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Engineering & Scientific Consulting

Julie Li, Ph.D.

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Professional Profile

Dr. Li consults on a wide variety of polymer science matters including those related to formulation-structure-property relationship, material specifications for end-use applications, polymer conversion processes and failure analysis. She has extensive industrial experience in all stages of product development from formulation and compounding to manufacturing and commercialization.

Dr. Li has also taken many newly formulated materials from lab-scale concept to full-scale production. Throughout her career she has worked on numerous polymer-related projects that span multiple industries including automotive/electric vehicles (EV), consumer electronics, carbon fiber reinforced thermoplastics (CFRTP), water management, coatings, and additive manufacturing. At Exponent, she leverages her years of industry experience to assist clients with investigations related to complex structures, components, and devices, often in the building and construction arena.

Prior to joining Exponent, Dr. Li spent over 9 years in the chemical industry at SABIC and Celanese where she held several research and development positions among various business units. During her industrial career, Dr. Li led and executed complex global projects. Particularly, she led teams to commercialize polyphenylene ether (PPE) and polyamides-based engineering materials used in automotive/EV energy management and carbon fiber composites.

Dr. Li's academic achievements include synthesis and characterization of a novel family of stilbene-based polyelectrolytes with tunable charge densities, quantification of stilbene-based copolymer chain rigidity using SAXS and SEC, as well as designing carboxylated alternating copolymers used as Anti-HIV microbicides. Dr. Li is proficient in a variety of analytical techniques including chemical, thermal, mechanical, and rheological characterization of polymers.

Academic Credentials & Professional Honors

Ph.D., Chemistry, Virginia Polytechnic Institute and State Univ, 2012

M.S., Chemistry, Virginia Polytechnic Institute and State Univ, 2009

B.S., Chemistry, Hunan University, 2006

"Excellence in Innovation" Award, Celanese, 2013

The Outstanding Mentor Award of Summer Undergraduate Research Program, Virginia Tech, 2011

The Chevron-Phillips Chemical Professional Excellence Travel Award, 2010

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Prior Experience

Senior Scientist, SABIC, 2018 ~ 2021

Scientist, SABIC, 2014 ~ 2018

Research Scientist - Celanese Innovation Leadership Program, 2012 ~ 2014

Professional Affiliations

American Chemical Society — ACS (Member since 2000)

Patents

Patent Applications

Li, Y.; Fishburn, J. R. Polyphenylene Ether-Polyamide Compositions, Methods of Manufacture, and Uses Thereof, U.S. Provisional Application No. 62/956,040

Li, Y.; Onda, K. PPE/Nylon Blends With Ultra High-Flow And Low-moisture Absorption, European Application No. 20172451.5

Li, Y.; Nair, K.P.; Bansal, P.; Tsz, M.T.; Shepherd, J.P. Aromatic Polyester Film US 2015/0275033 A1

Li, Y.; Nair, K.P. Aromatic Polyester Solution US 2015/0275034 A1

Nair, K.P.; Li, Y. Crosslinkable Soluble Aromatic Polyester US 2015/0274886 A1

Nair, K.P.; Li, Y. Laminate for a Printed Circuit Board US 2015/0274965 A1

Kizer, L.E.; Robertson, R.M.; Gou, Z.; Li, Y. Apparatuses, Systems, and Associated Methods for Forming Organic Porous Masses for Flavored Smoke Filters US 20140261475 A1 (CA 2898661 A1, WO 2014150313 A1)

Combs, M.; Garrett, T.; Prunesti, C.; Jakob, M.; Li, Y.; Tu, X. Substituted Cellulose Ester Adhesives and Methods and Articles Relating Thereto US 20150203723 (EP 2898034 A1, CN 104411792 A, WO 2014046678 A1)

Combs, M.; Garrett, T.; Prunesti, C.; Jakob, M.; Li, Y.; Tu, X. Fibrous Substrates Adhered with Substituted Cellulose Ester Adhesives and Methods Relating Thereto. US 20140193653 A1 (CN 104411492 A, EP 2897798 A1, WO 2014046680 A9, WO 2014046680 A1)

Granted Patents

Combs, M.; Garrett, T.; Prunesti, C.; Jakob, M.; Li, Y.; Tu, X. Wood Laminate Articles Comprising Substituted Cellulose Ester Adhesives and Methods Relating Thereto. US 9138967 B2

Combs, M.; Garrett, T.; Prunesti, C.; Jakob, M.; Li, Y.; Tu, X. Engineered Wood Produced with Substituted Cellulose Ester Adhesives and Methods Relating Thereto. US 9090045 B2

Publications

Peer-Reviewed Papers

Li, Y.; Savage, A.M.; Zhou, X.; Turner, S.R.; Davis, R.M. “Solution Properties of Stilbene-containing

Sterically Crowded Alternating polyanionsPolyanions" J. Polym. Sci., Part B: Polym. Phys. 2013, 51, 1565.

