Current research efforts worldwide related to synthesis, processing, and applications of nanostructured materials will be published by Elsevier in 2012 in a book titled: Nanostructured Materials: From Nano to Biomedical Applications. The project is led by Dr. Vesselin Shanov with contributions from Dr. Mark Schulz and Dr. David Mast.

The project's focus is on the development of advanced materials for biomedical applications, such as superfiber materials. The project aims to miniaturize and integrate a vital electronic component to the point that it can be incorporated into the soldier's uniform, replacing bulky, externally mounted metal components. The success of the project will allow for the miniaturization of electronic components, leading to improved performance and reduced weight.

As a PI, Dr. Shanov has currently attracted over $2,000,000 in funding. He has created two patented technologies and helped UC to transfer them to industries. His latest grant, titled "Nanoscale Materials for Biomedical Applications," is expected to be awarded in 2013.

The Center for Imaging Research (CIR) at the University of Cincinnati is a core facility dedicated to providing researchers with state-of-the-art imaging and spectroscopy systems. The CIR is equipped with a variety of research techniques, including Magnetic Resonance Spectroscopy (MRS) and Functional Magnetic Resonance Imaging (fMRI). The CIR has a comprehensive research program that studies the structure, function, and chemistry of the body (particularly the brain) in normal subjects, in disease states, and with animal models.

Some of the facilities and nanomaterials resulted from Dr. Shanov's research are shown in Figure 1. The projects include: (a) aligned carbon nanotube threads and sheets for aerospace and energy applications, (b) machine for growing carbon nanotubes and graphene, and (c) Vapor Deposition reactor for growing carbon nanotubes.

The CIR focuses on refining proton magnetic resonance spectroscopy (MRS) including hardware and software development. For more information about research at the CIR, please visit the CIR website (www.cir.uc.edu) or contact Vesselin Shanov at vshanov@uc.edu.