

JI-WOONG LEE

Assistant Professor

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Professional Experience

Assistant professor (tenure-track), Department of Chemistry, University of Copenhagen 2016-
Postdoctoral Researcher with Prof. Jeffrey R. Long, University of California, Berkeley 2015-2016
Postdoctoral Researcher with Prof. Rafal Klajn, Weizmann Institute of Science, Israel 2014

Education

Ph.D. *magna cum laude* in Chemistry with Prof. Benjamin List, Max-Planck-Institut für Kohlenforschung, Germany 2013
B.Sc. and M. Sc. in Chemistry with Prof. Choong Eui Song, Sungkyunkwan University, Korea 2009

Awards and Honors

ITMA Future Material Awards, Finalist, Germany (2014); Reaxys PhD Prize, Finalist, Switzerland, (2014); Koshland Prize, Weizmann Institute of Science, Israel (2014); Dean of Faculty Fellowship, Weizmann Institute of Science, Israel (2014); Promotionsstipendium, Max-Planck-Institut für Kohlenforschung, Germany, (2009-2013); Best Publication Award, Ihwa Womans University, Korea (2011); Excellency in Research, Sungkyunkwan University, Korea, (2008); Brain Korea 21 Scholarship, Sungkyunkwan University, Korea, (2007-2009); Army Commendation Medal, United States Army, Korea, (2006); Songchun Scholarship, Sungkyunkwan University, Korea, (2003-2007); Academic Excellence Scholarship, Sungkyunkwan University, Korea, (2001-2003).

Teaching & Supervision

Max-Planck-Institut für Kohlenforschung, Instructor for weekly PhD seminars. 2009-2013
Weizmann Institute of Science, Teaching and guiding M.Sc. students (T. Vexler, J. Georgeson)
Sungkyunkwan University, Suwon, Korea, Teaching and guiding M.Sc. students (Y. B. Jeong, J. Y. Jung, Y. K. Kwon, S. Y. Shim) and Ph.D. students (J. S. Oh, S. Y. Park, H. Y. Bae, J. H. Shim) in Prof. Song's laboratory. 2013-2014
Sungkyunkwan University, Suwon, Korea 2007-2009

- Advanced Organic Chemistry, sole teaching assistant for class of 20 students (graduate level)
- Organic Spectroscopy, sole teaching assistant for class of 50 students (undergraduate level)
- Experimental Organic Chemistry, class of 30 students (undergraduate level)
- Chemistry in Life, teaching assistant for class of 50 students (undergraduate level)

Professional Service

Referee Service: Synlett, Synthesis, Beilstein Journal of Organic Chemistry
Synfact Contributor 2009-2013, monthly basis

Employment

Researcher, Mosaicmaterials, Berkeley, USA 2015-2016
Military Service (mandatory), Republic of Korea Army, The 2nd Infantry Division US Army, Sergeant 2004-2006

Scientific Talks

Worcester Polytechnic Institute, MA, USA (Nov 2015); ETH Zürich, Togni group, Switzerland (Nov 2015); University of Copenhagen, Denmark (Nov 2015); Freie Universität Berlin, Germany, (Sep 2015); International Symposium of Heterocyclic Chemistry, UC Santa Barbara, USA (Aug 2015); HIMS, University of Amsterdam, The Netherlands (Mar 2014); Shanghai Institute of Organic Chemistry, China (Nov 2013); Shanghai Jiao Tong University, China (Nov 2013); Pusan University, Republic of Korea (Oct 2013); Vienna International Symposium on Organic Chemistry, Vienna, Austria (May 2011); Japan-Korea Joint Symposium on Functional Materials toward Future Catalysts: Chemistry Showcase, Daejeon, Korea (Nov 2008); BK21 School of Chemical Materials Science, Korea (Dec 2008); Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, Germany (Feb 2008)

