

Jihean Lee

Department of Chemical Engineering Drexel University, Philadelphia, PA 19104
Tel: (215) 895 5831 (lab) Email: jl354@drexel.edu

Education

- **Ph.D., Chemical Engineering**, Drexel University, Philadelphia, PA. Expected graduation: June 2006.
Ph.D. Thesis: The design of improved epoxy systems via electron beam cured cationic polymerization.
Advisor: Dr. Giuseppe R. Palmese
- **Bachelor of Arts in Mathematics and Chemistry**, Bryn Mawr College, Bryn Mawr, PA. Graduation: May 2002.
Undergraduate work: The search of synthetic routes using heterogeneous photocatalysts.
Advisor: Dr. Edward A. Wovchko

Professional Experience

Research Assistant

Drexel University, Philadelphia, PA. (Sep 2002 – Present)

Design of Improved Epoxy Systems via EB Cured Cationic Polymerization

- Investigated process variables, such as dose/dose rate, photo-initiator concentration, and impurities (water), to develop an improved cure model.
- Investigated the effects of cure process/variables with the morphology and properties.
- Designed new systems, composites, with improved properties.
- Acquired technical and instrumentation skills: composite processing, polymer synthesis, cure characterization, thermal, UV, EB, and mechanical testing of polymers, Fourier Transform Infrared Spectroscopy (FTIR), Fiber optic near IR spectroscopy, Novacure UV, Electron Beam, Dynamic Mechanical Analyzer (DMA), Instron, fracture toughness, short beam shear, and apparatus design.

Bryn Mawr College, Bryn Mawr, PA. (Aug 2000 – May 2002)

The Search for Synthetic Routes Using Heterogeneous Photocatalysts

- Employed infrared spectroscopy and high vacuum techniques to study room temperature photocatalytic oxidation of CO using supported Rh catalysts.
- Investigated support material and Rh ligand dependence on the photochemistry and catalytic efficiency.
- Acquired technical and instrumentation skills: quadrupole mass spectrometry, high vacuum and gas handling system, LabVIEW-based PID electronic temperature control, use of Hg/Xe arc lamps and radiation meters, spot-welding, cryogenic cooling, basic glassblowing, and apparatus design.

Teaching Assistant

Drexel University, Philadelphia, PA. (Sep 2002 – June 2003)

- Evaluated students' assignments and led recitation sessions for undergraduate courses.
- Trained and supervised undergraduate students in Heat Transfer lab.

Bryn Mawr College. (Aug 1999 – May 2002)

- Private Chemistry tutor.
- Evaluated students' assignments and led recitation sessions for General Chemistry, Organic Chemistry, Physical Chemistry, Theory of Probability, Differential Equations, Linear Algebra, and Multivariable Calculus.
- Trained and supervised undergraduate students in Organic Chemistry and Physical Chemistry labs.

Mentor for educational outreach, Drexel University, Philadelphia, PA. (Aug 2003-Present)

- **Summer Mentorship program**: Mentored and trained high school students in performing research for two weeks. The goal of the program was to promote educational growth and interest in pursuing a career in chemical engineering.
- **DREAM program**: Mentored and trained undergraduate students in performing research for ten weeks. The goal of the program was to promote educational growth and supply experience in a research facility.
- **Undergraduate Mentorship**: Mentored and trained undergraduate and master students in performing undergraduate research. The goal of the program is to promote educational and laboratory growth for future endeavors.

Honors and Awards

- Drexel Rising Star 2004.
- Koerner Fellowship award 2004.
- Dean's Fellowship award 2002-present.
- Best undergraduate student poster award in Bryn Mawr College Summer Fellowship Research 2001.

Publications

1. J. Lee, G.R. Palmese. "Dark and Light Reactions in EB Cationic Polymerizations of Epoxies", in preparation.
2. J. Lee, G.R. Palmese. "Influence of Water in EB Cationic Polymerization of Epoxies", in preparation.
3. I. Lee, J. Lee, Y.H. Lee, and J. Leonard. "Ursolic Acid-Induced Changes in Tumor Growth, O₂ consumption, and Tumor Interstitial Fluid Pressure", *Anticancer Research* 21(2001) 2827.
4. I. Lee, Y.H. Lee, S.M. Mikulski, J. Lee, K. Covone, and K. Shogen. "Tumoricidal Effects of Onconase on various Tumors", *J. of Surg. Onc.* 73(2000) 164.
5. I. Lee, J.E. Biaglow, J. Lee, and MJ Cho. "Physiological Mechanisms of Radiation Sensitization by Pehntoxifylline", *Anticancer Research* 20(2000) 4605.

