



FIRST INTERNATIONAL NANOTECHNOLOGY CONFERENCE ON COMMUNICATION AND COOPERATION

Abstract

The NCN: A Vision for Theory, Simulation, and Networking

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The Network for Computational Nanotechnology (NCN) is a multi-university initiative with a mission to create a unique, web-based infrastructure to serve researchers, educators, and students. The NCN was established to connect theory, modeling, and simulation to experimental work and education. Research, education, and outreach programs to students and professionals drive the development of its infrastructure. The web site, www.nanohub.org, is a sophisticated infrastructure for delivering cyber services. The nanoHUB hosts collaborative tools that connect people and unique educational resources such as online courses, learning modules, lectures, and seminars. Its signature service is online simulation, visualization, and high-performance computing. We believe that the NCN is putting theory, simulation, experimental and computational research, and education together in a new way, and our goal is to have a significant impact on the development of nanotechnology as a new engineering science. This talk is an overview of the NCN emphasizing its work on nanoelectronics. We will discuss the science of molecular electronics, the exploration of new device and material concepts, the development of a new generation of CAD tools, the creation on a novel nanocurriculum, and the use of the nanohub.org cyberinfrastructure to connect this work to engineers, researchers, educators, and students worldwide.