

Testimony to Connecticut Legislature Commerce Committees
Relative to FY08 Raised Bill No. 551 on Nanotechnology
March 4, 2008

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1. On behalf of the School of Engineering, I fully support the State's initiatives in Nanotechnology. Being an enabling technology, nanotechnology requires an application platform for it to be pursued to its fullest extent. Attractive application platforms may be in (a) life sciences, (b) nano-electronics/photonics, (c) energetics, (d) sensors and sensor networks, to name a few. A successful implementation of nanotechnology, will impact and enrich the aerospace community; the defense and homeland security industries; the nation's energy profile; the IT industry and life sciences. It will also lead to jobs in high technology fields that will keep CT at the forefront in these fields. It should be pointed out that the School of Engineering is active in addressing all the above mentioned applications of Nanotechnology and strongly believes that the State's commitment in Nano-manufacturing will ensure our success as a global leader in future technological advancements. This will require the establishment of a nanomanufacturing facility with provisions for state-of-the-art design and fabrication of nano-sized and nano-enabled devices and systems.

2. The School of Engineering has state-of-the-art clean rooms and related facilities that serve as a foundation for advanced nanomanufacturing activities, The School of Engineering has more than 30 faculty members who are directly involved in nanotechnology-based research; their efforts have produced in excess of \$10 million in research funding for nanotechnology since 2003. Additional infrastructural investments in the form of equipment that enable advanced design and fabrication of devices and systems are critical for us to be competitive in this burgeoning field that will lead to advances that directly benefit industry and workforce development.

3. Connecticut has a unique opportunity to build a world-class nanotechnology core. The application of nanotechnology to the creation or improvement of actual products and processes is the critical edge that will define the State's competitiveness and bring economic benefits to its residents. Partnering with industry to apply nanotechnology in the manufacturing environment (from industries as diverse as the aerospace to biomedical concerns) will create jobs, answer society's product and process needs, develop a skilled workforce, help to reverse Connecticut's brain drain of young workers, and strengthen the State's economic well being.

4. Other states are investing in a nanotechnology infrastructure and reaping impressive rewards, and this committee is well aware of these efforts – which I will not repeat due to time constraints.

[Indiana's 2001 investment of \$5 million in Purdue University's Birck Nanotechnology Center allowed the state to lure Altair Nanotechnologies to Indiana, where it opened its 100-employee manufacturing facility the same year. Altair designs and manufactures lithium ion batteries for many applications, especially the automotive industry.

In 2002, New York state successfully wooed Sematech International, a leading semiconductor research consortium, to put its new, \$403 million research center in upstate New York. The state chipped in \$210 million for equipment, construction, and specialized tools. This year, Governor George Pataki has targeted nano as a key to economic growth in the Albany region. He has pushed \$750 million in state funding into nano projects. Combined with private investments of over \$7 billion, the result is a growing complex of nanotechnology labs and fabs along the upper Hudson. In January, Governor Pataki and Albany officials announced that Dutch chip-lithography powerhouse ASML Holding joined by IBM, is building a new \$400 million research center in Albany. It will be ASML's first large-scale research fab outside of Europe.]

5. If we build it, they will come... A focus on identifying products and then to develop the required nanomanufacturing infrastructure is destined to produce significant dividends for the host states that fund nanotechnology. We can, and must, do the same thing here in Connecticut. Simply put, Nanomanufacturing will bring jobs, economic strength, and more companies to Connecticut. Let me add, that on Monday I received a call from a Fuel Cell company that intends to set up an R&D facility, preferably close to UConn-Storrs, in partnership with an international company. The company will employ 10 Ph.D.s and focus on development of catalysis, advanced membranes and other technologies used in power plant fuel cells.

6. As part of the nanotechnology efforts, the Eminent Faculty Program will enable the creation of intellectual leadership in important areas of nanotechnology. Our vision is to attract internationally recognized leaders from around the United States to engage in R&D, intellectual property, industrial collaboration, and training/education to develop this region as a nanotech corridor.