



**Media Contacts:**

Valerie Fields--(919) 829-5951 office  
V.K. Fields & Co. Public Relations Agency  
(336) 362-9668 (m) valerie@vkfields.com

Mr. John Merrill—(336) 375-9232  
Gateway University Research Park

# NANO-TERMINOLOGY

## JOINT SCHOOL OF NANOSCIENCE & NANOENGINEERING PRESENTS “NANO-SPEAK” IN PLAIN ENGLISH

GREENSBORO, N.C. – Those associated with the Joint School of Nanoscience & Nanoengineering (JSNN) are accustomed to the blank stares and glazed-over looks they usually receive when attempting to explain exactly what Nano science is.

Located at the South Campus of Gateway University Research Park in Greensboro, N.C., the JSNN is a collaborative project between North Carolina Agricultural and Technical State University (NCA&T) and The University of North Carolina at Greensboro (UNCG). JSNN’s mission is to train students to conduct basic and applied research in nanoscience and nanoengineering, and to work closely with the Piedmont Triad community to help enhance opportunities for economic growth through its outreach and engagement activities. This joint effort between UNCG and NCA&T is expected to be a catalyst for economic growth for both the region and the state.

### Basic “Nano” Definitions

Nanotechnology – scientific and engineering know-how to control the arrangement of atoms and molecules, enabling novel applications with customized properties. *In other words... nanotechnology allows scientists to reconfigure basic materials to do cool, new stuff.*

Nano – the term “nano” is originally derived from Greek/Latin words “nanos”/“nanus” meaning “dwarf.” The scientific prefix “nano” means one-billionth. *In other words... a nanometer is one billion times shorter than one meter. In nanotechnology, structures are less than one hundred nanometers. One hundred nanometers is about 1,000 times smaller than the width of a human hair.*

### Industries that currently use Nanotechnology

- Electronics
- Pharmaceuticals
- Defense
- Information Technology
- Textiles
- Advanced Materials
- Entertainment
- Sporting goods
- Sensors and Security

### **“Nano” Applications and Devices**

Nanotechnology is not an “end product,” but instead is used to improve systems, materials, and devices for various industry applications. In addition to the industries named above, nanotechnology shows promise in the following areas:

- Medicine (e.g. drug discovery and delivery particularly in cancer treatments)
- “Green” Applications (e.g. building construction materials that clean the air)
- Renewable Energy (e.g. improved photovoltaic cells)

### **JSNN Areas of Focus (4)**

1. Nanobiology – study of the use of biological materials and processes in nanotechnology applications such as drug delivery or self-assembly
2. Nanometrology – science of measurement of “Nano” structures
3. Nanocomposite materials – materials science involving the fabrication and incorporation of nanofibers and nanoparticles into other materials to enhance their properties
4. Bioelectronics – interface of electronics with biology (e.g. infusion pumps for diabetics)

***The projected economic impact of nanotechnology on the global economy is \$3.1 trillion by 2015 (Lux Research).***



### **JSNN Building Specifications:**

- 100,000(+) square feet
- Highly-specialized laboratories and Clean Room
- Computer lab and Simulator area
- Bio, Chemical, Analytical and Fabrication laboratories

### **Degree Programs**

- Initially, two advanced degree programs in Nanoscience
  - Professional Master of Science
  - Ph.D.