- Publications**
- 21 **Ji-Woong Lee**, M. T. Oliveira, H. B. Jang, D. W. Kim,* S. Lee,* D. Y. Chi,* C. E. Song* "Hydrogen-Bond Promoted Bimolecular Nucleophilic Fluorination: Concept, Mechanism and Applications in Positron Emission Tomography" *Chem. Soc. Rev.* **2016**, DOI: 10.1039/C6CS00286B.
 - 20 T. Mayer-Gall,* **Ji-Woong Lee**, K. Opwis, B. List, J. S. Gutmann, "Textile Catalysts - An Unconventional Approach towards Heterogeneous Catalysis" *ChemCatChem* **2016**, 8, 1428-1436.
 - 19 H. Zhao, S. Sen, T. Udayabhaskararao, M. Sawczyk, K. Kucanda, D. Manna, P. K. Kundu, **Ji-Woong Lee**, P. Král, R. Klajn* "Reversible trapping and reaction acceleration within dynamically self-assembling nanoflasks" *Nature Nanotech.* **2016**, 11, 82-88.
 - 18 M. Padmanaban, L. C. R. Carvalho, D. Petkova, **Ji-Woong Lee**, A. S. Santos, M. M. B. Marques*, N. Maulide* "Investigation of Cationic Claisen-type Electrophilic Rearrangements of Amides" *Tetrahedron* **2015**, 71, 5994-6005.
 - 17 S. Y. Park, **Ji-Woong Lee**, C. E. Song* "Parts-per-million Level Loading Organocatalysed Enantioselective Silylation of Alcohols" *Nature Commun.* **2015**, 6:7512, DOI: 10.1038/ncomms8512.
 - 16 **Ji-Woong Lee**, R. Klajn* "Dual-Responsive Nanoparticles that Self-Assemble under the Simultaneous Action of Light and CO₂" *Chem. Commun.* **2015**, 51, 2036-2039.
 - 15 H. Y. Bae, J. H. Sim, **Ji-Woong Lee**, B. List*, C. E. Song* "Organocatalytic Enantioselective Decarboxylative Aldol Reaction of Malonic Acid Half Thioesters to Aldehydes" *Angew. Chem. Int. Ed.* **2013**, 52, 12143-12147.
 - 14 **Ji-Woong Lee**, T. Mayer-Gall, K. Opwis,* C. E. Song, J. S. Gutmann, B. List* "Organotextile Catalysis" *Science* **2013**, 341, 1225-1229. (Highlighted in *Nature Chem.* **2013**, 5, 896-897; *C&EN* **2013**, 9, 5; *Synfacts* **2013**, 9, 1343; *Synform* **2013**, 12, A150)
 - 13 **Ji-Woong Lee**, B. List* "Deracemization of α -Aryl Hydrocoumarins via Catalytic Asymmetric Protonation of Ketene Dithioacetals" *J. Am. Chem. Soc.* **2012**, 134, 18245-18248.
 - 12 H. Yan, J. S. Oh, **Ji-Woong Lee**, C. E. Song* "Scalable Organocatalytic Asymmetric Strecker Reactions Catalysed by a Chiral Cyanide Generator" *Nature Commun.* **2012**, 3, DOI: 10.1038/ncomms2216.
 - 11 V. H. Jadhav, S. H. Jang, H.-J. Jeong, S. T. Lim, M.-H. Sohn, J.-Y. Kim, S. Lee,* **Ji-Woong Lee**, C. E. Song,* D. W. Kim* "Oligoethylene Glycols as Highly Efficient Multifunctional Promoters for Nucleophilic-Substitution Reactions" *Chem. Eur. J.* **2012**, 18, 3918-3924.
 - 10 J. S. Oh, **Ji-Woong Lee**, T. H. Ryu, J. H. Lee, C. E. Song* "Self-association Free Bifunctional Thiourea Organocatalysts: Synthesis of Chiral α -Amino Acids via Dynamic Kinetic Resolution of Racemic Azlactones" *Org. Biomol. Chem.* **2012**, 10, 1052-1055.
 - 9 H. Yan, H. B. Jang, **Ji-Woong Lee**, H. K. Kim, S. W. Lee, J. W. Yang, C. E. Song* "A Chiral-Anion Generator: Application to Catalytic Desilylative Kinetic Resolution of Silyl-Protected Secondary Alcohols" *Angew. Chem. Int. Ed.* **2010**, 49, 8915-8917.
 - 8 **Ji-Woong Lee**, J. Y. Shin, Y. S. Chun, H. B. Jang, C. E. Song,* S.-g., Lee* "Toward Understanding the Origin of Positive Effects of Ionic Liquids on Catalysis: Formation of More Reactive Catalysts and Stabilization of Reactive Intermediates and Transition States in Ionic Liquids" *Acc. Chem. Res.* **2010**, 43, 985-994.
 - 7 **Ji-Woong Lee**, T. H. Ryu, J. S. Oh, H. Y. Bae, H. B. Jang, C. E. Song* "Self Association-Free Dimeric Cinchona Alkaloid Organocatalysts: Unprecedented Catalytic Activity, Enantioselectivity and Catalyst Recyclability in Dynamic Kinetic Resolution of Racemic Azlactones" *Chem. Commun.* **2009**, 7224-7226.
 - 6 **Ji-Woong Lee**, H. Yan, H. B. Jang, H. K. Kim, S.-W. Park, S. Lee,* D. Y. Chi,* C. E. Song* "Bis-Terminal Hydroxyl Polyethers as All-Purpose, Multifunctional Organic Promoters: A Mechanistic Investigation and Applications" *Angew. Chem. Int. Ed.* **2009**, 48, 7683-7686.
 - 5 S. H. Youk, S. H. Oh, H. S. Rho, J. E. Lee, **Ji-Woong Lee**, C. E. Song* "A Polymer-Supported Cinchona-based Bifunctional Sulfonamide Catalyst: a Highly Enantioselective, Recyclable Heterogeneous Organocatalyst" *Chem. Commun.* **2009**, 2220-2222.
 - 4 R. R. Deshmukh, **Ji-Woong Lee**, U. S. Shin,* J. Y. Lee, C. E. Song* "Hydrogenation of Arenes by Dual Activation: Reduction of Substrates Ranging from Benzene to C₆₀ Fullerene under Ambient Conditions" *Angew. Chem. Int. Ed.* **2008**, 47, 8616-8617.

