

“Nano-engineered structural composites : opportunities and challenges”, by Dr. Larissa GORBATIKH

Due to their exceptional mechanical, electrical and thermal properties, carbon nanomaterials such as carbon nanotubes (CNTs) have been widely explored in the field of fibre-reinforced polymers, creating opportunities to develop high performance composites with additional functionalities and improved mechanical performance.

As they combine nano-scale and micro-scale reinforcement, composites are frequently referred to as multi-scale, hierarchical or nano-engineered composites. There are different ways for introducing CNTs in the composites : dispersion in the matrix, deposition on fibre surfaces, direct growth of CNTs on fibres/fabrics, and other approaches. In this talk, different concepts for the use of nanotubes in fibre-reinforced polymers will be reviewed. The focus will be on the mechanical performance of composites with nano-modified matrices, interfaces and fibres.



Since 2007, Larissa GORBATIKH is a Research Expert in the Composite Materials Group of K.U. Leuven, where she coordinates research activities in the field of nano-engineered and hybrid polymer composites, with a focus on experimental and modelling investigations of failure phenomena and the development of toughening strategies of heterogeneous materials and fibre-reinforced composites. She has co-authored over 120 journal and conference publications and participated as principal or co-investigator in many national, American and European projects. She currently serves on the council of the European Society for Composite Materials.

After a Bachelor's degree in Applied Mathematics & Mechanics (1995) and a Master's degree in Mechanics (1997) from St-Petersburg State University, Larissa obtained a Ph.D. in Mechanical Engineering from Tufts University (2001), and then joined the University of New Mexico as Assistant Professor. From 2004 to 2006, she was a faculty member at the University of Massachusetts Lowell.