

Mihail C. Roco

Nanotechnology Research Trends In The U.S.

The long-view of the National Nanotechnology Initiative for establishing control of matter at the nanoscale has three stages: phenomenological basics and synthesis of nanocomponents (in 2000s), nanosystem integration by design for fundamentally new products (in 2010s), and creation of new technology platforms with other emerging technologies and socio-economic divergence (2020-2030). 2020s). NNI outcomes are presented in comparison to other regions and global results. Priorities of the U.S. National Nanotechnology Initiative have been grouped and are funded under several 'Signature initiatives' since 2011: (a) Nanoelectronics for 2020 and Beyond; (b) Sustainable Nanomanufacturing; (c) Nanotechnology for Solar Energy; (d) Nanotechnology Knowledge Infrastructure, and (e) Nanosensors. Priorities at NSF will be outlined. A current focus is on the third generation of nanotechnology products including nanosystems, self-powered nanodevices, and nano-bio assemblies, as well as integration with other knowledge and technology domains.

Several related reports are:

- "Nanotechnology Research Direction" Springer 2000; "Nanotechnology Research Directions for Societal Needs in 2020" Springer 2011, available on www.wtec.org/nano2/).
- "Converging knowledge, technology and Society: Beyond Nano-Bio-Info-Cognitive Technologies", Springer 2013, available on www.wtec.org/NBIC2/).