2008 Summary of Research Reports

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Project: Ionic Liquid based Conversion of Biomass to Hydrocarbon Fuels
Sponsor: ONR

Statement of Work: This ERP is for a continuing AFOSR funded program (the previous title was Biopolymer Nanocomposites). Ionic liquids represent a unique class of solvents that offer unprecedented versatility and tunability. Recent work has shown the potential of ionic liquids as solvents for the processing of biopolymers. In addition, ionic liquids have recently been shown to significantly enhance the interaction of nano-scale clays and carbon nanotubes with polymeric materials. In this research program we will investigate the dissolution and reconstitution of Silk and other natural (e.g., cellulose, collagen, elastin, chitin) in and from ionic liquids; we will use ionic liquids to prepare silk composite materials that incorporate nano- scale layered silicates and carbon nanotubes; and we will employ a variety of methods to evaluate the macroscopic and microscopic properties of these unique biopolymer nanocomposite materials