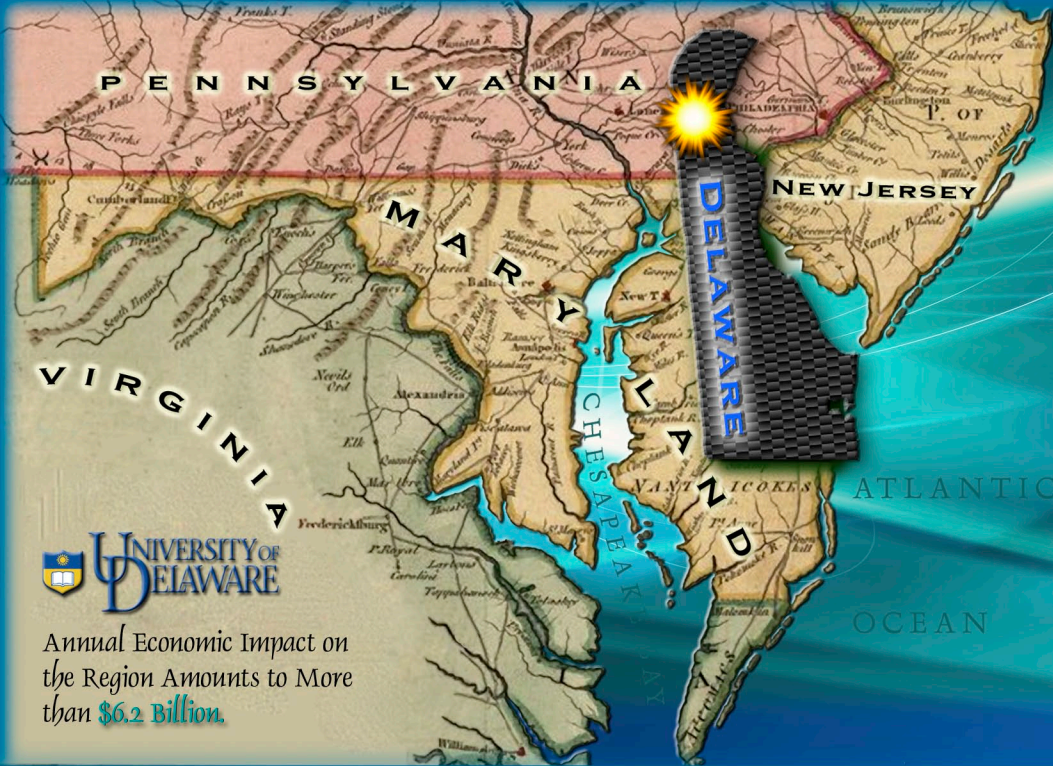




Annual Economic Impact on
the Region Amounts to More
than **\$6.2 Billion.**



Helps Power Delaware's Economy

A recent report issued by the Center for Applied Business and Economic Research at the University of Delaware shows that every state dollar invested in UD returns almost \$9 in the form of salaries and wages. UD's annual economic impact on the region amounts to more than \$6.2 billion.

University of Delaware
Center for Composite Materials

COMPOSITES

UPDATE

October 2010

If UD is an "engine of economic growth" for the area, the state, and the region, the Center for Composite Materials is a major component in that engine.

With annual expenditures of \$10 – 12 million, CCM is a major research enterprise that provides jobs for scientists, engineers, and students at the Center as well as local economic benefits by attracting visitors to campus and purchasing services from local suppliers. CCM also provides technology to industry and partners with companies to secure research funding and jobs for the private sector. The Center's economic impact on the region approaches \$100M annually.

"Our programs provide a vehicle for technology transfer to Delaware industries of all sizes," says CCM Director Jack Gillespie, "and a framework for discussions with companies that have a need for such technology and that may be open to locating or relocating in Delaware."

Since 1990, Gillespie (director since 1996) has secured more than \$150M, with an economic impact on the region exceeding \$1 billion dollars.



TOP STORY (Continued)

Barbara DeHaven, Business Development Manager in the Delaware Economic Development Office (DEDO), has witnessed the CCM effect.

“We often showcase the center to prospective companies to help sell the strengths of our state,” she says. “CCM also provides leads and connections to us for companies that may be expanding or looking for new sites. The center assists the local business community by sharing its extensive knowledge base as well as providing education for the future workforce. The state also sees the potential for start-ups to spin out using technology developed by the University of Delaware that can create jobs and establish new businesses.”

