer. nat. (2013) [Physical Chemistry], Justus-Liebig University of Giessen, Germany

Profession: Physical Chemistry, Materials Chemistry

Present Address:
Department of Chemistry, Faculty of Science, Prince of Songkla University
Hat-Yai, Songkhla, 90112, Thailand
Tel. (074) 288416, Fax. (074) 558841
E-mail address: laemthong.c@psu.ac.th

Fields of Specialization: Carbon Science, Porous Materials, Nanostructured Materials, Green Chemistry and Sustainable Chemistry, Polymer Chemistry

Selected Publications:


Reviewer: for Bioresource Technology, Journal of the Taiwan Institute of Chemical Engineers, Songklanakarin Journal of Science and Technology, PACCON

Conference Presentations and Workshops:

- Participation in

- Participation in
  PERCH Congress II, Jomtien Palm Beach Hotel, Pattaya, Chonburi, Thailand, 5-7 May 2002.

- "Adsorption of Cadmium (II) and Lead (II) ions on activated carbons obtained from agricultural by-product materials" *(Best Oral Presentation)*
  L. Chuenchom, S. Teekasakul, W. Innajitara, O. Sirichote

  PERCH Congress III, Jomtien Palm Beach Hotel, Pattaya, Chonburi, Thailand, May 2003.

- "In-situ SAXS/Physisorption for porous carbons" *(Oral Presentation)*
  L. Chuenchom, B. M. Smarsly, P. Adelhelm, G. A. Zickler

  20. Deutsche Zeolith-Tagung (20th German Zeolite Conference), Halle/Wittenberg, Germany, 5-7 March 2008.

- "Mesoporous carbons by spinodal decomposition of mesophase pitch and poly(methylmethacrylate) (PMMA)" *(Poster Presentation)*
  L. Chuenchom, B. M. Smarsly, P. Adelhelm, M. Antonietti

  20. Deutsche Zeolith-Tagung (20th German Zeolite Conference), Halle/Wittenberg, Germany, 5-7 March 2008.
"In-situ SAXS/physisorption for porous carbons: A novel analysis method for advanced pore morphology elucidation" (Poster Presentation)
L. Chuenchom, B. M. Smarsly, P. Adelhelm2, G. A. Zickler, R. Kraehnert


Participation in
42. Jahrestreffen Deutsche Katalytiker (42nd Annual Meeting of German Catalysis), Weimar, Germany, 11-13 March 2009.

“Crack-free mesoporous carbon films with open cubic pores through soft-templating” (Poster Presentation)
L. Chuenchom, E. Ortel, B. Paul, B. M. Smarsly, R. Kraehnert

22. Deutsche Zeolith-Tagung (22nd German Zeolite Conference), Munich, Germany, 3-5 March 2010.

“Soft-templating synthesis of mesoporous carbon coatings with pores bigger than 10 nm templated with a novel block-copolymer” (Poster Presentation)
L. Chuenchom, E. Ortel, B. M. Smarsly, R. Kraehnert

23. Deutsche Zeolith-Tagung (23rd German Zeolite Conference), Erlangen, Germany, 2-4 March 2011.

“Preparation and Characterization of Porous Carbon Materials from Bagasse by Hydrothermal Carbonization Process” (Poster Presentation)
T. Srisong, S. Tekasakul, O. Sirichote, P. Amornpitoksuk, L. Chuenchom

Pure and Applied Chemistry International Conference 2014 (PACCON 2014), Khon Khen, Thailand, 8-10 January 2014.

Participation in

“Magnetic Carbon Materials as Adsorbents Prepared by Hydrothermal Carbonization Method” (Poster Presentation)
N. Rattanachueskul, A. Saning, L. Chuenchom


“Preparation of Carbon Adsorbents from Sugarcane Bagasse through Hydrothermal Carbonization for Adsorption of Dyes” (Poster Presentation)
L. Chuenchom, P. Buapeth, P. Toumsri, H. Chunate, H. Sohoi, S. S PANthong

Research Interests:
Carbon materials, including porous carbons, carbon nanotubes (CNTs), graphene, graphene oxide (GO) have attracted much attention as promising materials for environmental remediation due to their chemical stability, high surface area and pore volume.

In general preparation, carbon adsorbents are produced by chemical or physical activation processes frequently using biomass materials as precursors. However, the preparation of carbon materials used as adsorbents for the water remediation by such processes presents many drawbacks mainly because of high temperatures and toxic chemicals consumed, resulting in the destruction of the environment.

So our target is focused on the strategies to prepare functional carbon materials through sustainable green methods. Moreover, they have been used as effective adsorbents. Our research focus is divided into 2 projects as follows:

1. Hydrothermal Carbonization of biomass

Hydrothermal carbonization (HTC), which involves the hydrothermal decomposition of various carbohydrates in aqueous solutions at low temperature, has evolved as an alternative method for producing porous carbons because of its advantages of being cheap and green as it involves no organic solvents. In general, HTC involves heating of aqueous dispersion of biomass containing lignocellulose, cellulose and lignin in a closed system at low temperatures to yield carbon-rich, hydrophilic solid called “hydrochar”.

