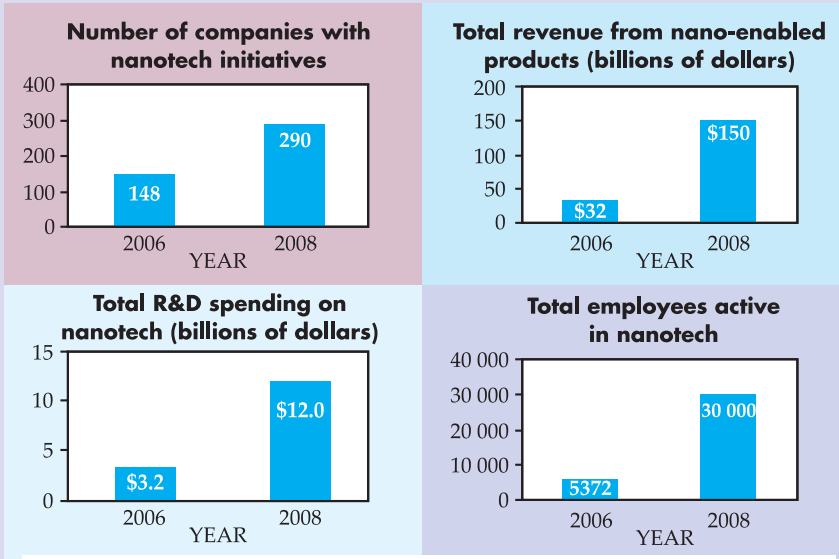
Nanotechnology in manufacturing is the focus of Industrial Physics Forum

Two days of talks, many focused on the rapid growth in nanotechnology manufacturing, marked the 2006 Industrial Physics Forum, which was held at San Francisco's cavernous Moscone West Convention Center in conjunction with the international AVS symposium. Titled "Nanotechnology in Society and Manufacturing," the annual physics forum, sponsored by the Corporate Associates of the American Institute of Physics, opened with a discussion by Mark Bünger, director of research for the New York–based Lux Research Inc, about the transition of nanotechnology from the discovery phase to commercialization. Nanotechnology is following the same commercialization pattern as plastics, biotechnology, and the internet, he said, citing a Lux industry survey that forecast rapid growth in nanotechnology over the next two years (see chart).



LUX RESEARCH

Analysis by Lux Research of 1331 large companies in 76 industries worldwide indicates that nanotechnology is moving from discovery to commercialization. As more nanotechnology products enter the marketplace, industrial R&D spending and nanotechnology-related jobs are expected to increase significantly.

Other talks at the forum included the increasing use of nanotechnology in automobiles, semiconductor nanoelectronics, and biological systems. James Baker, a medical doctor from the University of Michigan, detailed his work on nanoscale DNA-linked dendrimers for treating some forms of ovarian cancer. Human trials of the treatment, which uses a nanoparticle as the building block of a complex molecule that targets cancerous cells, are expected to begin next summer, he said.

The risks of nanoparticles, the lack of federal regulation, and the ethical choices and dilemmas scientists may well have to confront as they develop nanotechnology-based systems were discussed by University of South Carolina science historian Ann Johnson. She noted that nanotechnology is "profoundly interdisciplinary," linking many fields of science. With nanotechnology research, traditional scientific disciplines can become unstable, she said, and a new, nonlinear model of science might be needed.

The physics forum was blogged live for the first time since the Corporate Associates meetings began in 1958, and about 1700 people viewed the blog during the five full days of the AVS meeting. The blog is available at http://blogs.physicstoday.org/industry.

Jim Dawson

of substance ready to stand behind the lab," Oddone says. Collaborations between Fermilab and nearby Argonne National Laboratory will increase, thanks to the two sharing Chicago as an overseer, he adds. And the FRA team is bringing in "a group that should help in terms of business management," says University of Chicago president Robert Zimmer, who chairs the FRA board. "This follows a trend within DOE of trying to get corporate expertise in to help with the efficient use of money, accountability, and controls."

In addition, several Illinois universities are represented on the FRA board. "These partnerships will give us more horsepower," Oddone says. "The state will have to be part of making Fermilab attractive internationally" as a host for the ILC.

Also on the FRA board are the UK's Ian Halliday and Japan's Yoji Totsuka. "It shows from the beginning that Fermilab and the board are trying to connect what they do to the needs of the international community," says Barry Barish, who heads the ILC global design effort. "This could be crucial for orchestrating an almost impossible marriage—between the Department of Energy and international funding agencies."

Siting the ILC at Fermilab hinges on foreign scientists feeling confident that they'll be able to get visas to enter the US. And building it at all hinges on the cost—an estimate is being readied this year—and on the science results from the Large Hadron Collider, which is set to start up at CERN next year. "No one wants to say this out loud, but if the LHC is not wildly successful, I don't think anyone will ask for the ILC," says Turner. "I for one am bullish on the LHC and believe there will be big discoveries early on that will make the case for the ILC irresistible." **Toni Feder**

Keeping women in physics is aim of conference for undergrads

Some 70 (mostly) female physics majors are convening this month for the Second Annual Conference for Undergraduate Women in Physics at the University of Southern California. Two USC graduate students came up with the idea for the conference, which now looks set to become not only annual but also imitated.

It started with idle chitchat a couple of years ago, when Katie Mussack, who is in the final stretch of her PhD in theoretical solar physics, and Amy Cassidy, a fourth-year graduate student whose research is on the thermalization of one-dimensional Bose gases, wondered what they might do to increase the number of women who go on to graduate school in physics. At USC,