Phiwat Klomkaew

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EDUCATION

Ph.D. Chemical Engineering, *In Progress*. University of Texas at Austin, Austin, Texas, USA
Advisors: Dr. Benny D. Freeman & Dr. Joan F. Brennecke

B.S. Chemical Engineering, 2014-2018. University of South Alabama, Mobile, Alabama, USA
GPA: 3.97/4.00
Honors Undergraduate Thesis Title: "Modeling power-to-gas storage system in public transit system in Mobile, Alabama"
Research Advisor: Dr. Sean Walker

Advanced High School Diploma, 2010-2014. New Century Technology High School, Huntsville, Alabama, USA
Graduated as a class valedictorian (out of 72 students). Magnet program concentration in biomedical and biotechnology sciences. Received 28 hours of college credit from AP courses and dual enrolment.

PROFESSIONAL EXPERIENCE

Chemical Engineering Student Research Assistant, June 2017 – May 2018
Department of Chemical and Biomolecular Engineering, University of South Alabama

- Obtained local meteorological data from NOAA and National Solar Radiation Database
- Contacted local public buses and existing hydrogen bus facility for data
- Derived an energy system that utilizes renewable energy to generate hydrogen via electrolysis to be stored in a storage tank and distributed to public transit and sold to natural gas pipelines
- Used MATLAB to model such power-to-gas and renewable energy system with applications in public transportation in Mobile, Alabama; supervised by Dr. Sean Walker and honors thesis committee members
- Participated in professional development workshops as a Summer Undergraduate Research Fellow in the summer of 2017
- Presented poster at symposium hosted by Office of Undergraduate Research

Biomedical Engineering Student Research Assistant, May 2015 – June 2017
Department of Chemical and Biomolecular Engineering, University of South Alabama

- Assisted in the design and optimization of a high-power LED based light source for a fluorescent microscope, supervised by Dr. Silas Leavesley
- Calibrated and worked with the hyperspectral imaging system to analyze chemical labels in rat cells
- Presented poster at campus research symposium and participated in professional development workshops as a Summer Undergraduate Research Fellow in the summer of 2016

Student Grader, Fall 2016 & Summer 2017
College of Engineering, University of South Alabama

- Graded class homework assignments, quizzes, and exams for professors in EG 270 Engineering Thermodynamics and EG 231 Introduction to Ethics and Economics

Meditation Instructor, January 2016 – December 2017
Department of Campus Recreation Center, University of South Alabama

- Give brief introductions to meditation including to students
- Lead the class into stretching and relaxation routines
- Guide a 30-45-minute sitting meditation with relaxation music

Chemistry Student Laboratory Assistant, January 2015 – February 2016
Department of Chemistry, University of South Alabama

- Synthesized ionic liquids and performed plethora nuclear magnetic resonance (NMR) analyses, supervised by Dr. Jim Davis
- Engaged in the synthesis of a photo-cleavable cross linker for cell media and the study of cell behavior, supervised by Dr. Larry Yet
- Learned lab-scale note-taking, reaction, separation, and chemical characterization techniques including extraction, distillation, column chromatography, paper chromatography, and NMR

Mathematics Tutor, January 2015 – May 2016
Department of Mathematics and Statistics, University of South Alabama

- Engaged students with problem-solving skills within Algebra, Precalculus, the Calculus sequence, and Differential Equation 1 classes
- Worked with a team of tutors to offer students an effective overview of different math topics

AWARDS and FUNDING

2019	Basic Teaching Preparation Certificate from the Faculty Innovation Center at the University of Texas at Austin
2019	National Science Foundation Graduate Research Fellowship Honorable Mention in Chemical Engineering
2018 – 2019	Halff Fellowship from the University of Texas at Austin Cockrell School of Engineering
2018	Tau Beta Pi Centennial Fellowship
2018	Phi Kappa Phi Fellowship
2018	Mortar Board Fellowship
2018	National Science Foundation Graduate Research Fellowship Honorable Mention in Systems Engineering

