

**Minjae Lee** (Ph. D), Chemistry,  
Organic/Polymer Synthesis and Characterization

## **Minjae Lee** (Ph. D)

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Objective: Research position in polymer/organic materials, synthesis and characterizations

### **EDUCATION**

Ph. D (2004 ~ now): Chemistry, Virginia Polytechnic Institute and State University, USA

Advisor: Harry W. Gibson (VPI&SU)

M.S. (1995-1996): Chemistry, Hanyang University in Seoul, S. Korea

Thesis: “*Synthesis of Proton Pump Inhibitors*”

B.S. (1991-1995): Chemistry, Hanyang University in Seoul, S. Korea

### **Current Ph.D Research Topics and Skills**

Synthesis and characterization of novel ionic liquids and ionic polymers

Synthesis and characterization of well-defined functional polyethylenes and polyesters

Synthesis of host and guest polymeric building blocks

Synthesis of rotaxane-type hyperbranched polymers

Synthesis of crown ethers and cryptands as new host in supramolecular chemistry

Special Analytical Skills: *NMR, IR, Thermal Analysis, ITC, Viscometry, GPC, HPLC, GC, X-ray crystallography and etc.*

### **EXPERIENCES**

#### **Researcher (7 years)**

DCChem Co., Ltd. (now OCI) Central Research Center (S. Korea) (1997 ~ 2004)

Major Roll: Development of synthetic tools and procedures for organic materials

Research Subjects

Research of Phosgene Chemistry (Reactions and Catalyst)

Development of Rubber-Silica Coupling Reagent (Organosilane Reagent)

Research of Process and Impurities in TDI Production

Development and Production of Specialty Chemicals and Drugs

Design and Operation of Pilot Plant for Phosgene Reactions

Design and Operation of Pilot Plant for Organosilane Compounds

**Teaching:** Teaching assistant (1995 ~1996 (S. Korea), 2005 ~ 2008 (USA))

### **HONORS or SCHOLARSHIP**

Research Assistantship Virginia Polytechnic Institute and State University (2007 – now)

Teaching Assistantship Virginia Polytechnic Institute and State University (2005 – 2007 )  
Hanyang University (1996)

Scholarship of Hanyang University Alumni Association (1996)

## **PUBLICATIONS**

1. Minjae Lee, Daniel V. Schoonover, Anthony P. Gies, David M. Hercules and Harry W. Gibson, Synthesis of Complementary Host- and Guest-Functionalized Polymeric Building Blocks and Their Self-Assembling Behavior, *Macromolecules*, **2009**, *42*, 6483–6494
2. Brian S. Aitken, Minjae Lee, Matthew Hunley, Harry W. Gibson, Kenneth B. Wagener, Synthesis of Precision Ionic Polyolefins Derived from Ionic Liquids, *Macromolecules*, **2010**, *43*, ASAP.
3. M. Lee, H. W. Gibson, U-H. Choi, R. Colby, Room-Temperature Ionic Liquid Monomers and Their Polymers: Synthesis and Characterization of Poly(imidazolium acrylate)s, *Polymer Preprints (Am. Chem. Soc., Div. Polym. Chem.)* **2009**, *50(2)*, 624-625.
4. Lee, M.; Schoonover, D.; Gibson, H. W. Synthesis of New Host and Guest Polymers and Their Self-Assembling Behavior, *Polymer Preprints (Am. Chem. Soc., Div. Polym. Chem.)* **2008**, *49(1)*, 107-108.
5. H. W. Gibson, F. Huang, Z. Ge, H. Wang, A. M.-P. Pederson, M. Lee, M. Rouser, D. Schoonover, Mechanical Linkages (Pseudorotaxane Structures) in Self-Assembly and Modification of Macromolecules, *Polymer Preprints (Am. Chem. Soc., Div. Polym. Chem.)* **2008**, *49(1)*, 1030-1031.

## **CONFERENCE PRESENTATIONS**

1. M. Lee, D. Schoonover, Z. Niu and H. W. Gibson, Properties of bis(N-alkylimidazolium) salts, *Abstracts of Papers, 237<sup>th</sup> ACS National Meeting, Washington DC, United States, Div. Org. Chem.*
2. M. Lee, H. W. Gibson, U-H. Choi, R. Colby, Room-Temperature Ionic Liquid Monomers and Their Polymers: Synthesis and Characterization of Poly(imidazolium acrylate)s, *US-Korea Conference 2009, Korean Scientists and Engineers Associate, Raleigh, NC, July 19, 2009.*
3. M. Lee, H. W. Gibson, Novel Imidazolium Monomers and Polymers, 1<sup>st</sup> Annual Review, MURI: Ionic Liquids in Electroactive Devices, University of Pennsylvania, Philadelphia, PA, December 16, 2008.
4. M. Lee, H. W. Gibson, U-H. Choi, R. Colby, Room-Temperature Ionic Liquid Monomers and Their Polymers: Synthesis and Characterization of Poly(imidazolium acrylate)s, Macromolecules and Interfaces Institute Conference and Review, Blacksburg, VA, April 13-15, 2009.
5. M. Lee, U.-H. Choi, J. H. Choi, K. I. Winey, R. Colby, H. W. Gibson, Novel Ionic Liquids and Ion Containing Polymers, Ionic Liquids in Electroactive Devices Annual Workshop, Penn State University, State College, PA, May 20-22, 2009.