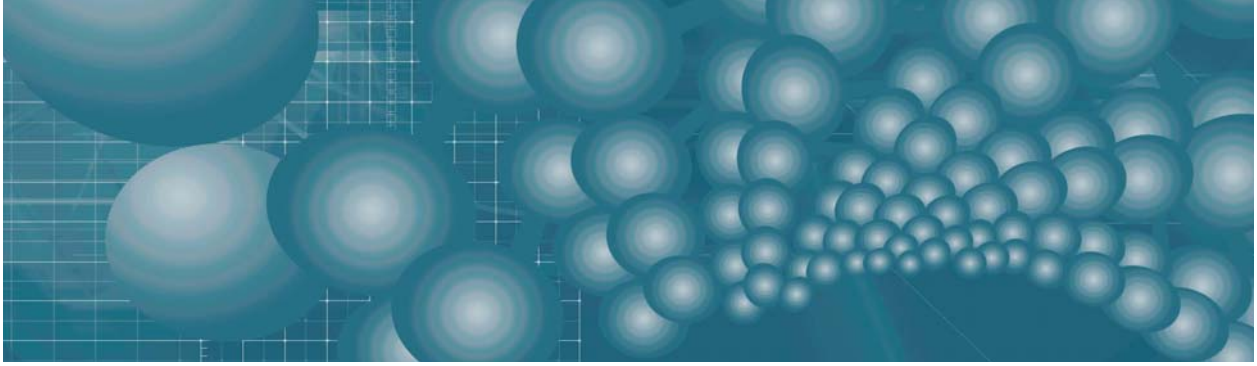


STATE-LEVEL NANOTECHNOLOGY INITIATIVES ELSEWHERE

Pacific North West Economic Region

Alberta – In 2003, Federal and Provincial funding totaling **C$120-million** established the National Institute for NanoTechnology (NINT) at the University of Alberta. In 1999, the Provincial Government invested **C$20-million** in a Micro-Nano Fabrication Facility at UofA and in 2004 jointly with Federal funding, an additional **C$13-million** was invested in the Alberta Centre for Surface Engineering and Science (ACSES). Sun Microsystems of California has launched a research center at the UofA to develop computational tools to model, simulate, integrate and visualize micro and nano-scale systems, while IBM of New York is opening a Center for Advanced Studies at the UofA later in 2005 with nanotech as one of the primary topics. NINT now has over 50 researchers, growing to 150 by June 2006, and the UofA now has over 150 faculty members and over 300 post-docs and graduate students engaged in nano research *independent* of NINT.

British Columbia – In 2004, Simon Fraser University in Vancouver committed **C$28-million** along with a **C$7-million** seed grant from a private Foundation, to establish the "4D Labs" at SFU, a new facility dedicated to nanomaterials research, commercialization and tech transfer in photonics, molecular electronics and magnetic wave computing.

Oregon – State government authorized **$21-million** in 2003 [with an additional **$7M** in the Governor's *current* biennial budget proposal] to launch the Oregon Nanoscience and Microtechnologies Institute (ONAMI) targeted at fundamental and translational research for industrial applications, with significant support from Hewlett-Packard and other Oregon companies. Pacific Northwest National Laboratory in Richland, WA partnered with Oregon State University and ONAMI to launch the Microproducts Breakthrough Institute, which has won approximately **$20M** in new grants and contracts in the last 12 months and is occupying its first physical headquarters on HP's Corvallis campus.