CCM’s economic benefit to the state using 2009 statistics include:

- More than 135 Delaware company locations benefited from information created at CCM.
- More than 60 companies participated in the industrial consortium, including 41 incorporated in Delaware.
- CCM hosted more than 500 visitors, including 300 who attended the three-day 35th anniversary symposium.
- CCM spent approximately \$6M in salaries—fully funded by research contracts and grants—employing more than 50 scientists, engineers and professionals, and support staff, as well as 150 students and faculty advisors.

These statistics represent 2009, but the story begins in the 1980s, when Delaware was the epicenter of a technology trend toward replacing metals and other traditional materials with advanced composites.



TOP STORY *(Continued)*

“Beginning 25 or 30 years ago CCM and several large chemical companies headquartered here playing a transformative role in materials development and processing,” says Michael Bowman, Chairman of the Board and President of the Delaware Technology Park. “Since then, many small companies have spun off from these large corporations, so now there are probably 20 ‘boutique-type’ specialty companies working in various areas of composites, and CCM has collaborated with many of them to bring composites to where they are today.”

“The transportation industry alone is dramatically different than it was 25 years ago because of progress made in advanced composites,” Bowman adds. “These materials are in everything from cars, trains and commercial jetliners to tanks and defense aircraft.”

Recent high-impact successes include Newark, DE-based WhiteOptics receiving a \$1.5M grant from the U.S. Department of Energy to work in partnership with CCM researchers to develop new technology that will improve the efficiency, lifetime, and cost of energy-efficient LED light fixtures.

CCM has also played an important role in the base realignment and closure of the Army’s facilities at Ft. Monmouth, N.J. to Aberdeen, MD. The effort resulted in a Cooperative Research and Development Agreement (CRADA) between UD and the Army, a partnership that builds on the long history of Army support for CCM, an Army Center of Excellence since 1986.

The CRADA established the foundation to create a technology park on the University’s new Science and Technology Campus, to be located on the site of the former Chrysler auto assembly plant in Newark.

“The collaboration will attract businesses that are relocating in the area, offer opportunities for new spin-off companies, and increase research, education, and technology transfer opportunities at UD, with the potential to create hundreds of new jobs for the state and UD students,” Gillespie says.

In particular, CCM teams with Delaware industry to win small business research funds—for example, STTRs and SBIRs—to provide opportunities for small business involvement. From 2006 to 2009, the Center’s partnerships with Delaware companies won more than \$2.2M in federal research funding for the companies.

Karl Steiner, senior associate provost for research development at UD, views interdisciplinary research centers like CCM as key to the University’s ability to attract large government grants.

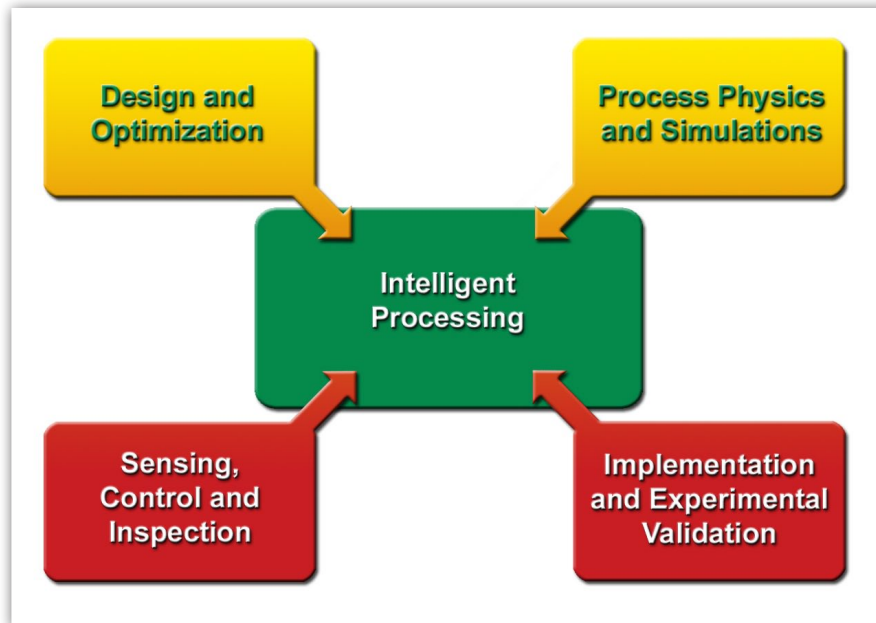
“Developing collaborative partnerships among disciplines is a prerequisite to generating competitive proposals to federal funding agencies,” says Steiner, who served as executive director of CCM from 1995 to 2000. “It’s not enough to simply have individual researchers collaborating across departmental lines; it’s also essential to have an infrastructure in place to provide state-of-the-art facilities, administrative and technical support, and, perhaps most important, an intellectual environment in which innovation can flourish in the context of real-world problems. That’s what CCM provides for the advanced materials community here at UD.

