

UDRI WCI \$22.5 MILLION GRANT INCLUDES NCC

At a recent press conference Lt. Gov. Bruce Johnson presented a \$22.5 million Ohio Third Frontier Award to Ohio State University, the University of Dayton Research Institute (UDRI) and the University of Akron.

The three universities are partners in the Center for Multifunctional Polymer Nanomaterials and Devices (CMPND, pronounced "compound"). Of the total award, \$7 million will be for research in the Miami Valley directed by the University of Dayton (UD) and partners Wright State University and the National Composite Center (NCC).

CMPND will cover three technical areas – polymer nanocomposites, directed by UD and UDRI; polymer photonics, directed by Akron; and biosensors, directed by OSU. The \$22.5 million for CMPND is the largest WCI grant awarded to date according to Sharell Mikesell, executive director for the Ohio Polymer Strategy Council.

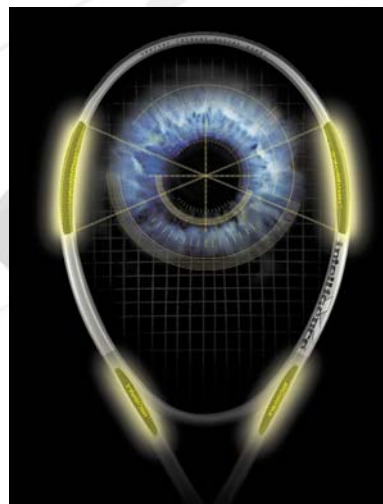
NCC will play a large role in the commercialization of nanocomposites, which are lightweight but strong materials that can replace aluminum and steel in cars and aircraft for greater fuel efficiency. Key target industries include aerospace, automotive, sporting goods, electronics and medical devices. Scale up of

nanocomposite material processing will also be done at NCC.

NCC-ET CAMPUS ESTABLISHED IN FINDLAY OHIO

The Findlay Hancock County Chamber of Commerce and the National Composite Center (NCC) announced this month the creation of the new North Central Campus for Emerging Technology (NCC-ET). NCC-ET will become the newest tenant in the Findlay Center for Business and Technology.

The campus was established for scale-up of New Jersey-based Advanced Cerametrics Inc.'s (ACI) patented flexible piezoelectric (PZT) ceramic fiber composite production. Lightweight structures and small satellites have also been targeted for production at the campus.



ACI's PZT fiber can also function as a smart sensor, using the activity being sensed as its power source.

NCC-ET is the result of collaboration between NCC and ACI which netted a State of Ohio, Third Frontier Wright Capital project award for \$2.038 million in December 2004. As interim president of NCC-ET, Lou Luedtke signed the grant agreement with the State of Ohio Department of Development on May 27, 2005.

The grant supports the scale-up and commercialization of ACI's PZT fibers for energy storage and smart systems. Initial applications will target the aerospace and transportation industries. NCC is also working to finalize a Joint Use Agreement with Owens Community College and a project agreement with ACI.

Riad Yammine, Chairman of the Board of the Findlay Hancock County Chamber of Commerce has been named Chairman of the NCC-ET Board of Trustees. Craig Anderson, Chairman of the Board of the Findlay Hancock County Community Development Foundation (CDF), a division of the Chamber, and CEO for Hercules Tire and Rubber Company has been named Vice Chairman of NCC-ET's Board.

Lou Luedtke, President and CEO of NCC is President of NCC-ET. Russ Rogerson, Executive Vice President of CDF is Secretary/Treasurer of NCC-ET. Bud Cass, President of Advanced Cerametrics Inc. is Trustee of NCC-ET. Two additional Trustees will be named at a later date.

“CDF saw an opportunity to offer a key piece to the collaboration by providing a site location for NCC-ET,” said Riad Yammine. “The location of the campus in Findlay also gives our community the chance to attract high technology jobs and leverage state and federal funding to support that objective.”

“Although NCC-ET is a local entity and will be locally controlled, we’re excited about the chance to team with companies like NCC and ACI to further develop commercialization of advanced materials,” said Craig Anderson. “NCC is recognized regionally and nationally for the development and commercialization of cost competitive composite materials and manufacturing processes. The Center also offers us a broad menu of resources with its ability to take projects from the invention stage to industry application quickly.”

ACI’s flexible PZT fibers provide uses that are nearly unlimited for composite applications. Conventional PZT materials are extremely rigid and typically produced in block form or as devices. While the material could be incorporated into composites, its rigid characteristic made the material brittle and short lived.

