

NEWS in Science and Technology

from the



CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

Vol. 5, No. 2 / Summer 2006

The following is an Executive Summary of the Academy's quarterly Bulletin (Vol. 21,2) that includes topics and issues in science and technology deemed by the Academy to be both timely and relevant to Connecticut's interests. Each item is briefly summarized from press releases and reports of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. Hyperlinks are included to the original online source, where more detailed information is available.

NOTE: Online versions of this newsletter and the Bulletin are available on the Academy website at www.ctcase.org.

FEATURE: CT Center for Advanced Technology

➤ A 'Springboard of Technological Innovation'

Since establishing itself as an independent, non-profit corporation in 2004, the Connecticut Center for Advanced Technology (CCAT) has marshaled an array of state- and federally-funded programs—including a \$41 million national aerospace competitiveness venture—directed at advancing the state's leadership in technology, entrepreneurialism and education. The Center

- Addresses each of three areas (technology, entrepreneurialism, education) synergistically.
- Reaches out to business, government, academia to encourage "cross-pollination of technology and ideas."
- Focuses on technologies that revolve around the region's historic and evolving strengths (manufacturing, energy technology, aerospace and defense, biotechnology, nanotechnology).
- Represents vision of Congressman John B. Larson (1st Congressional District) for a science and technology park as national center of excellence.
- Has applied-research labs in laser applications and digital modeling and simulation that are at core of its Innovation Center, which also provides incubator resources for start-up technology companies in areas that complement CCAT's activities.
- Administers Connecticut Small Business Innovation Research Office for the state's Office of Workforce Competitiveness.
- Brings classroom project-based programs such as "Science Act" and "LanuchQuest" into elementary and secondary schools.
- Is home to new National Aerospace Leadership Initiative (NALI):
 - A multi-state consortium of government, industry and university leaders funded by US Air Force.
 - Concentrates on preserving superiority of US aerospace industry through supply chain.
 - Goal is national and economic security.
- Administers the Connecticut Hydrogen-Fuel Cell Coalition.
- Has future plans that include:
 - Developing a hydrogen fuel economic-development plan.
 - National Center for Aerospace Leadership (NCAL), bringing labs, researchers and technology experts together under one roof to provide technological advances for the US military, its contractors and their suppliers.
 - Center for Manufacturing and Supply Chain Integration to provide training and assistance in new technologies and business practices to small-to-medium aerospace and defense manufacturers.

[http://www.ctcase.org/bulletin/21_2/ccat.pdf]

HIGH TECH

➤ US Should Take Lead in Particle Physics Research

To remain globally competitive in the field of particle physics, the United States should take the lead in worldwide research efforts that would answer critical questions about the constituents of matter and the forces that govern them, as well as the composition and evolution of the universe, according to a new report from the National Research Council. According to the report:

- Key to continued leadership will be "aggressive pursuit" of several key experiments that require accelerators.

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Update: The Connecticut Science Center Gets a New Name and a New Look!

The Connecticut Center for Science & Exploration has adopted a new name—Connecticut Science Center—and an exciting new logo. The new logo is a stylized profile of some of the signature lines of the Connecticut Science Center's building, which is now under construction.

The Center has raised more than \$139 million and has received pledges reaching 93% of its \$150 million goal. Leading new gifts have recently been announced from St. Paul Travelers, WFSB TV, The Hartford Foundation for Public Giving, Bristol Myers-Squibb, MassMutual, and AlphaGraphics.

The Center's exhibit design team unveiled exhibit gallery layouts and designs of some of the 200+ exhibits now in development. The Children's Gallery, Space Science Gallery and Earth Science Gallery were among the many unveiled. The Children's Gallery features a series of stream channels, vortex pools, and a mist fountain for experiments with forces and properties found in nature. Inside the Space Science Gallery visitors will "fly over" Mars in a joystick-equipped flight chair, surrounded by dramatic images of Mars from recent missions. The Earth Science Gallery contains the WFSB Weather Exhibit where visitors will use temperature and wind readings from the Center's Roof Garden to create a weather forecast and deliver it "on TV" like a meteorologist.

The Center welcomed three prominent executives to their positions as members of the Center's Board of Trustees: Dona Young, chairman, president and CEO of the Phoenix Companies; Ronald Williams, CEO and president of Aetna; and Peyton Patterson, chairman, president and CEO of NewAlliance Bank.

[http://www.ctcase.org/bulletin/21_2/21_2.pdf]

- US government should support nation's involvement in the Large Hadron Collider, currently being assembled in Geneva, and the proposed International Linear Collider.
 - US government should announce its desire to be host country for the International Linear Collider.

[http://www.nap.edu/catalog/11641.html?onpi_newsdoc04262006]

➤ NASA Lacks Sufficient Resources for Vigorous Science Program

NASA does not have the resources necessary to maintain a vigorous science program, complete the International Space Station, and return humans to the moon, according to a new, congressionally mandated report from the National Research Council. The report found that:

- The program proposed for space and earth sciences is neither robust nor sustainable, and is not properly balanced to support a healthy mix of small, moderate-sized and large missions.
- There is "... a mismatch between what NASA has been assigned to do and the resources with which it has been provided," according to report chair.
- NASA should restore small missions, research and analysis programs, and technology investment in future missions.
- NASA should preserve the ground-based and flight research required to support long-duration human space flight.

[<http://www.nap.edu/catalog/11644.html>]

HEALTH

➤ Strengthen Nation's Organ Donation System

A new report from the Institute of Medicine urges federal agencies, nonprofit groups, and others to work to provide greater opportunities for people to record their decisions to donate organs, strengthen efforts to educate the public about the benefits of organ donation, and continue to improve donation systems. The report also recommends:

- Initiatives to increase donations from people whose deaths are the result of irreversible cardiac failure.
- Nation is not yet ready to enact policies that presume consent to donate unless individuals opt out.
- Federal agencies work with states and cities that have extensive trauma centers and emergency response systems to develop dem-

- onstration projects that can determine the feasibility of increasing rates of donation after circulatory determination of death.
- Financial incentives including direct payments, coverage of funeral expenses, and charitable contributes, should not be used to encourage donation rates.
- Hospitals provide independent advocacy teams to each person who volunteers to be a living donor to ensure that the individual's decisions are fully informed and voluntary.

[http://www.nap.edu/catalog/11643.html?onpi_newsdoc05022006]

➤ Reuse of Disposable Medical Masks and Respirators in Event of Pandemic Not Advised

A new report from the Institute of Medicine says that there is currently no simple, reliable way to decontaminate inexpensive, disposable medical masks and respirators that would enable people to safely use them more than once. The report notes that

- Use of protective face coverings will be one of the strategies used to slow or prevent transmission of flu virus in event of a pandemic.
- Scientific evidence about effectiveness of such measures against influenza is limited.
- An individual could reuse an N95 respirator by following a series of steps to protect it from contamination.
- Research is needed to test how well masks, respirators and other new filtering materials protect against spread of flu viruses.

[<http://www.nap.edu/catalog/11637.html>]

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