

ECO-NANOMANUFACTURING (THROUGH A POLYMER LENS)

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Abstract: The UN Sustainable Development Goals define 17 grand challenges society faces, all of which can be mapped onto Social, Environmental, and Economic sustainability. Nanomanufacturing has an opportunity to produce positive change toward many of these goals if technological advances integrate principles of ecodesign. Reduction of waste, design for the circular economy, selection of less hazardous chemicals, and energy efficient manufacturing processes should be primary objectives in any nanomanufacturing system. Several areas of technological priority reflect the trend toward eco nanomanufacturing, including flexible and hybrid electronics processing, additive manufacturing, and materials for renewable energy and sustainability. This presentation will highlight advances in sustainable manufacturing of polymers and plastics, including the importance of broadening participation and workforce development..

Bio: Meg Sobkowitz is a Professor of Plastics Engineering at UMass Lowell. She has a B.S. and Ph.D. in Chemical Engineering from Columbia University and Colorado School of Mines, respectively. She held a National Research Council postdoctoral fellowship at National Institute of Standards and Technology, and she joined UMass Lowell in 2011. She was awarded the National Science Foundation CAREER grant in 2014, and she has over 60 peer reviewed publications. Her research interests include renewable polymers, polymer nanocomposites, plastics processing and recycling, rheology, energy applications of polymers, green chemistry, and climate change. At UMass Lowell she leads an NSF Research Traineeship in water and materials sustainability, and she works toward increasing the participation and advancement of women in academic STEM careers.