



Exponent®

Engineering & Scientific Consulting

Erin Askounis, Ph.D.

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Professional Profile

Dr. Askounis specializes in the synthesis, characterization and mechanics of polymeric materials with an emphasis on structure-property-performance relationships. She routinely utilizes her expertise by helping clients with material reliability assessments and root cause investigations. In addition, Dr. Askounis assists clients throughout all phases of product development including materials selection, processing and end-use testing.

At Exponent, Dr. Askounis' project work and research interests include fractography, accelerated aging studies, materials exposure testing, and intellectual property analysis. Dr. Askounis is well versed in free-radical and controlled free-radical polymerization techniques with additional experience in nanoparticle synthesis. She also has extensive experience in small molecule organic synthesis and designing multi-functional monomers for use in macromolecular systems. She is proficient in several techniques to characterize materials, including spectroscopy (FTIR, UV-Vis, NMR), chromatography (GPC), thermal (TGA, DSC), thermomechanical (DMA, TGA), microscopy (OM, SEM), and crystallography (XRD). Dr. Askounis has experience with a variety of polymeric materials, including thermoplastics, elastomers, and thermosets that are often specified for use in the consumer electronics, consumer products, construction, batteries, and mining industries.

Prior to joining Exponent, Dr. Askounis obtained her Ph.D. in Materials Science and Engineering from the University of California, Los Angeles where she led the development, synthesis, and fabrication of new high-performance stimuli-responsive polymer and composite materials. As part of her work, she developed variable stiffness materials stimulated by light, temperature, and solvent, capable of ultra-wide tunable stiffness ranges for use in biomedical applications. She also developed, synthesized, and fabricated new dielectric elastomeric materials and actuators exhibiting both high strain and rapid frequency response for use in robotics applications.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, University of California, Los Angeles (UCLA), 2020

B.S., Chemistry, Northeastern University, 2015

National Defense Science and Engineering Graduate Fellowship (NDSEG), 2016

Professional Affiliations

ASTM International (2022-Present)

American Chemical Society (ACS) (2012-Present)

Society of Women Engineers (SWE) (2015-Present)

Society of Plastics Engineers (SPE) (2021-Present)

Publications

Askounis E*, Shi Y*, Plamthottam R*, Libby T, Peng Z, Youssef K, Pu J, Pelrine R, Pei Q. (2022) A processable, high-performance dielectric elastomer and multilayering process. *Science*. 8; 377 (6602): 228-232

Askounis, E. *, Qiu, Y. *, Guan, F., Peng, Z., Xiao, W., Pei, Q. (2020) Dual Stimuli-Responsive Polymer Composite with Ultra-Wide Variable Stiffness Range Triggered by Water and Temperature. *ACS Applied Polymer Materials* 2 (5), 2008–2015. *Authors contributed equally.

Wang, L., Yang, Y., Chen, Y., Majidi, C., Iida, F., Askounis, E., and Pei, Q. (2018). Controllable and Reversible Tuning of Material Rigidity for Robot Applications. *Materials Today* 21: 563–576.

Ghabbour, E. A.; Davies, G.; Misiewicz, T.; Alami, R. A.; Askounis, E. M.; Cuozzo, N. P.; Filice, A. J.; Haskell, J. M.; Moy, A. K.; Roach, A. C.; Shade, J. (Elsevier, 2017) National Comparison of the Total and Sequestered Organic Matter Contents of Conventional and Organic Farm Soils. *Advances in Agronomy* Vol. 146, pp 1–35.

Hu, W., Ren, Z., Li, J., Askounis, E., Xie, Z. and Pei, Q. (2015). New Dielectric Elastomers with Variable Moduli. *Advanced Functional Materials* 25: 4827–4836.

Presentations

Askounis, E., Qiu, Y., Guan, F., Peng, Z., Pei, Q. Dual stimuli responsive polymer composite with ultra-wide tunable stiffness range triggered by water and temperature, ACS Fall 2020 Virtual Meeting & Expo, August 2020.

Askounis, E. Augustine, M., Lee, J., Vulpe, C. Multiple mechanisms of PAH toxicity in *Daphnia magna*: Effects of an AhR agonist and competitor on genes involved in toxicant pathways, Experimental Biology 2014, San Diego, CA, April 2014.

Askounis, E., Kirss, R. Synthesis of Frustrated Lewis Pairs Based on Ferrocenyl Phosphines, Poster Presentation, ACS Spring 2014 Meeting & Expo, Dallas, TX, March 2014.