Conference Papers

1. J. Lee, G.R. Palmese. "Design of Improved Electron Beam Cured Epoxy Systems" *ASC* (2004).
2. J. Lee, G.R. Palmese. "Dark and Light Reactions in EB Cationic Polymerization of Epoxies" *ACS* (2004).
3. J.J. LaScala, J. Lee, J.M. Sands, and G.R. Palmese. "Cure and Properties of Fatty Acid-Based Polymers" *ACS* (2004).
4. J. Lee, S. Johnson, G.R. Palmese. "Dark and Light Reactions in EB Cationic Polymerizations of Epoxies", *SAMPE International Conference* (2004).
5. D.P. Anderson, D.A. Klosterman, A. Desai, G.R. Palmese, J. Lee, A. Johnston, J. Colleary, J.M. Brown, G.R. Palmese, J.Lee, and. "Processing/Structure/Property Relationships of E-Beam Cured Cationic Epoxy", *SAMPE International Conference* (2004).
- A. Johnston, L. Petrescue, K.C. Cole, G.R. Palmese, J. Lee, and D. Klosterman. "Study of Reaction Kinetics of E-Beam Cured Cationic Epoxy", *SAMPE International Conference* (2004).
6. J.J LaScala, J. Lee, G.R. Palmese, and J.M. Sands. "The Use of E-Beam to Optimize the Properties of Fatty Acid-Based Polymers" *SAMPE International Conference* (2004).

Presentations at Professional Meetings

1. J. Lee (speaker) and G.R. Palmese, "Dark and Light Reactions in EB Cationic Polymerizations of Epoxies", presented at:
 - a. *AIChE Annual Meeting*, Austin, TX, November 2004.
 - b. *ACS Conference*, Philadelphia, PA, August 2004.
 - c. *SAMPE International Conference*, Long Island, CA May 2004.
2. E.A. Wovchko (speaker), J. Lee, and X. Wang, "The Search for Synthetic Routes Using Heterogeneous Photocatalysts-Rh(CO₂) Surface Photochemistry" presented at *56th Southeast Regional Meeting of ACS*, November 2004.
3. J. Lee (speaker) and G.R. Palmese, "Design of Improved Electron Beam Cured Epoxy Systems", presented at *ASC Conference*, Atlanta, GA, October 2004.
4. J.J. LaScala (speaker), J. Lee, J.M. Sands (speaker), and G.R. Palmese. "Cure and Properties of Fatty Acid-based Polymers", presented at *ACS Conference*, Philadelphia, PA, August 2004.
5. D.P. Anderson (speaker), D.A. Klosterman, A. Desai, G.R. Palmese, J. Lee, A. Johnston, J. Colleary, J.M. Brown, G.R. Palmese, J.Lee, and. "Processing/Structure/Property Relationships of E-Beam Cured Cationic Epoxy", presented at *SAMPE International Conference* Long Island, CA May 2004.
6. A. Johnston (speaker), L. Petrescue, K.C. Cole, G.R. Palmese, J. Lee, and D. Klosterman. "Study of Reaction Kinetics of E-Beam Cured Cationic Epoxy", presented at *SAMPE International Conference* Long Island, CA May 2004.
7. J.J LaScala, J. Lee, G.R. Palmese, and J.M. Sands (speaker). "The Use of E-Beam to Optimize the Properties of Fatty Acid-Based Polymers" presented at *SAMPE International Conference* Long Island, CA May 2004.
8. G.R. Palmese (speaker), X. Geng, and J. Lee. "Real Time In-situ Characterization of EB Cured Polymers for High Temperature Applications" presented at *High Temple*, Sacramento, CA, February 2004.
9. J. Lee (speaker) and G.R. Palmese. "Improved Epoxy Systems" presented at
 - a. *6th Annual Research Day*, Drexel University, Philadelphia, PA May 2004 (poster).
 - b. *TRFA Meeting*, Sophia Hotel, Philadelphia, PA October 2003 (poster).
10. J. Lee (speaker) and E.A. Wovchko. "The Development of Photochemical Pathways Using Supported Rhodium Catalysts" presented at *Bryn Mawr Summer Fellowship Research*, Bryn Mawr, PA (poster).

Organizations

- Vice-President of the Chemical Engineering Graduate Student Association, Drexel University, 2003-2004.
- Thermoset Resin Formulators Association (TRFA), 2003-present.
- American Institute of Chemical Engineers (AIChE), 2004-present.
- Society of the Advancement of Material and Process Engineering (SAMPE), 2004-present.
- American Chemical Society (ACS), 2004-present.
- American Society of Composites (ASC) 2004-present.