Integrated systems for fluidics-based mANUFACTURING AT THE Nanoscale

Placid M. Ferreira
University of Illinoise at Urbana Champaign
pferreir@uiuc.edu

ABSTRACT

Nanoscience – the 'science of the small' – produces stunning revelations that, almost daily, redefine the realm of the possible. Yet, the manufacturing processes and systems to transform this new knowledge into technologies and products that benefit us in our daily life is a crucial missing element. At Illinois, the Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems (Nano-CEMMS) Center, a NSF-sponsored Nanoscale Science and Engineering Center (NSEC), is exploring and developing new methodologies and tools that exploit chemical, mechanical, and electronic phenomena and processes for manufacturing at the nanoscale.

This talk is a broad overview of the research and programs within the Center. The paradigms and processes it attempts to develop by integrating the capabilities of large arrays of nano-fluidic elements (molecular gates) with nanopositioning and sensing will be discussed.