2018 Student Organization President of the Year, University of South Alabama

2017 Barry Goldwater Scholarship Honorable Mention

2014 – 2017 President's List, University of South Alabama

2017 Travel Scholarship for Purdue University's Big Ten+ Graduate School Exposition

2017 Tau Beta Pi Nagel Scholarship

2017 Douglas Engineering Scholarship, University of South Alabama

2017 SPIE Student Travel Grant for Photonics West

2016 Donald F. Othmer AIChE Sophomore Academic Excellence Award

2016 Tau Beta Pi Outstanding Sophomore Scholarship, University of South Alabama

2016 Mortar Board Sophomore Scholarship, University of South Alabama

2016 Engineering Excellence Scholarship, University of South Alabama

2016 Circle K David C. Womack Outstanding Vice President Award

2015 Circle K Outstanding General Member Award

2014 Gates Millennium Scholarship Finalist

SELECTED PUBLICATIONS

Journal Articles

1. C. Stenson, K. N. West, W. M. Reichert, **P. Klomkaew** et al., "Multi-ion ionic liquids and a direct, reproducible, diversity-oriented way to make them" *Chem. Commun.* 51.88 (2015): 15914-5916.

Conference Articles and Posters

2. **Klomkaew, P.,** Walker, S. "Power-to-Gas Incorporation in Public Transit System in Mobile, Alabama," *Institute of Industrial and Systems Engineers*. May 2018.

3. Walker, S., **Klomkaew, P.**, Lester, H. "A Renewable Energy Grid Risk Paradigm Framework," *Institute of Industrial and Systems Engineers*. May 2018.

4. **Klomkaew, P.**, Walker, S. "Modeling Local Hydrogen Storage System with Application in Public Transportation," *Pro. American Institute of Chemical Engineers*. Eng. October 2017.

5. Walker, S., Mukherjee, U., Fowler, M., and **Klomkaew, P.** "Power-to-Gas to Produce Hydrogen Enriched and Renewable Natural Gas for Energy Storage," *American Society of Engineering Management,* University of Alabama at Huntsville. October 2017.

6. **Klomkaew, P**., Mayes, S. A., Rich T. C., and Leavesley S. J., "Testing a high-power LED based light source for hyperspectral imaging microscopy," *Proc. SPIE- Photonics West*. Eng. (2017).

7. Mayes S. A., **Klomkaew P**., Leavesley S. J., and Rich T. C., "Optimization and applications of an excitation-scanning hyperspectral imaging system," *Proc. SPIE- Photonics West.* Eng. (2017).

SERVICE

- University of Texas at Austin Graduate Engineering Council Activity Director, 2019—Present
- University of Texas at Austin Graduate Engineering Council Webmaster, 2018—2019
- Tau Beta Pi Student Advisory Board Secretary, 2019—Present
- Tau Beta Pi Student Advisory Board Secretary, 2018—2019
- Tau Beta Pi Central Texas Alumni Chapter Director of Collegiate Relation, 2018—2019
- Financial Affairs Committee Secretary, Tau Beta Pi 2017 Annual Convention
- College of Engineering Ambassador, University of South Alabama, 2017-18
- Office of Undergraduate Research Ambassador, University of South Alabama, 2016-18
- Reviewer Coordinator for Journal of Undergraduate Research and Creative Activities, 2016-18
- Alabama Epsilon Tau Beta Pi
  - President, 2017 – 2018
  - Integral Beta and Scholarship Committee Chair, Fall 2016 and Spring 2017
- American Institute of Chemical Engineering Member, 2015-18
- Meditation & Mindfulness Club Co-Founder and President, 2015-16
- Meditation Class Instructor at Campus Recreation Center, 2015-17
- Integral Beta and Scholarship Committee Chair, Fall 2016 and Spring 2017
- Circle K International Member, 2014-18
  - Alabama District Secretary/Treasurer, 2016-17
  - Vice President, Summer 2015 – Spring 2016
  - Group Leader at Circle K Alabama Leadership Academy 2015, 2016