CCM Receives Funding for Office of Naval Research Advanced Materials and Intelligent Processing Center

On August 25, 2010, CCM received \$1.4M for the Advanced Material Intelligent Processing Center: Maritime Manufacturing program. Established by the Office of Naval Research (ONR) at UD-CCM in 1997, the AMIPC is a comprehensive interdisciplinary program of collaborative research with NSWC-Carderock and industry partners.

Under the direction of Professors Suresh G. Advani and John W. Gillespie, Jr., AMIPC research will focus on

1. Process models and simulations for out of autoclave processing
2. Property evaluation methodologies and development of material constitutive models for sandwich and hybrid structures under dynamic and impact loadings
3. Embedded sensors for health monitoring
4. Online process sensing and control strategies and
5. Integrated CAD/CAE environment for design



OTHER NEWS

UDaily: University launches 'Dare to be first' campaign

9:33 a.m., Aug. 30, 2010----With colorful banners now lining streets around campus, the University of Delaware has launched its “Dare to be first” branding campaign.

First announced during the UDid It! employee celebration picnic in June, “Dare to be first” is now a visible part of the University of Delaware experience with the campaign banners hanging at all UD campuses -- Newark, Wilmington, Dover, Lewes and Georgetown, and at the Elbert N. and Ann V. Carvel Research and Education Center.

“The University of Delaware has adopted a new ‘brand’ to serve as the public expression of UD’s unique identity -- who we are, what we stand for and why we matter,” David Brond, vice president for communications and marketing, said. “This identity is based on six attributes that make UD a dynamic place to be: Talent Magnet, Idea Leadership, Discovery Learning, Citizen University, East Coast Classic and Smart Money.

[Click here to view full story in UDaily.](#)



Banners throughout Newark, and at all UD campuses, promote the “Dare to be first” campaign

Photo by Kathy Atkinson

UDaily: UD professor emeritus wins Nobel Prize in Chemistry

8:01 a.m., Oct. 6, 2010----Richard F. Heck, the Willis F. Harrington Professor Emeritus at the University of Delaware, has been awarded the Nobel Prize in Chemistry.

Heck, 79, was honored alongside fellow researchers Akira Suzuki, 80, of Hokkaido University in Sapporo, Japan, and Ei-Ichi Negishi, 75, of Purdue University, “for palladium-catalyzed cross couplings in organic synthesis.” They will share a \$1.5 million award.

The Nobel Prize in Chemistry was announced by the Royal Swedish Academy of Sciences during a press conference held this morning in Stockholm. The Nobel laureates are scheduled to present their lectures Dec. 8, 2010.

According to the Nobel statement, the scientists were honored for discovering “more efficient ways of linking carbon atoms together to build the complex molecules that are improving our everyday lives.”

[Click here to view full story in UDaily](#)



*Richard F. Heck,
Willis F. Harrington
Professor Emeritus*

Photo courtesy of UDaily

CONSORTIUM MEMBERS

We would like to thank our many Consortium Members for continuing to participate in CCM's research and development activities.

To learn more about the benefits of becoming a member, please visit us on the web at www.ccm.udel.edu/Consortium/benefits.html



Celebrating 35 years of significant contributions to composites science and technology, the education of students, and the creation and transfer of technology to industry.

This is a newsletter publication of the University of Delaware Center for Composite Materials
Please visit us on the web at <http://www.ccm.udel.edu>

201 Composites Manufacturing Science Laboratory ♦ phone 302.831.8149
University of Delaware, Newark, Delaware 19716-3144 ♦ fax 302.831.8525