ACI created the first flexible PZT ceramic fiber capable of harvesting energy, actively controlling structures or independently (without batteries) powering electronic systems in any application involving mechanical motion. ACI’s PZT fiber

can also function as a smart sensor, using the activity being sensed as its power source.

ACI first incorporated its fiber technology in the newest generation of active, smart sporting goods. Head Sport introduced their new line of Intellifiber and Intellichip active fiber composite tennis rackets and skis with energy harvesting actuators made from ACI’s PZT fiber.



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According to Anderson immediate production will be put in place to serve existing requirements for ACI’s composite skis. Grant funds will be used to purchase the necessary equipment for scale-up of ACI’s piezoelectric fiber composite production. NCC and ACI will also begin work to develop a high volume, low cost process for producing the piezoelectric fiber composite material.

“NCC-ET is a prime example of how our community’s private public partnership allows us to respond to opportunities that can create the kinds of jobs and investments we need to continue growing our

community’s prosperity,” said Tony Iriti, Mayor of Findlay. “Now that we’re able to tap NCC’s expertise and its proven track record, we feel confident we can attract new technology manufacturing to Findlay and gain a stronger presence in the high tech marketplace.”

NCC TEAMS WITH IDEATION TO FORM INNOVATION CENTER

The National Composite Center (NCC) and Ideation International Inc. teamed up this month to form the Ohio Innovation Center (OIC) LLC. Owned by Ideation, headquartered in Southfield, Michigan, OIC is the newest tenant at NCC. It offers businesses throughout the state the opportunity to integrate a revolutionary operating system for innovation called Ideation-TRIZ. The system drastically cuts the time it takes companies to solve critical challenges while helping them build wealth through innovation and invention.

An advisory committee has been established and names the following members: Chuck Buchanan, a 1998 recipient of the Award for Outstanding Professional Achievement for Dayton by the Engineering and Science Foundation and Affiliate Society Council of Dayton and certified TRIZ specialist; Harry Couch, President of the Engineers Club; Zion Bar-El, CEO of Ideation; Lou Luedtke, President and CEO of

NCC; Dr. Jim Brandeberry, Dean of Engineering and Computer Science at Wright State University; Gary Wnek, the Joseph F. Toot Jr., Professor of Engineering and Co-Director of the Institute for Management and Engineering (TiME) at Case Western Reserve University; Wayne Earley, Executive Director of PolymerOhio; Mike Fedotowsky, President of Customer Focused Technologies, Inc.; Larry Jenkins, Aerospace Environmental Management System Engineering Tech Expert for the USAF Aeronautical System Center -- Engineering Directorate at Wright-Patterson AFB; and Gideon Samid, PhD, President, D&G Sciences -- Virginia Technology Corporation.

An improved and expanded form of the Theory of Inventive Problem Solving (TRIZ), I-TRIZ has already been making its way into Ohio's businesses and education system. "Innovation is on everyone's mind these days," said Gary Wnek. "I've canvassed numerous local businesses and there is one reoccurring theme. They all say the hardest part is idea generation, categorization and screening. Rather than intuitive guessing and trusting their selections to luck, they each want to have a better understanding of how to pick the right idea that's worth investing in and bring it full cycle." Wnek believes I-TRIZ may be a powerful answer.

But I-TRIZ is only part of the total system OIC will offer. "NCC is

recognized regionally and nationally for the development and commercialization of cost competitive composite materials and manufacturing processes," said Zion Bar-EI, CEO of Ideation. "NCC is also able to take projects that would normally require up to 10 years to move from the invention stage to industry application and dramatically shortens those steps to just two to four years." OIC's strategic location at NCC will allow it to offer manufacturers a menu of options by tapping the Center's multiple disciplines which take process development, process troubleshooting, product development, prototyping and pilot production from concept to factory ready products. NCC will offer I-TRIZ and related services to its member companies.

NCC ATTENDS LOBBY DAY IN WASHINGTON DC

This month NCC attended Lobby Day held in Washington DC and sponsored by the ACMA. NCC and other participants met with Legislators and staff from member company states to introduce the ACMA organization and two main issues:

- Over-regulation and its potential severe affect on small business
- EPA rules that could adversely affect the composites industry

Ohio has 10 percent of the industry's composites production

workers according to an ACMA survey, and has a lot to lose if the composite industry is overregulated. Ohio is ranked highest in number of employees working in the composites manufacturing industry, California is second, Tennessee, Indiana and Florida round out the top five. For more information visit ACMA's website at www.acmanet.org.

