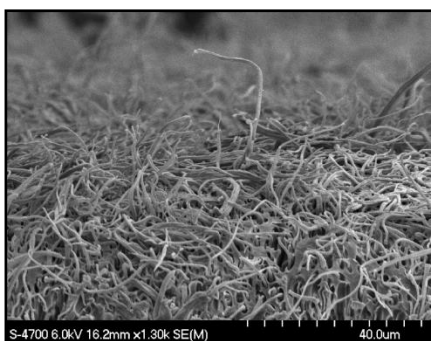


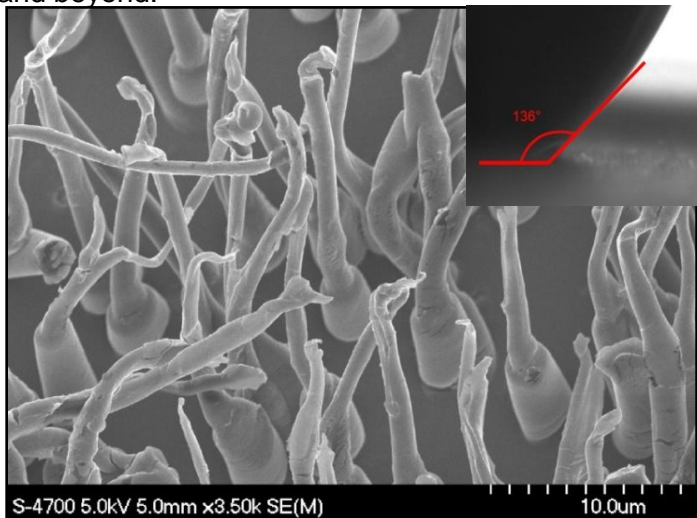
GREETINGS FROM THE LAB

Well, it is that time of year again. Time to put out another version of the Micelle. A lot of exciting things have been happening in the lab and at Augsburg. One area of recent excitement was the experimental projects done through the Comprehensive Laboratory course. From studies on beer foam to the design and construction of a computer controlled spin coater, all of these projects were great fun and a success. Here are just a couple of highlights: Nicole Pettit and Ryan Kane followed the procedures in a just published paper to produce super-hydrophobic surfaces. To understand how they had modified their sample they use a Scanning Electron Microscope (SEM) at the University of Minnesota's Characterization Facilities. The image



to the left shows the tiny micron scale hairs that were pressed into the sample during the preparation process. Ryan and Nicole were taking data and working in the lab independently after

less than 10 hours of SEM training. Justin Gyllen contributed to this project by setting up an apparatus to measure the contact angle on these surfaces, and Carl Kahlstorf pitched in by looking at the sample under an Atomic Force Microscope (AFM). The work of these students was supported by an NSF funded project to introduce students to advanced instrumentation and topics in nanotechnology in the undergraduate physics curriculum. This project will form the basis for a series of labs offered to sophomores during the fall of 2010 and beyond.



Another look at These fascinating surfaces. The inset shows a water droplet sitting on the surface. Physics Question: Why aren't the images in color?

RECENT NEWS

• Prof. Stottrup, Andrew Nguyen, and Erkan Tuzel have published a paper in BBA Biomembranes. This is Andrew's first peer-reviewed publication.

Congratulations Andrew!!!

• During the summer of 2010 Prof. Stottrup and Prof. Bankers-Fulbright are running a seminar series for students interested in biology and physics as part of the Augsburg URGO undergraduate experience. Over ten students will attend this seminar series.

• Tom Lopez won the Minnesota Area Association of Physics Teachers Meeting Poster Competition this spring. **Congratulations Tom!!!**

• Andrew Nguyen presented a poster at the 2010 Biophysical Society meeting in San Francisco and has accepted a position at 3M.

• Lab alumni are making their mark in the world. Nick Ward will spend the summer at Georgia Tech doing research as part of an electrical engineering REU program. Nick Hudson is working with Dr. John Zobitz on environmental modeling and mathematics research. Finally, Ben Hoffman has been accepted to the University of Minnesota's electrical engineering program. **Congratulations to all!!!**

• Prof. Stottrup has been elected to be the MAAAPT's Czar of experimental resources or liaison for instrumentation... it is a new position and the title is still changing.

