

MANUFACTURING OPPORTUNITIES AT THE MICRO- AND NANOSCALES

Abstract:

While exploring and exploiting chemical, mechanical, and electronic phenomena in the development of micro and nanoscale manufacturing processes, it is also important to understand the characteristics of process and tools that permitted scaling of manufacturing at conventional scales. We will identify critical challenges in process development, tool design, metrology and integration. Within this framework, ambient nanoscale patterning processes, MEMS-scale tooling, and assembly of hetrostructures with new variants of micro-transfer printing will be discussed.

About the Speaker:

Placid M. Ferreira is the Head and the Tungchao Julia Lu Professor of Mechanical Science and Engineering at Illinois. From 2003 to 2009, he was the director of the Center for Chemical-Electrical-Mechanical Manufacturing Systems (Nano-CEMMS), an NSF-sponsored Nanoscale Science and Engineering Center. Professor Ferreira received NSF's Presidential Young Investigator Award in 1990, SME's Outstanding Young Investigator Award in 1991 and the University of Illinois' University Scholar Award in 1994. He is also a Fellow of ASME and SME and has served on the editorial board of a number of manufacturing-related journals.