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Nanostructured biodegradable polymeric materials through a green chemical approach

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Secondary nanostructures inscribed onto hierarchical fibers provide additional dimensionality for tuning the surface and physicochemical properties of the materials. In general, nanoporous and nano wrinkled electrospun fibers are produced by tuning parameters such as solvent, humidity, composition, etc., without post-electrospinning treatment, while post-electrospinning treatment is required to introduce nanorods and "nanokebabs" onto a smooth fiber surface. In contrast, by employing green design concepts; we are able to fabricate various nano/microstructured electrospun fibers with structural hierarchy and compositional complexity. The green design concepts that will be discussed in this presentation include engineering the amorphous phase of semicrystalline biodegradable polyester-based fibers through solvent vapor annealing and targeted enzymatic degradation.

Biography

Bingbing Li received her PhD (2007) degree in Physical Chemistry from Virginia Tech. From 2007-2009, she was a Post-doctoral Researcher first at University of Massachusetts at Amherst and then at the Indiana University Center for Regenerative Biology and Medicine (IUCRBM). She was promoted to a Research Assistant Professor at the IUCRBM, prior joining the tenure-track faculty at Central Michigan University (CMU) in 2009. Her research mainly focuses on the new design concepts for nano/microstructured polymeric materials, such as hierarchically structured electrospun fibers, polyhedral oligomericsilsesquioxane-based composite films and fibers, and more recently on manipulating complex structured materials through enzymatic process. She is the leading guest editor for special issues on the *Journal of Nanoengineering and Nanomanufacturing and Science of Advanced Materials*.

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