



Applied Research Center Student Newsletter

New easyScan STM Arrives!



**COME ON
DOWN
AND TRY
IT OUT!**

Our new portable teaching STM (Scanning Tunneling Microscope) has arrived. It is a scanning probe microscope that utilizes a circuit that adjusts the height of the tip according to current variations that are dependent upon surface deviations. STM identifies a change in voltage as a result of the tip distance from the surface. This difference equates to an image that displays surface variations. It operates in either a constant height or constant current mode. The software contains many analytical and visualization tools, including Fourier Imaging, force curve analysis, roughness analysis, tip characterization, and 3D visualization. <http://www.jlab.org/ARC/WM/121/STM.html>

Who's Been Using the Equipment?



Mohammed Hegazy and Mohamed Hafez are Ph.D. students at ODU studying Indium grown on Silicon by Pulsed Laser Deposition (PLD). Here they are using the SEM/EDS to characterize their samples.



Robert Fisher is a VIMS Researcher studying oyster shell disease caused by the marine mud worm Polydora. He is using the Vickers Micro-hardness tester to help provide information about the hardness of the oyster shell.

Editor: Natalie Percy, Photos by Olga, Dee Dee, & Kelly

Shannon Watson's Mom Comes to Visit for the Day!



Shannon's mom, Ingrid Watson, came to visit at the ARC while Shannon was running her samples on the AFM. Ingrid is the principal at Airport High School in West Columbia, S.C. She stayed busy writing for her Ph.D. thesis on how gang activity influences school violence.

Working on the Dektak



Kelly Sullivan is busy writing a detailed laboratory procedure that will help us train new users on the Dektak Surface Profiler.



Featured Researcher: Baozhu Sun

Baozhu Sun is a William and Mary Applied Science graduate student. He is currently studying the dynamics of defects in semiconductors. Lightweight impurities such as hydrogen and oxygen play an important role in the semiconductor industry. By using the Fourier Transform Infrared spectrometer, Baozhu is able to measure the vibrational lifetimes of the resonance modes of these impurities. Vibrational lifetimes provide important insight about the dynamics of defects and resultant energy dissipation from the semiconductors. Baozhu's research should lead to the creation of more efficient semiconductors. For more information about Baozhu and his research, feel free to visit his website at <http://bxsunx.people.wm.edu>