NCC'S MEMBER DAY

NCC's fifth annual Member Day, held this month, saw the attendance of 36 companies and 63 participants. Member Day 2005, expanded over two days, included more NCC technical presentations, Member company research projects and highlights of new member companies and their stories of invention and innovation. Here's what some attendees had to say about the event.



Member Day enjoyed some 63 participants.

"Our participation in the NCC Member Day allowed us to begin to realize the tremendous talent and resources of both the NCC and its members," said Thomas Smith, President and CEO for Performance Materials Corporation. "NCC has developed a pathway

through networking of its members for both present and future technology and business opportunity.”

“This was the second Member Day that I have attended and I felt that this event was particularly good,” said George Husman, Associate Director for the Office of Engineering Research and Applications Development School of Engineering at the University of Alabama at Birmingham (UAB).

“The new member presentations were excellent and the questions showed that there is great potential for business and technical interactions among the members.

For me personally, there were a lot of presentations and discussions regarding thermoplastic composites, which is a passion of mine. I have already had about 10 follow-up e-mails and phone calls that resulted from Member Day interactions.”

“I was delighted to participate in the event,” said Zion Bar-El, CEO of Ideation International Inc. “As a new tenant at NCC’s facility, I’m excited about the opportunity to help companies harness the advantages of creativity by bringing them a revolutionary operating system for innovation through the newly established Ohio Innovation Center (OIC).”

The event showcased technical presentations, a facility tour, reception and keynote speech by the Dayton Development Coalition. New member company overviews

were given by The Shepherd Color Company, Performance Materials Corporation and Decoma. UAB made presentations on Thermoplastic Composite Technologies & Applications and Impact Testing & Fire Response of Advanced Composites. GrafTech International discussed Carbon Foam Development and gave a New Member Company Overview.

A New Member Company Overview was also given by Core Molding Technologies along with the topic Nano-Lite™ Materials. Composite Design with ABAQUS was presented by ABAQUS, Nano Composites – From Ideation to Commercialization by the University of Dayton Research Institute (UDRI) and Nano Composite Material Research by Wright-Patterson’s Air Force Research Laboratory (AFRL).

In addition, the NCC Technical Oversight Committee (TOC) announced this year’s project award. Design of Composites in Nonlinear, Large Deflection and Dynamic Applications –was submitted by Dr. Brian Knouff, Design and Optimization Program Manager for NCC, was awarded \$22,000 in funding for 2005.

NCC has established itself as a premier center for the Design and Optimization of composite materials for a variety of applications. However, the Center’s capabilities were limited to static and linear designs due to software limitations. The award funding was used in part

to purchase ABAQUS which will expand the Center’s ability to design and analyze large deflection and nonlinear applications. This capability is especially suited to system analysis as well. Committee Chair Harry Couch presented the award check to Dr. Knouff who will unveil findings at next year’s Member Day on the improvements NCC is able to make in composite design and analysis using ABAQUS.

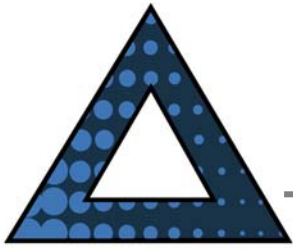


(l to r) TOC Committee Chair Harry Couch with Dr. Brian Knouff. Also pictured is Senior Design Engineer Ela Kos.

NCC extends a special thanks to participants and to those who attended. The Center looks forward to Member feedback on the event and to creating a Member Day for 2006 that raises the bar even further.

NCC INTRODUCED DESIGN OPTIMIZATION AT SAMPE

NCC, a leader in linking composite technology to commercial markets, showcased key technologies including its new design and optimization capability at SAMPE 2005. In addition to NCC’s breakthrough **Rapid Fiber Preforming**, comprehensive closed



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molding expertise, patented Litecast® technology and advances in Long Fiber Reinforced Thermoplastics (LFT), booth visitors showed particular interest in the Center's Genesis™ Design Optimization.

With Genesis™ NCC is helping manufacturers integrate composites into structural designs and harvest substantial cost and weight savings among other benefits. NCC is already planning to author one or more technical presentations for SAMPE 2006.

