Center Holds Undergraduate Research Symposium

In early June, more than 60 undergraduate students arrived at the University of Delaware's Center for Composite Materials, ready to spend the summer gaining valuable hands-on research experience in CCM's state-of-the-art composites fabrication, characterization, and testing facilities.

University of Delaware
Center for Composite Materials

COMPOSITES UPDATE
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Two months later, on August 10, they came together in the Center's lobby and presentation room, dressed professionally and standing next to posters detailing the goals, methods, and results of their work.

At the end of the day, five winners of top poster awards left with $100 checks and were on their way to present their work at the **University's Undergraduate Research Symposium** the next day.

But everyone who participated in the program was truly a winner.

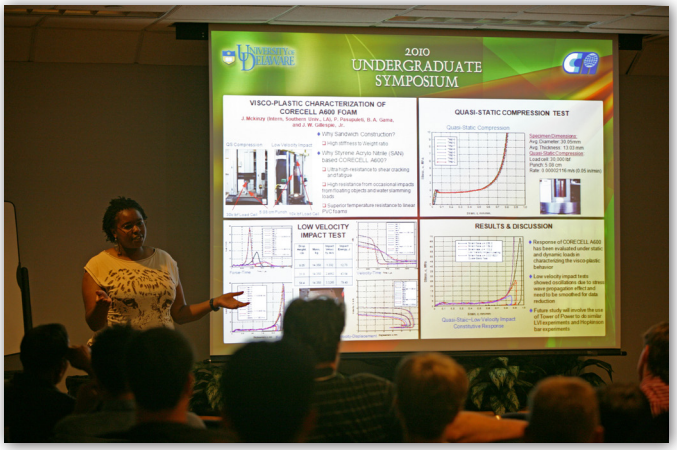
"You all did a phenomenal job," said Center Director Jack Gillespie. "You were here for just over two months, but as you move along in your careers, I think you'll realize just how much you accomplished during your short time at CCM."

TOP STORY (Continued)

Jemela McKinzy, a rising senior at Southern University, a historically black college in Baton Rouge, Louisiana, spent the summer working on a project entitled "Visco-plastic Characterization of Corecell A600 Foam."

"I loved working here," she said. "I gained hands-on experience and made great connections. Everyone here supports the summer interns—from programming to experimental setups to analyzing data, there was always someone to help us when we needed it."

CCM Associate Director Suresh Advani points to the Center's interdisciplinary nature as the foundation for the quality of the experience gained by the summer visitors. "One of the nice things about CCM," he told the students, "is that you have the opportunity not only to conduct interdisciplinary research yourself but also to be exposed to the work done by your colleagues."



Jamela McKinzy presented her work during Session I of the Symposium

Maxime Dempah, a senior in mechanical engineering, agrees with that. "I came to realize that I have been working around other interns for two months without really knowing and realizing what they were actually doing," he said. "So sharing with fellow interns was a great experience. Doing undergraduate research has influenced me to consider going to graduate school and pursuing research at a higher level."

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One exhibit at the symposium attracted particular attention. Bicycle enthusiast Grant Geske, Business Development Analyst in UD's Office of Economic Innovation and Partnership, displayed two custom, high-performance bikes featuring a number of lightweight advanced materials. Ph.D. student Cedric Jacob and senior Michael Just both earned $50 UD bookstore gift cards for their detective work in identifying the materials used on the bikes.

TOP STORY (Continued)

Winners of the best poster awards were as follows:

- Kevin Ayotte *(not pictured)*—Penetration Mechanics of UHM WPE Soft Laminates
- Matthew Grusenmeyer—Physical Validation of Bonded Metal Attachment Points and Development of FEA Method for CAE Attachment Analysis
- Sarah Friedrich—Processing and Electrical Characterization of Nano-Composites for Damage Detection of Composite Joints
- Zach Melrose—Processing and Characterization of Nanotube-Reinforced Adhesives for In-Situ Damage Sensing Applications
- Maxime Dempah—Sized Nanocomposites: Processing and Characterization

Prof. Gillespie (left) and Prof. Advani (right) with 2010 UD-CCM Undergraduate Symposium Poster Contest Winners

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Symposium attendees included two high school students, Alexander Johnson and Michael Holt, who participated in the **Engineering Cool Stuff camps** sponsored by **UD's Engineering Outreach Program** earlier this summer. CCM-affiliated members of SAMPE provided tours and lessons about composites to participants in the Cool Stuff camp as well as those in the Delaware Aerospace Academy. Both groups competed in the Space Beam Challenge, which involves building beams that are lightweight yet strong.

"The exciting thing is that on the final day of the camp, they have a mini-symposium, and many of their inventions included composites, even though the camp covered a broad range of topics," said Jacob, who coordinated the effort.

The presentation on all the "cool stuff" that can be done with composites must have made an impact.

Article by Diane Kukich

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TOP STORY (Continued)

Summer intern learns from Dad

For Steve and Liz Sauerbrunn, the CCM summer research experience was a family affair.

Steve, a technical manager with Mettler Toledo, is in residence full-time at CCM to provide training and professional consultation in the Thermal Analysis Lab, which houses state-of-the-art equipment for thermal mechanical analysis, dynamic mechanical analysis, thermogravimetric analysis, differential scanning calorimetry, and other techniques for materials characterization.

Liz, a rising sophomore at the University of Maryland-College Park majoring in mechanical engineering, is one of more than 60 summer interns working at the Center.

During winter break in her freshman year, she began working with CCM Scientist Bazle Gama on a project investigating the mechanical properties of modified thermoplastic composites as a function of frequency.

It just so happens that the materials characterization equipment she is using for her work is housed in the lab manned by her father.

"I treat her like any other student who comes to me for help," Steve says. "I instruct her on the use of the equipment and then let her go off and work independently. The bottom line is that we want all of our interns to get good results, and my job is to support them in that effort."

For Liz, who is still unsure about the direction of her future ME career, the experience has provided valuable experience and a head start on class work.

"Last spring I took a class in statics after working with Dr. Gama over the winter break," she says, "and I found that I knew half the material already from my work in the lab. Preparing posters, presentations, and reports has also given me a leg up on technical writing."

Steve has noted real growth in his daughter's interpersonal relationships in the workplace. "We all share stories when we get home in the evening about situations that come up during the workday," he says. "It's been great to see her taking part in those discussions."

Liz is one of several summer interns at CCM from other schools. "I think it's important for the Center to bring in outside researchers," Steve says. "It's good for the students to see and hear about how things are done at other institutions."

Article by Diane Kukich

CONSORTIUM MEMBERS

We would like to thank **Hyundai-WIA**, Daejon Republic of Korea, for becoming the newest members of our University-Industry Consortium. We also wish to thank **Milliken and Company**, Spartanburg, SC, for the recent renewal of their consortium membership.

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

NEW PUBLICATIONS

B. Gama, T. Bogetti and J. W. Gillespie, Jr. to receive ASC Best Paper Award

Paper entitled "Impact, Damage and Penetration Modeling of Thick-Section Composites using LS-Dyna MAT162" presented at the 24th ASC Conference has been selected to receive the Best Paper Award. The announcement of award and the presentation of a plaque and award will be made at the Awards Banquet of the **25th Annual Technical Conference** hosted by University of Dayton in Dayton, Ohio on Tuesday 21 September, 2010.

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

35th Anniversary CELEBRATION
1974-2009

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**

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