

2013 Program Report Card: University of Connecticut Nanotechnology Research

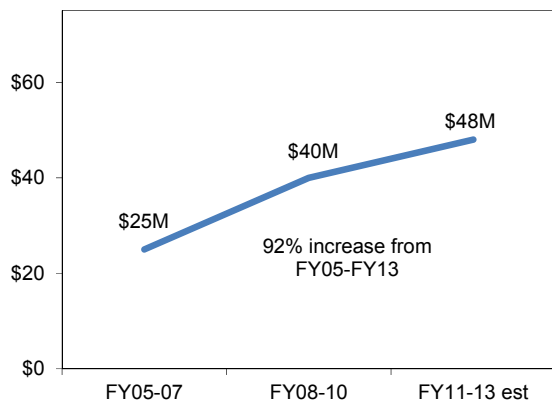
Quality of Life Result: Connecticut has a trained nanotechnology workforce through the education of scientists and engineers who conduct advanced research which infuses technical know-how in Connecticut industries and advances achievement of full economic development.

Contribution to Result: For each ~\$100K of external funding in nanotechnology, a science or engineering PhD graduate student or Postdoctoral Fellow as well as undergraduate researchers are receiving an advanced technical education. These personnel represent a major source of an advanced technology work force available for the state. The interactions with Connecticut's industries ensures that the technical know-how generated by this nanotechnology research is made available to be implemented along with the trained personnel.

Program Expenditures (\$M)	State Funding	Federal Funding	Other Funding	Total Funding
Actual FY12	\$100,000	\$16,700,000	\$820,000	\$17,620,000
Estimated FY13	\$550,000	\$13,600,000	\$1,850,000	\$16,000,000

Partners: A partial list of the partners that impact the nanotechnology efforts are CNI, Connecticut Industry including UTC divisions, Pfizer, CCAT, Members of IMS Industrial Associates Program and others, in particular small companies, that have access to UConn major nanotechnology research instrumentation capability, Yale University, and OWC as lead of the Nanotechnology Advisory Council. In addition many of the faculty that raised the nanotechnology research funding have relationships and partnerships in their research, both nationally and internationally.

How Much Did We Do? Research Funding



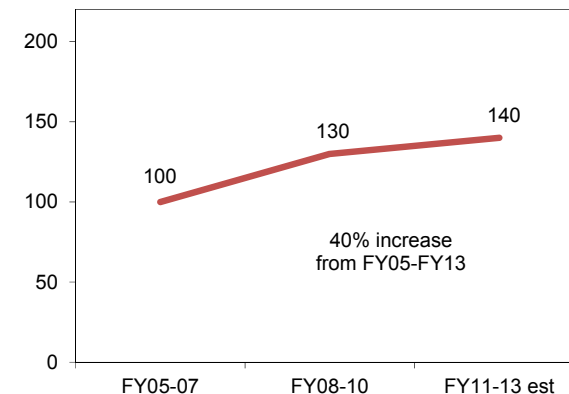
Story behind the baseline: Research funding in nanotechnology at UConn has gone up from \$25M in 2005 to approximately \$48M by 2013 with about 55 faculty reporting their funding. Note that the funding typically spans 3 years. Due to the State's investment in

UCONN 2000 and strategic reallocation of resources for faculty, the University has been able to secure more federal funding. Having the appropriate instrumentation and computational capability to do research is another area where progress has been made, but is ongoing. Outreach to private industry using the instrumental capability is highlighted by the IMS Industrial Associate Program as well as by a range of joint research efforts with Connecticut industries.

Trend: ▲

How Well Did We Do It?

Graduate student and postdoctoral fellow support



Story behind the baseline: Graduate student and postdoctoral fellow support went from approximately 100 in 2005 to about 140 in 2012. Position support is directly linked to the amount of funding awarded. It is also important to note undergraduate involvement in nanotechnology via approximately 11 undergraduate courses and a nanomaterials concentration.

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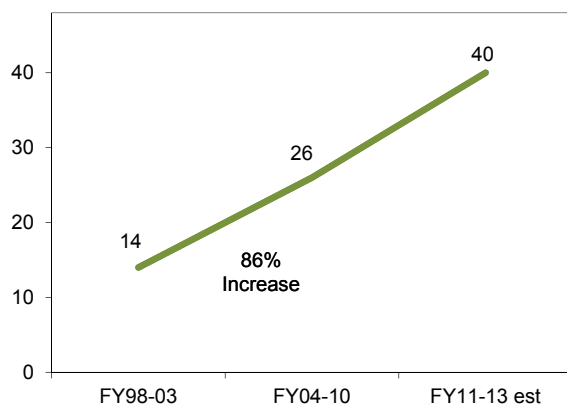
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Trend: ▲

Is Anyone Better Off?

Patents



Story behind the baseline: Patent filings increased significantly since FY98. There were 21 patent application filings during calendar year 2012. Many of the patents issued have been licensed to industry, both

new startup and established companies in a wide range of technologies including energy related research, sensors, medical devices, protein folding and crystallography studies related to cancer research, conducting and advanced polymers, as well as advances in structural materials.

In 2000, the University established the necessary infrastructure to bring innovations to market by providing expertise in patenting and licensing, creating and supporting viable start-up entities, and assisting industry in their interactions with the University. New start-up companies based on University patents are on the rise. There are three active and several others that are being worked on.

Trend: ▲

Proposed actions to turn the curve:

To move nanotechnology research forward at UConn and to serve Connecticut industry better, it is required to upgrade a wide range of instrumentation and laboratory capabilities. If possible through the strategic reallocation of resources, additional faculty hiring will further develop the Nanotechnology research efforts. There will be increased efforts via the current infrastructure to take the intellectual property outputs of the nanotechnology research and convert the results into business opportunities for the state. The University will continue efforts to aggressively apply for and secure federal and private industry funding. Without these continued revenue streams, the University's ability to create new technologies and remain competitive would be limited.