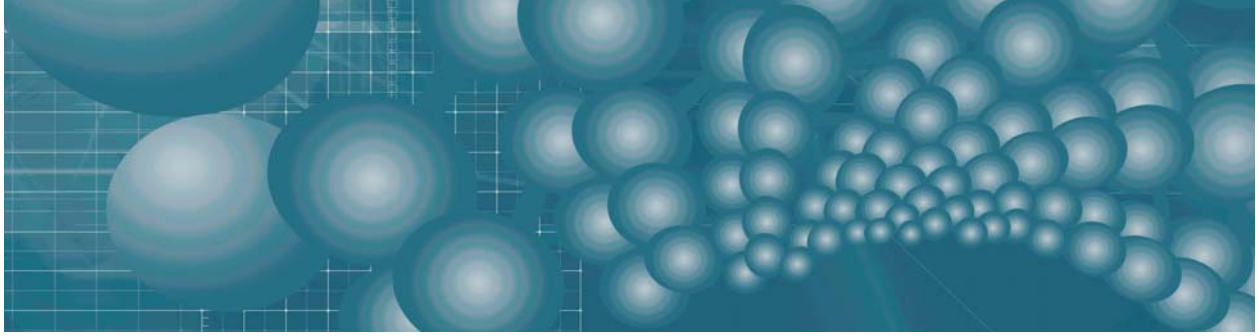
nearby

Colorado – Colorado was the first state in the USA with a Governor's Nanotech Advisory Board, following which the Legislature created a seed capital pool of **$12 million** for nanotech start-ups and passed a resolution noting nanotech as a top economic priority. In 2003, the Nanobusiness Alliance established their Western Office in Colorado, and a Colorado Nanotechnology Initiative was established as a promotion and networking group.

Next pages

detail those states ranked by ***SmallTimes*** magazine in their Top States listing, March 2005

- *Peer-Region States*
- *The Big 5 Nano States*



*Peer-Region States that are among those ranked in **SmallTimes** Top States listing, March 2005*

SmallTimes Rank 2005

❸ **New Mexico** – Ranking based on 2 large National Labs – Sandia and Los Alamos. The State launched the Next Generation Economy Initiative in 2002, which is developing a microfabrication training facility with significant capital donations by Intel while the Federal Government has committed **$75-million** for a Nanotech Integration Center at the 2 National Labs.

❺ tie **Michigan** - In 2002, the State funded launch of the Michigan Small Tech Association as a promotion and networking group, managed by "*SmallTimes*" magazine which is based in Michigan. One of the first pure-play nano/MEMS venture capital funds is based in Michigan, which has made investments in leading Washington State MEMS companies – Micronics and Mesosystems. While no major dedicated programs, strong science at U. of Michigan and Western Michigan University results in good nano patent volume, as well as from major local industries. *SmallTimes*'s survey sites a major patent from GM in 2004 for nanostructured catalyst dispersion.

❽ **Maryland** – Key heavyweight is the National Institute of Standards and Technology (NIST) metrology lab at Gaithersburg which opened during 2004 and provides healthy local expertise and satellite ventures. Maryland's State funded Tech Development Corporation (TEDCO) is in the process of developing a state nanotech policy.

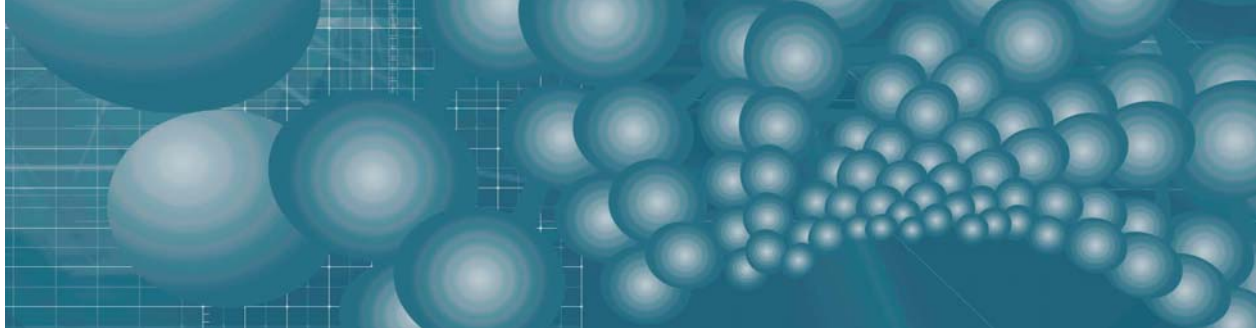
15 **Virginia** – Universities have formed 2 collaborative research networks and the private-sector Northern Virginia Technology Council formed a Nanotechnology Committee in early 2004 to foster the value-chain components from research to workforce training relating to nanotech ventures in the region

❾ **North Carolina** – In 1998 the major research universities, Duke, UNC and NC State, formed a joint research consortium • not unlike the ONAMI model in Oregon • called NC Center for Nanoscale Materials. NCCNM has received it's primary funding from the Office of Naval Research Multidisciplinary University Research Initiative. From this one consortium has arisen a number of small companies which are now strong patent producers and magnets for nanoscience SBIR grants.