Li, Y.; Zhang, M.Q.; Mao, M.; Turner, S.R.; Moore, R.B.; Mourey, T.; Slater, L.A.; Hauenstein, J.R. "Chain Stiffness of Stilbene Containing Alternating Copolymers by SAXS and SEC" Macromolecules 2012, 45, 1595.

Li, Y.; Matolyak, L.E.; Mao, M.; Turner, S.R. "Sterically Crowded Anionic Polyelectrolytes with Tunable Charge Densities Based on Stilbene-Containing Copolymers" ACS Macro Letters 2012, 1, 257.

Li, Y.; Turner, S.R. "Free Radical Copolymerization of Methyl Substituted Stilbenes with Maleic Anhydride" Eur. Polym. J. 2010, 46(4), 821-828.

Savage, A.M.; Li, Y.; Turner, S.R.;Mataolyak, L; Doncel, G; Gandour, R.D. "Designing Carboxylated Alternating copolymers for Anti-HIV Microbicides" submitted to. J. AmMed. Chem. Soc.2014, 57(15), 6354-6363

Zhou, X.; Li, Y.; Turner, S.R.; Hart, K.E.; Abbott, L.J.; Colina, C.M.; Lin, Z.; Svec, F. "Nanoporous Structure of Semirigid Alternating Copolymers via Nitrogen Sorption and Molecular Simulation" Macromolecules 2013, 46(15), 5968.

Li, Y.; Mao, M.; Turner, S.R. "Synthesis and Characterization of Sterically Crowded Polyanions with Tunable Charge Densities" PMSE Preprints (American Chemical Society, Division of Polymer Material Science Engineering 2010.

Li, Y.; Turner, S.R. "Free Radical Copolymerization of Methyl Substituted Stilbenes with Maleic Anhydride" Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) 2009, 50(2), 483-484.

Savage, A. M.; Li, Y.; Kiernan, Z.; Turner, S. R. "Synthesis and Characterization of Cationic Alternating Copolymers with Tunable Charge Densities" PMSE Preprints (American Chemical Society, Division of Polymer Material Science Engineering 2012.

Zhou, X.; Li, Y.; Barr, K.W.; Turner, S. R. "Hypercrosslinked Polymers Based on Sterically Crowded Alternating Copolymers with Intrinsic Microporosity" PMSE Preprints (American Chemical Society, Division of Polymer Material Science Engineering 2012.

Zeng, J.; Wei, W.; Wu, L.; Liu, X.; Liu, K.; Li, Y. "Fabrication of Poly(Toluidine blue O)/Carbon Nanotube Composite Nanowires and Its Stable Low-potential Detection of NADH" J. Electroanal. Chem. 2006, 595, 152-160.

Conference/Seminar Orals/Poster Presentations

Godthi, V.; Bobba, S.; P, A.; Sharma, H.; Rijnkels, M.; Li, Y. Multi-Material Hybrid Rocker Panel Structures for EV Battery Protection. SAE WCX Digital Summit, April 13, 2021, written and oral presentation

Li, Y.; Zhang, M.Q.; Mao, M.; Turner, S.R.; Moore, R.B.; Mourey, T. Studies Related to Highly Functional Sterically Crowded Substituted Stilbene Copolymers. Poster Presentation. 2011 Focus School Forum at Eastman Chemical Company, June 12 - 14, 2011, Kingsport, TN.

Li, Y.; Mao, M.; Turner, S.R. Synthesis and Characterization of Sterically Crowded Polyanions with Tunable Charge Densities. Oral Presentation. 240th ACS National Meeting and Exposition, August 6 - 10, 2010, Boston, MA.

Li, Y.; Turner, S.R. Copolymerization of Substituted Stilbenes. Poster Presentation. Macromolecules and

Interfaces Institute 2007 Technical Conference and Review, October 22 - 24, 2007, Blacksburg, VA.

Li, Y.; Turner, S.R. Free Radical Copolymerization of Methyl Substituted Stilbenes with Maleic Anhydride. Poster Presentation. Macromolecules and Interfaces Institute 2009 Technical Conference and Review, April, 2009, Blacksburg, VA.

Li, Y.; Turner, S.R. Free Radical Copolymerization of Methyl Substituted Stilbenes with Maleic Anhydride. Poster Presentation. 238th ACS National Meeting, Washington D.C. August 16 - 20, 2009.

Li, Y.; Mao, M.; Turner, S.R. Synthesis and Characterization of Sterically Crowded Polyanions with Tunable Charge Densities. Poster Presentation. 6th National Graduate Research Polymer Conference, June 6 - 9, 2010.

Li, Y.; Mao, M.; Turner, S.R. Sterically Crowded Polyelectrolytes with Tunable Charge Densities: Stilbene Based Copolymers via Free Radical Copolymerization. Poster Presentation. Macromolecules and Interfaces Institute 2010 Technical Conference and Review, October 11 - 13, 2010, Blacksburg, VA.