• The lab also welcomes 5 new students for the summer of 2010: Lance Kifer, Justin Gyllen, Nathan Ly, Gottlieb Uahengo, and Trevor Rodriguez-Sotelo. Welcome to the lab and have a great summer. We are sure you will keep busy... it is probably in your contract.



THANK YOU!!! Prof. Stottrup is sincerely honored to be recognized with CTL's 2010 Distinguished Contributions Award in Mentoring and Advising. "I am truly grateful to have the opportunity to ask questions about nature with gifted and motivated undergraduates."



Scientist Profile:

Dr. Matthew Goertz, Sandia National Labs

For this issue we caught up with one of the lab's collaborators to discuss career paths in science. Dr. Goertz was a graduate student in physical chemistry at the University of Minnesota before joining Sandia.

When did you know that you liked science? Do you like science?

I have always been interested in exploring the world around me, whether it's getting outside and investigating the unique geography and wildlife of where I live or figuring out the underlying technology behind the latest electronic devices. Since I was young, I have never been able to just observe my surroundings. I constantly ask myself "why" and "how" things are as we observe them. The answers to these questions, is what I think science is all about.

Could you give us a sketch of your educational history?

I grew up in northeastern Wisconsin in the city of Manitowoc. There I was fortunate to have motivating science and math teachers who helped prepare me for a college curriculum. After graduating from High School I moved across Wisconsin to Eau Claire for my undergraduate degree in chemistry. The chemistry department at UW-Eau Claire constantly provides undergraduates with the opportunity to work in research labs. I was fortunate to work for 2 professors, doing research for nearly 2 years. That research experience prepared me well for graduate school at the University of Minnesota. I had excellent guidance working with Professor Xiaoyang Zhu and focused my doctoral studies on investigating the mechanical properties of soft interfaces.

How would you describe your research field? Are you an engineer, physicist, chemist?

I work in an interdisciplinary research environment where chemists and physicists provide engineers with fundamental research they need to help keep our nation safe and secure. Currently I perform experiments from the perspective of a chemist while constantly keeping in mind the overall engineering goals of Sandia.

What brought you to a Sandia National Labs?

I was motivated to come to Sandia through a collaboration I had with Dr. Jack Houston, who I was fortunate to work with during graduate school. I was able to spend a few months of graduate school working at the labs and had a chance to observe some of the great science that goes on here.

What is different about doing science at Sandia National Labs rather than working in academia or somewhere in industry? I not only work at Sandia, but at one of the Dept. of Energy's user facilities. My postdoc research is for the Center for Integrated Nanotechnologies (CINT), which is a collaborative effort between both Sandia and Los Alamos National Labs. Working at CINT is particularly exciting because researchers from around the world come here to utilize our unique instruments and experimental capabilities.

What is the favorite part of your day? I enjoy getting to work each morning where the first thing I do is spend a few minutes reading current scientific literature. I find it useful to see what is happening not only in my field but also what new and exciting work is being done throughout the rest of chemistry and physics.

How did you become associated with the Augsburg College Lipids Lab? I met Professor Stottrup in graduate school where his expertise in lipids was a natural fit for my interest in surface forces and thin films.

What advice would you have for students interested in careers in science? My advice is to get involved with a research lab as soon as possible and don't limit yourself to one specific field. There are so many different fields of science that if you don't like what you are doing at first, just keep looking around until you find your niche. Humankind will be facing serious energy and population problems very soon and we can certainly use every great mind available to help move forward and meet these challenges.



Andrew Nguyen took some time out from the Biophysical Society meeting to tour the San Francisco Asian Art Museum

Special Thanks To: Augsburg College and URGO; Dean and Amy Sundquist; Research Corporation; The McNair Program; MN Space Grant; and the National Science Foundation DUE 0837182.

GET INVOLVED! We have many great projects for students in the lab. If you're interested in becoming involved, please contact:

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