- 3 S. H. Oh, H. S. Rho, **Ji-Woong Lee**, J. E. Lee, S. H. Youk, J. Chin,* C. E. Song* "A Highly Reactive and Enantioselective Bifunctional Organocatalyst for Methanolytic Desymmetrization of Cyclic Anhydrides: Preventing Catalyst Aggregation" *Angew. Chem. Int. Ed.* **2008**, 47, 7872-7875.
- 2 H. S. Rho, S. H. Oh, **Ji-Woong Lee**, J. Y. Lee, J. Chin,* C. E. Song* "Bifunctional Organocatalyst for Methanolytic Desymmetrization of Cyclic Anhydrides: Increasing Enantioselectivity by Catalyst Dilution" *Chem. Commun.* **2008**, 1208-1210.
- 1 J. H. Kim, **Ji-Woong Lee**, U. S. Shin, J. Y. Lee, S.-g. Lee, C. E. Song* "Activation of Lewis Acid Catalysts in the Presence of an Organic Salt Containing a Non-Coordinating Anion: Its Origin and Application Potential" *Chem. Commun.* **2007**, 4683-4685.

Patents

- 3 B. List, **Ji-Woong Lee**, T. Mayer-Gall, K. Opwis "Process for the Immobilization of Catalysts on Textile Materials, the Obtained Textile Materials and the Use of Said Materials" EP 2669009 A1, EP2855014A1, WO2013178640A1.
- 2 C. E. Song, S. H. Oh, H. S. Rho, **Ji-Woong Lee**, J. W. Lee, S. H. Youk, J. Chin "Preparation of Cinchona-Based Bifunctional Organocatalysts and Method for Preparing Chiral Hemiesters Using the Same" US 20110213151 A1 20110901, WO 2010008117 A1 20100121.
- 1 C. E. Song, **Ji-Woong Lee**, T. H. Ryu, H. Bae, J. Oh "Bifunctional Organic Chiral Catalyst Compound with Superior Stereoselectivity, Method for Preparing Same, and Method for Preparing Chiral Amino Acids from Azlactone Using Same" WO 2010131881 A3.

Books

- 3 H. B. Jang, **Ji-Woong Lee**, C. E. Song "Cinchona-Catalyzed Nucleophilic 1,2-Addition to C=O and C=N Bonds in Cinchona Alkaloids in Synthesis and Catalysis" (Ed., C. E. Song), Wiley-VCH, 2009.
- 2 **Ji-Woong Lee**, H. B. Jang, C. E. Song "Cinchona-Catalyzed Nucleophilic Conjugate Addition to Electron-Deficient C=C Double Bonds in Cinchona Alkaloids in Synthesis and Catalysis" (Ed., C. E. Song), Wiley-VCH, 2009.
- 1 **Ji-Woong Lee**, H. B. Jang, J. E. Lee, C. E. Song "Cinchona-Based Organocatalysts for Desymmetrization of *meso*-Compounds and (Dynamic) Kinetic Resolution of Racemic Compounds in Cinchona Alkaloids in Synthesis and Catalysis" (Ed., C. E. Song), Wiley-VCH, 2009.