Exponent®
Engineering & Scientific Consulting

Jiajun Lin, Ph.D.

Managing Engineer | Polymers & Chemistry
Shanghai
+86 21 5463 2677 | jlin@exponent.com

Professional Profile

Dr. Lin specializes in multifunctional polymers and composites. His expertise includes designing, synthesis and characterization of piezoelectric materials, self-healing polymers and nano-structured composite interfaces, as well as fractographic analysis of plastic, rubber, glass and composite materials.

Dr. Lin has extensive experience in chemical characterization using infrared spectroscopy (IR), Raman spectroscopy, X-ray diffractometry (XRD) and nuclear magnetic resonance (NMR), as well as thermal analysis techniques such as thermogravimetric analysis (TGA), differential scanning calorimetry (DSC) and dynamic mechanical analysis (DMA). He also has expertise in surface characterization and ferroelectric measurement using atomic force microscopy (AFM). He is well-versed in fabrication and failure analysis of plastics and fiber/nanofiller reinforced thermosetting composites. When investigating micro/nanoscale failures, Dr. Lin routinely utilizes tools such as scanning electron microscopy (SEM), focused ion beam (FIB), and cryo-microtome. Dr. Lin has also developed additive manufacturing methods for thermoplastic/thermoset polymers and composites.

Prior joining Exponent, Dr. Lin was a research assistant in the Macromolecular Science and Engineering department at the University of Michigan. He conducted research on chemical modification of piezoelectric polymers to improve the piezoelectrical performance of commercialized materials and developed novel 3D printing methods to fabricate wearable piezoelectric sensors and energy harvesters. He conducted research on Diels-Alder based self-healing polymers and developed formulations with high self-healing capability as well as excellent mechanical properties and thermal resistivity. He also investigated nanoscale composite reinforcements to simultaneously improve the stiffness and toughness of thermoset matrices.

Academic Credentials & Professional Honors

Ph.D., Macromolecular Science and Engineering, University of Michigan, Ann Arbor, 2019

B.S., Polymer Science and Engineering, Harbin Institute of Technology, 2012

M.S., Material Science and Engineering, Harbin Institute of Technology, 2012

Professional Affiliations

Materials Research Society (MRS)

International Society for Optics and Photonics (SPIE)

American Chemical Society (ACS)

Languages

Japanese

Publications

Lin J, Malakooti M H, Sodano H A. Thermally Stable Poly (vinylidene fluoride) for High-performance Printable Piezoelectric Devices. ACS applied materials & interfaces, 2020, 12(19): 21871-21882.

Zhang L, Lin J, Sodano H A. Isocyanurate Transformation Induced Healing of Isocyanurate–oxazolidone Polymers. Journal of Applied Polymer Science, 2020, 137(20): 48698.

Nasser J, Lin J, Steinke K, Sodano HA. Enhanced interfacial strength of aramid fiber reinforced composites through adsorbed aramid nanofiber coatings. Composites Science and Technology 2019; 174:125-133.

Nasser J, Lin J, Sodano HA. High Strength Fiber Reinforced Composites with Surface Fibrilized Aramid Fibers. Journal of Applied Physics 2018; 124: 045305.

Patterson BA, Malakooti MH, Lin J, Okorom A, Sodano HA. Aramid Nanofibers for Multiscale Fiber Reinforcement of Polymer Composites. Composites Science and Technology 2018; 161: 92-99.

Lin J, Bang SH, Malakooti MH, Sodano HA. Isolation of Aramid Nanofibers for High Strength and Toughness Polymer Nanocomposites. ACS Applied Materials & Interfaces 2017; 12: 11167-11175.

Liu Y, Liu Y, Lin J, Tan H, Zhang C. UV-protective treatment for Vectran® fibers with hybrid coatings of TiO2/organic UV absorbers. Journal of Adhesion Science and Technology 2014; 18: 1773-1782.

Presentations

Lin J, Sodano HA. A Novel Electrospun 3D Printing Method for Piezoelectric Polymeric Devices. Oral presentation, MRS Spring Meeting, Phoenix, AZ, 2018.

Lin J, Patterson BA, Malakooti MH, Sodano HA. Isolation of Aramid nanofibers for high strength multiscale fiber reinforced composites. Oral presentation, SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring, Denver, CO, 2018.

Lin J, Liu Y, Han J, Qi M, Yang P. Recycling of Wasted Printed Circuit Boards in Near-critical Water and the Effects of Reaction Conditions on Decomposition Rate, poster presentation, 18th International Conference on Composite Materials, Jeju, South Korea, 2011.

Peer Reviews

MRS Advances