

Paul Chin
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QUALIFICATIONS SUMMARY

- 7 years of laboratory research experience in fuel cell and photo-active semiconductor industries
- Extensive computational modeling experience with various analytical programs
- Reviewed design specifications of lab-scale reaction system from engineering literature
- Quickly self-taught environmental regulations and standards to simulate scale-up modeling for the feasibility of a lab-scale batch system to a continuous system
- Familiarity in SAS statistical analysis programs and a working knowledge in design of experiments
- Proven ability to adapt quickly to new research areas, manage multiple projects, and learn new skills
- Strong technical background in engineering fundamentals of kinetics, heat and mass transfer, and thermodynamics
- Solid multi-disciplinary interpersonal skills exemplified by collaboration with academic researchers and industrialists
- Lengthy track record of leadership roles in academic and extracurricular activities

EDUCATION

Ph.D. – Chemical and Biomolecular Engineering, April 2008

North Carolina State University, Raleigh, NC

Dissertation title: “Kinetics of Photocatalytic Degradation Using Titanium Dioxide Films”

M.Sc. (Thesis) – Chemical Engineering, June 2004

North Carolina State University, Raleigh, NC

Thesis title: “Preferential Oxidation of Carbon Monoxide on Structured Supports”

B.S. – Chemical Engineering, May 2001

Cornell University, Ithaca, NY

RESEARCH EXPERIENCE

NORTH CAROLINA STATE UNIVERSITY, Raleigh, NC

Graduate Research Assistant (Jan 2002 – May 2008)

- Designed detailed bench-scale processes from beginning conception to final product tailored for the desired experimental parameters to be studied in fuel cell and photo-active semiconductor fields
- Developed complex engineering models to explain lab-scale experiment behaviors
- Constructed and maintained lab-scale experimental and characterization systems with strong hands-on skills
- Characterized thin film materials to determine structure-mechanism relationship of experimental data
- 7 refereed publications, 6 as first author; 23 conference presentations: 18 oral, 5 poster; 17 as primary presenter

CORNELL UNIVERSITY, Ithaca, NY

Undergraduate Research Assistant (Aug 2000 – May 2001)

- Researched microfluidic particle separation at capillary junctions in laminar flow regimes

TECHNICAL PROFICIENCY

Analytical Techniques

NDIR, UV-Vis, and FTIR spectroscopies; GC; QCM; TGA; DSC; BET; SEM; AFM; XRD; ellipsometry; TPD; chemisorption; thermal and mechanical cycling

Computer Applications, Programming Languages

Microsoft Access and VISIO, LabTech, (basic) Matlab, Microcal Origin, SimSci Pro II, Aspen, ICARUS Process Evaluator, SAS statistical programs, Visual Basic, Pascal, Java, HTML, familiarity with C/FORTRAN

Foreign Languages

Basic spoken Chinese (Cantonese)

WORK EXPERIENCE

(WORK STATUS: U.S. Citizen)

TIAX LLC, Cambridge, MA

Technologist (Jul 2008 – Present)

- Worked on projects encompassing “green” engineering, alternative energy, and catalysis and reaction engineering
- Co-leader of microreactor project
- Collaborated with internal divisions (e.g., clean energy and fuels, electrochemistry, mechanical design) and external clients to make sure projects were completed on schedule and done properly.
- Patent / IP and proposal writing experience

HELMs MULLISS & WICKER, PLLC, Raleigh, NC

Consultant (Jun 2005 – Mar 2006)

- Calculated thermodynamic equilibrium values, researched inorganic salts, and performed literature review.

AIR PRODUCTS AND CHEMICALS, INC., South Brunswick, NJ and Allentown, PA

Intern / Co-op (Aug 1999 – Aug 2001)

- Evaluated production process for improvements, standardized product database, and supervised high school intern.
- Evaluated OPHR/ORI items, created PSV design basis, and developed plant P&ID standard.
- Evaluated safety considerations in chemical plants and wrote a HAZOP tutorial.

LEADERSHIP / COMMUNICATION EXPERIENCE

Club President, V.P. Education, Mentor – Toastmasters International, Raleigh club, 2005 – 2008

Chemical Engineering Graduate Student Recruiting Captain – North Carolina State University, 2002 – 2003

Chemical Engineering Graduate Student Association Vice President – North Carolina State University, 2002 – 2003

Club President – Alpha Phi Omega, Gamma chapter, Cornell University, 2000 – 2001

TEACHING EXPERIENCE

Teaching Assistant, ChE 596T – Technical Literacy, 2007

Science Olympiad Coach at Cathedral School, 2003 – 2006

Mentor, Undergraduate Students for Summer NSF REU program, 2002 & 2006

Teaching Assistant, ChE 330 & 331 – Unit Operations Laboratory, 2001 – 2002

PROFESSIONAL AFFILIATIONS

AIChE – American Institute of Chemical Engineers

AWMA – Air and Waste Management Association

ISPE – International Society of Pharmaceutical Engineers

ACS – American Chemical Society

NACS – North American Catalysis Society

TI – Toastmasters International

REFEREED PUBLICATIONS

1. Roberts G.W., Chin P., Sun X., Spivey J.J., “*Preferential Oxidation of Carbon Monoxide with Pt/Fe Monolithic Catalysts: Interactions Between External Transport and the Reverse Water-Gas-Shift Reaction*”, Applied Catalysis B: Environmental, 2003, **46** (3), p. 601-611
2. Chin P., Yang L.P., Ollis D.F., “*Formaldehyde Removal from Air via a Rotating Adsorbent Combined With a Photocatalytic Reactor: Kinetic Modeling*”, Journal of Catalysis, 2006, **237** (1), p. 29-37
3. Chin P., Sun X., Roberts G.W., Spivey J.J., “*Preferential Oxidation of Carbon Monoxide with Iron-promoted Platinum Catalysts Supported on Metal Foams*”, Applied Catalysis A: General, 2006, **302** (1), p. 22-31
4. Chin P., Ollis D.F., “*Decolorization of Organic Dyes on Pilkington ActivTM Photocatalytic Glass*”, Catalysis Today – M.A. Vannice Festschrift, 2007, **123** (1), p. 177-188
5. Chin P., Roberts G.W., Ollis D.F., “*Kinetic Modeling of Photocatalyzed Soot Oxidation on Titanium Dioxide Thin Films*”, Industrial & Engineering Chemistry Research – Alberto Cassano Festschrift, 2007, **46** (23), p. 7598-7604
6. Chin P., Ollis D.F., “*Design Approaches for a Cycling Adsorbent/Photocatalyst System for Indoor Air Purification: Formaldehyde Example*”, Journal of the Air & Waste Management Association, 2008, **58** (4), p. 494-501
7. Chin P., Grant C.S., Ollis D.F., “*Quantitative Photocatalyzed Soot Oxidation on Titanium Dioxide*”, submitted to Applied Catalysis B: Environmental, 2008.