

Wattana “Zack” Chaisoonpornyotin

High Bay Research Facility, Room 123D, 1000 E. University Avenue, Laramie, WY 82071-2000
(801) 560-9915 wattana.chaisoon@uwyo.edu <https://www.linkedin.com/in/zackwattana>

Chemical and research engineer with 5 years' experience and higher level academic training in designing and developing novel experiments and theories using hands-on experiments and fundamental first-principles approaches. Research focuses on understanding the origin and mechanisms of phase behavior and fluid properties to establish new processes and improve existing procedures. Specialized in phase behavior, kinetic modeling, and fluid mechanics. Diversified skills include project management, organization, communication, self-learning, and problem-solving with minimal supervision.

EDUCATION

-
- Ph.D., Chemical Engineering**, University of Utah, Salt Lake City, UT Dec 2017
- Advisor: Michael P. Hoepfner GPA 3.88
- M.S., Chemical Engineering (Petrochemical Technology)**, Chulalongkorn University, Thailand May 2013
- Advisor: H. Scott Fogler GPA 3.88
 - Academic Partnership with Case Western Reserve University, The University of Michigan, The University of Oklahoma, U.S.A. and Institut Français du Pétrole (IFP) School, France
- B.Eng., Chemical Engineering**, King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand Mar 2011
- Advisor: Surat Areerat GPA 3.52

SKILLS

SEM, SAXS, Microscopy, Aspen HYSYS, PIPEPHASE, Origin, COMSOL, Six Sigma, Microsoft Office, Windows

RESEARCH EXPERIENCE

-
- Senior Principal Engineer**, Center of Innovation for Flow through Porous Media Sep 2017-Present
- Investigating the effect of surfactants on the oil recovery in porous media.
 - Investigating the interfacial and porous-scale transport in confined space.
- Research Assistant**, University of Utah Aug 2013-Aug 2017
- Identified that asphaltene precipitation is a reversible process using an innovative experimental design, which suggests that asphaltene phase behavior can be predicted using equilibrium thermodynamics.
 - Determined that inorganic solids influence the kinetic precipitation of asphaltenes using a centrifugation technique revealing a new strategy to improve processes and enhance productivity.
 - Established a combined homogeneous aggregation and heterogeneous nucleation model to quantify the rate of asphaltene precipitation under different bitumen sources, solid contents, diluent types, and diluent concentrations.
 - Received an industry sponsorship by proposing new research ideas (\$300,000 for a 2-year contract).
 - Set up an entire research lab from scratch.
 - Mentored 7 students including Master's students on their and collaborative research projects.
- Research Assistant**, University of Michigan Apr 2012-Apr 2013
- Contributed practical examples to the 3rd edition of Strategies for Creative Problem Solving by H. Scott Fogler.
 - Established relationship between asphaltene aggregation and deposition by utilizing a combination of experimental and modeling approaches such as a capillary tube apparatus and a population balance model.
 - Identified that asphaltene deposition is a diffusion limited leading to a new approach to model deposition.
- Research Engineer**, Polymer Processing & Advanced Cleaning Technology Laboratory Jun 2010-Mar 2011
- Reduced production cost by 5% by improving an expanded polypropylene foam bead process.
 - Established a vapor-liquid phase diagram of the supercritical carbon dioxide-hexane system.

WORK EXPERIENCE

-
- Lab Safety Manager**, Center of Innovation for Flow through Porous Media, University of Wyoming Sep 2017-Present
- Ensured implementation and overall effectiveness of the environmental, health and safety obligation.
- Lab Safety Manager**, University of Utah Aug 2013-Aug 2017
- Created 5 Standard Operating Procedures (SOPs) and trained 9 students.
 - Ensured implementation and overall effectiveness of the environmental, health and safety obligation.
- Engineering Intern**, PTT Exploration and Production Public Company Limited, Thailand Summer 2010
- Increased oil productivity by 5% by improving gas pressure drop using HYSYS simulation.

- Reduced production cost by 5% by solving ongoing technical problems.

Sales Assistant, Jenkinson's Boardwalk, New Jersey

Summer 2009

- Served and advised 100 customers per day, and trained five new staff members.
- Increased sales by 15% by developing the new customer-service system.

LEADERSHIP AND SERVICE

Communications Chair, Graduate Student Advisory Council, University of Utah Aug 2015-Aug 2017

- Planned, organized, and coordinated 10 extra-curricular activities to promote social and interpersonal relationships among 150 students.
- Initiated, maintained, and updated GSAC Website and online communications

Secretary, Society of the Petroleum Engineers (SPE) Chapter, University of Utah Nov 2015-Oct 2016

- Invited 6 oil and gas specialists and renowned speakers for SPE University of Utah Chapter Lecture
- Planned, organized, and coordinated 2 extra-curricular activities, promoting social relationships.

President, Thai Student Association, University of Utah Aug 2014-Jul 2015

- Represented the Association at welcoming ceremony for the Ambassador of Thailand to the United States to update him on Thai student life and activities in Utah.
- Increased fundraising by 200%.
- Planned, organized, and coordinated 10 activities and managed meetings.

President, Chemical Engineering Undergraduate Student Association, KMITL Jun 2007-Mar 2011

- Planned, organized, and coordinated student activities and meetings involving 320 students.
- Served as a liaison between student body and faculty.

Inducted Member, Engineering Student Council, KMITL Jun 2007-Mar 2011

- Represented all Chemical Engineering undergraduate students.

HONORS AND AWARDS

First Place Poster Presentation	2nd Annual Graduate Research Symposium of University of Utah	2016
Gold Poster Presentation Award	Petromat and PPC symposium	2013
Overseas Research Scholarship	University of Michigan	2012-2013
Full Master's Degree Scholarship	Chulalongkorn University	2011-2013
First-Class Honors	KMITL	2011

TEACHING EXPERIENCE

Teaching Assistant, University of Utah Jan 2015-Dec 2015

- Taught Graduate Chemical Reaction Engineering and Graduate Fluid Mechanics classes.

Chemical Engineering Subject Tutor, KMITL Jun 2007-Mar 2011

- Tutored 20 Chemical Engineering undergraduate students.

LANGUAGES

Fluent in English and Thai

PEER REVIEWED PUBLICATIONS

Chaisoontornyotin, W., Haji-Akbari, N., Fogler, H. S., Hoepfner, M. P., Combined Asphaltene Aggregation and Deposition Investigation, *Energy and Fuels*, 2016, 30 (3), 1979–1986.

Chaisoontornyotin, W., Bingham, A., Hoepfner, M. P., Reversibility of Asphaltene Precipitation using Temperature-induced Aggregation, *Energy and Fuels*, 2017, 31 (4), 3392–3398.

Chaisoontornyotin, W., Ng, S., Hoepfner, M. P., Rapid Heterogeneous Asphaltene Precipitation with Dispersed Solids, Submitted.

Yang, Y., Chaisoontornyotin, W., Hoepfner, M. P., Small-Angle Scattering Investigation of the Fractal Structure of Petroleum Asphaltenes, Manuscript in preparation.