❿ **Ohio** – In 2002, nanotech was highlighted as one of the core focuses of a new Third Frontier Project and Commission whereby the Legislature appropriated **$1.1-billion over 10 years** to research, investment and commercialization • with Federal and private funds matching up to a potential **total of $4.5-billion**. Two 3FP programs are Wright Centers of Innovation aimed at commercialization of science research and Wright Projects aimed at nearer-term commercialization of a specific technology or capability with significant, defined market opportunities. In late 2004, OSU was awarded a **$13-million NSF center** for biomedical-device nanoengineering to develop mass production methods for diagnostic and therapeutic nanodevices and structures.

Next page

- *The Big 5 Nano States*



The Big 5 nanostates in increasing order of size: Massachusetts, Illinois, New York, Texas, California

SmallTimes Rank 2005

❷ **Massachusetts** – MA is widely considered having the *world's* greatest depth of nanotech acumen at all levels. In addition to the breadth of pioneering nanoscience at MIT, at the end of 2004, Northeastern University, U of Massachusetts at Lowell and the University of New Hampshire were jointly awarded a **$12.4-million** NSF center to establish a Nanotech Science and Engineering Center. The State TBED agency pitched in **another $5-million** to establish a Center of Excellence in Nanomanufacturing, at U-Mass-Lowell, dedicated to providing a resource where commercial ventures can come to resolve key processing problems, find workforce training and bridge the chasm between science and commercial manufacturability.

❼ **Illinois** – The AtomWorks coalition was one of the earliest and best known nanobusiness initiatives in the USA, an outgrowth of The Illinois Coalition, a private/public partnership including Illinois' Department of Commerce, the Chicago Mayor's Office and numerous corporate leaders. State Government has pledged **$36-million** for the construction of nanomaterials research facility at the Argonne National Laboratory and another **$17-million** for development of a Micro/Nano Lab facility at University of Illinois - Champaign. Northwestern University is putting **$34-million** towards construction of a nanofabrication and molecular self-assembly center at its Evanston campus. In late 2004 the NSF awarded a grant of **$15-million over 5-years** to create a center for developing nanotech curriculum for jr/high schools to be lead by Northwestern U., and including Argonne Labs and the Universities of Illinois at Chicago and Champaign as well as universities in Indiana and Michigan.

❺tie **Texas** – Richard Smalley having discovered the carbon nanotube at Rice University in Houston makes Texas automatically one of the cornerstones of global nanotech. Rice alone hosts well-funded Centers for Biological and Environmental Nanotech and for Nanoscale Science and Technology. One of the first companies to commercialize molecular engineering, Zyvex, is based in Dallas and has established a Nanotech Research Center at the U.of Texas at Dallas. In Austin, the Texas Enterprise Fund, funded by the State Legislature, contributed **$40-million** as a small portion of a **nine-figure investment** in an Advanced Materials Research Center in partnership with the UT-Austin and Sematech. The Texas Workforce Commission has invested **$500,000 in a workforce training initiative** with community colleges, Baylor University and Zyvex. A private Nanotechnology Foundation of Texas (NFT) in Houston makes grants to recruit "star" researchers to Texas and endow chairs or commercialize research.

❹ **New York State** – A major nanotechnology science, engineering and commercialization center was established in 2001, now called Albany Nanotech. The New York State Government pledged **$50-million**, which was matched by **$100-million from IBM**. In total, the Albany center has now **attracted over $1-billion** in investment from a variety of public and private sources. In 2002 the Federal government established an **$85 million** Center for Functional Nanomaterials at Brookhaven National Laboratory on Long Island. In 2003, Cornell University received a **$70-million** grant for a new nanoscience laboratory and SUNY-Albany and U-Albany established the first dedicated nano College – the College of Nanoscale Science and Engineering. CNSE graduated it's first PhDs at the end of 2004.

❶ **California** – In 2000, nanotech was highlighted as one of only 4 focuses of a new Science and Innovation Program within the University System. State Government pledged **$95-million** towards a California NanoSystems Institute to be split between UC-Los Angeles and UC-Santa Barbara with facilities due to open in later this year and next. In 2004, CNSI announced a partnership to create a CNSI branch at Zhejiang University in China. Several promotion and networking groups are very active including NanoBioConvergence and MIT-Stanford-Berkeley Nanotech Forum in Northern California, and NanoBioNexus in San Diego. In late 2004, UC-Berkeley was awarded a **$12-million** NSF center for nano-mechanical engineering, while Stanford received a **$7.5 million** NSF center for nano measurement technology.