

NCC SIGNS WITH ADVANCED CERAMETRICS TO HELP DEVELOP BREAKTHROUGH TECHNOLOGY FOR THE TRANSPORTATION AND AEROSPACE INDUSTRIES

NCC has signed an agreement with Advanced Cerametrics to help develop piezoelectric composite fiber applications for the automotive and aerospace industries. Piezoelectric fibers scavenge electrical energy from vibrations and use it to exert mechanical force.

Based in Lambertville, New Jersey, the 56-year-old company made headlines when its breakthrough technology began to find its way into commercial products like Head tennis rackets and smart skies. Embedded with piezoelectric fibers, Head tennis rackets use the energy of the ball striking the racket to quell its vibration. The racket increases the player's ability to power the ball and prevents tennis elbow.

The fibers are being used to eliminate the vibration and chatter in skies and help helicopter rotors spin more quietly and vibrate less. The company has also been able to generate sufficient power to run low power systems off the energy captured from walking.

This month Advanced Cerametrics, NCC, Wright-Patterson Air Force Base and local entrepreneur Steve Seng met to talk about scale up of the technology for aerospace applications. To help support the

project the University of Akron will set up a virtual laboratory at NCC.

"The applications are quite limitless," said NCC President Lou Luedtke. "The rigid, normal structure of ceramics has limited its use in the past but Advanced Cerametrics' device removes these barriers."

NCC ADVANCES LITECAST® TECHNOLOGY

This month NCC took steps to advance its Litecast® technology with a new diecast press. Installation is expected to be completed by March 1 with a first run scheduled for March 10.



New diecast press for Litecast®

NCC's Litecast® is a patented process that allows manufacturers to use integral metal attachments on composite structures.

Metals, including aluminum and magnesium, are cast directly onto the composite structure in a diecasting operation. A flexible solution capable of meeting a broad range of needs, the process allows the right type of attachment to be Litecast® for each unique application.

Litecast® also offers an option to mechanical fastening and adhesive systems which add extra labor costs and reduce the strength of composite products.

General Motors (GM) initially developed the technology to meet the automotive market's weight-saving needs. GM also launched studies to use Litecast® for large cargo-carrying vehicles before donating the technology to NCC. The Center has expanded the application to produce lighter weight suspension link assemblies for the medium to heavy-duty truck industries.

Additionally, Litecast® is currently being exploited for several other industries including medical (patient transfer equipment), aerospace (aircraft linkages), space (satellite structures) and recreation.

The new Litecast® press is capable of development and productions runs from a single part up to 100,000. This capability will support NCC's efforts to develop new applications, manufacture samples for testing and create prototype production pieces.

The press provides precise pressure and shot size control. The shot size plays a pivotal role in the bonding mechanism between the metal and composite structure. NCC will also be able to cast around thinner and hollow parts with the equipment's precise pressure control.



NCC SCHEDULES MEMBER DAY FOR APRIL

NCC has scheduled its fourth annual Member Day for Tuesday, April 27, 2004. Last year, NCC attracted over 65 participants from 34 companies with more than 15 displays.

As a result of the positive feedback the Center received, NCC plans to increase the level of energy this year by promoting member-to-member interaction and instituting something new.

A special “pre-events” day has been scheduled for Monday, April 26th. The day will showcase NCC project meetings with member companies and NCC technology presentations to the general membership. These activities will be followed by a reception.

The following day will highlight new member companies and their stories of invention and innovation. As always, attendance is free. Member companies can participate by simply attending, displaying their expertise by setting up an exhibit or giving a presentation on a new activity or recent advances.

NCC currently has 12 time slots available for speakers. These are filled on a first come, first served basis. If interest is stronger, the Center will consider expanding the agenda.

To make your reservation, arrange for a tabletop display or secure a

speaker’s slot contact Marilyn Evans at 937-297-9549 or email her at mevans@compositecenter.org. We know it’s an event you won’t want to miss!

NCC TO EXHIBIT AT THE 2004 ACMA MIDWEST COMPOSITES CONFERENCE

NCC will exhibit at the 2004 ACMA Midwest Composites Conference March 11 – 12 in South Bend, Indiana. The conference will feature a symposium on Improving Coat Cosmetics and programming for the RV/Heavy Truck market. Other topics will include regulatory, management and training items.

Attendees will also have the chance to network with other composite professionals to promote new business contacts and opportunities. NCC will highlight its preforming and closed molding expertise.

NCC PRESENTS PAPER AT THE POLYMER COMPOSITES CONFERENCE III

NCC will attend the Polymer Composites Conference III in Morgantown, West Virginia March 30 to April 1, 2004. Technical specialists will present a paper titled “FRP Composite Bridge Decks – NCC Experiences.” The paper will cover NCC’s hands on experience, lessons learned and the body of knowledge that has been built to help further the market.

POLYMEROHIO HOLDS QUARTERLY MEETING AT NCC

PolymerOhio held its Quarterly Meeting at NCC on February 19. PolymerOhio’s mission is to support the growth of individual companies and increase Ohio’s overall competitiveness in a rapidly evolving global economy.

By fostering evolution to value-added product, technology advancement, and workforce development, PolymerOhio is also working to enhance Ohio’s position as a center of excellence for polymers worldwide.

The day’s agenda included PolymerOhio’s 2004 goals, Third Frontier activities and updates on projects like the Center for Polymer Photonics proposal. In addition, NCC gave an overview of its activities and reviewed the status and progress of the Wright Capital Project Fund awards received in 2003.

The University of Dayton followed up with an update on the first Wright Brothers Institute Endowed Chair in Nanotechnology. UD also reported on the Wright Center of Innovation – a collaboration between the university, NCC, Ohio State University, University of Toledo, Case Western Reserve University and the Air Force Research Laboratory (AFRL) to research and dramatically advance the application of nano-enhanced materials.



**TECHFEST 2004 BRINGS THE
EXCITEMENT OF SCIENCE TO
THE COMMUNITY**

NCC participated in the second annual Miami Valley TechFest 2004 held February 21-22 at Sinclair Community College. More than 3,000 people (2067 of which were registered as children) attended.

The event combined 58 exhibits from 65 participating organizations with a festival-like atmosphere. Interactive displays, demonstrations and games were used to engage visitors and help them link science with real-world experiences.

NCC used its booth to take visitors inside the exciting world of composites. Attendees were able to talk with NCC representatives about composites, touch composite material and see fun examples of composite products such as skateboards, fire helmets and golf clubs.

NCC representatives commented on the significant increase in visitors over last year's TechFest and enjoyed the opportunity to communicate NCC's mission and what the Center's all about with people of all ages.