Biomass from agricultural wastes is considered as a very important feed-stock for HTC because they are renewable sources and low-cost materials. They possess chemicals as suitable precursors for the HTC. In addition, these materials possess incipient porosity and interesting morphologies for example, the needle -like or nanofiber structure.

Various types of agricultural materials have been employed as precursors for the HTC; nevertheless, various types of biomass readily available in Thailand, for example, sugarcane bagasse, risk husk, etc., have scarcely been employed as precursors for the production of porous carbon materials through HTC.

According to the literature, carbon materials prepared by HTC pose difference in both macroscopic and pore morphology, and surface chemistry in comparison with ones prepared using the conventional activation techniques. For this reason, the HTC method has become an alternative method to prepare carbon materials as adsorbents for the remove of toxic chemical from waste water.
2. **Hierarchically porous carbon materials**

The hierarchically porous carbon materials (HPCMs) possess pores of well-defined and interconnected porous structures both in the mesopore and macropore regions. Macropores can provide highly efficient mass transport while mesopores can give rise to high surface area and large pore volumes, as well as act as active adsorption sites. The main motivation behind this activity is a combination of different pore sizes in the meso/macropore regions. Therefore, in this project, we present the novel synthesis of new HPCMs by using natural macroporous structures present in many types of biomass. These unique features make this material a potential scaffold for mass production of monolithic HPCMs by the interaction of hydroxyl groups of the biomass surface with carbon precursors. Mesopore structures coated on the macropores of the scaffold are obtained through the synthesis based on self-assembly of environmentally friendly precursors with a template. To the end, these novel HPCMs have been employed as adsorbents to investigate the potential performance in adsorption of toxic chemicals.
Awards:

Gold Medal from World Invention Intellectual Property Associations (WIIPA) and Special Prize (On Stage) from Malaysian Research & Innovation Society (MyRIS), Malaysia 2016 Kaohsiung International Invention and Design EXPO in Kaohsiung, Taiwan

Complimentary award for Sci & Tech Initiative and Sustainability Awards 8th (2015) organized by Thai Institute of Chemical Engineering and Applied Chemistry (TIChe), SCG Chemicals Co., Ltd, and The DOW Chemical Co., Ltd.

The first runner-up for Mitr Phol Bio Innovator Awards 2016 organized by Mitr Phol Group

Funding:

Collaborations:
Lecturer in Programs: *(Applications Invited – Master / Doctoral)*

- Master of Science Program in Chemistry (International Program); **M.Sc. (Chemistry)** – Physical Chemistry, Material Chemistry and Energy Chemistry (please visit: [http://chem.sci.psu.ac.th/](http://chem.sci.psu.ac.th/))
- Doctor of Philosophy Program in Chemistry (International Program); **Ph.D. (Chemistry)** – Physical Chemistry, Material Chemistry and Energy Chemistry (please visit: [http://chem.sci.psu.ac.th/](http://chem.sci.psu.ac.th/))
- Master of Science Program in Sustainable Energy Management (International Program); **M.Sc. (Sustainable Energy Management)** (please visit: [http://www.perin.psu.ac.th/](http://www.perin.psu.ac.th/))
- Doctor of Philosophy Program in Sustainable Energy Management (International Program); **Ph.D. (Sustainable Energy Management)** (please visit: [http://www.perin.psu.ac.th/](http://www.perin.psu.ac.th/))
- Master of Engineering Program in Energy Technology (International Program); **M. Eng. (Energy Technology)** (please visit: [http://www.perin.psu.ac.th/](http://www.perin.psu.ac.th/))
- Doctor of Philosophy Program in Energy Technology (International Program); **Ph.D. (Energy Technology)** (please visit: [http://www.perin.psu.ac.th/](http://www.perin.psu.ac.th/))

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Research Interest:

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- Kinetics of pyrolysis conversion

Publications (2014-present):


Conferences/Proceedings:


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**Recent publications**

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Chooto, P. Innuphat, C. *Wararatananuruk, P.* Lapinee, C. Cadmium and lead in seafood samples determined by solid phase extraction and graphite furnace atomic absorption spectrometry 2015; SCIENCEASIA; Vol.41; Page:35-41.

*Wararatananuruk, P.* Chooto, P. Sherdshoopongse, P. Innuphat, C. Lead determination in canned food by square-wave adsorptive cathodic stripping voltammetry 2014; ScienceAsia; Vol.40; Page:355-361.

Chooto, P. *Wararatananuruk, P.* Innuphat, C. Determination of trace levels of Pb(II) in tap water by anodic stripping voltammetry with boron-doped diamond electrode 2010; ScienceAsia; Vol.36; Page:150-156.
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**Duangthong, S.** Suwanin, A. Chooto, P.Innuphat, C. Flow injection-differential pulse anodic stripping voltammetry to measure As(III) and As(V) in natural water samples 2016; ScienceAsia; Vol.42; Page:266-274.


**Proceedings**

**Duangthong S.,** SrabuaO., Simple on-line spectrophotometry for Cr(VI) determination in toy samples, 9th Joint Conference on Chemistry, 12-13 November 2014, Semarang, Indonesia.


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Publications :


of methylene blue by C$_3$N$_4$/ZnO: the effect of the melamine/ZnO ratios.”


Conference proceeding


Date: April, 2018.