

New CSAT Building Update

National SPS Director Addresses Students and Faculty

New Physicist Brings New Equipment

Physics Major Interviewed About Wind Tunnel Research

**New CSAT Building Update**

The construction of the new Center for the Sciences building is proceeding nicely, with a completion date of April of 2015. The parking lot behind Curie Hall (Main Street side) looks very different from just a few months ago. These are the views from January 2, 2014, from (top) the Alumnin Garden next to the Library, (bottom right) from just behind Curie Hall, and (bottom left) from the roof of Curie Hall. The circle at the upper left in the image



below is the base of the new planetarium!



**National SPS Director Addresses Physics Department**

Dr. Toni Sauncy is the national director for the Society of Physics Students. The RU SPS sponsored her talk on Friday, November 8, about opportunities for physics students and how they could make a difference in their own careers. Dr. Sauncy said that "A thriving chapter like yours is a gateway for your becoming contributing members of the professional community." She told them of both the traditional path of graduate school and research, as well as the ever-growing number of physics graduates going straight into the workforce. "Physics students are critical thinkers and problem solvers..." leading to their success in numerous technical careers. Many of you can attest to this!



Dr. Sauncy encouraged SPS members who were enrolled in the Spring 2014 Arctic Geophysics class to apply for research funding from the national SPS office. The 4 SPS members in this photo are all in the Arctic class and collaborated on their grant submission. They have yet to hear the results of their work as of this writing.

### New Physicist Brings Research Equipment

Dr. Shawn Huston, Dr. Herman, and several RU physics majors make the trek to NC State Univ. to pick up Dr. Huston's research equipment. This is the Scanning Tunneling Microscope (STM) that Dr. Huston used for his doctoral thesis research. Dr. Huston's unique contribution was the fabrication of a special vacuum test chamber in which samples are placed and scanned, visualizing the individual atoms of the molecular monolayer on the test surfaces.



Above: Students pause after hauling the 600-pound optical table into the physics research lab in Curie 039.



Above: Dr. Huston (foreground) and student Corey Roadcap assemble the specialized vibration-damped optical table. STM work is a delicate process.



Above: Dr. Herman (left), Dr. Taylor (red checked shirt), student Corey Roadcap, and Instructor Dan Blake (in truck) are seen above hauling Dr. Huston's vacuum test chamber from the truck.

It was cold and snowing at midnight on November 23, when we finally unloaded the equipment from the packed U-Haul (yes, we parked it on the sidewalk right at the front door of Reed Hall). But the long day's work will definitely be worth it for our students.

Dr. Huston plans to have the STM up and running this spring. With the growing emphasis on undergraduate research, we look forward to our students starting their research early in their educational careers. Reports on their work will be featured in future newsletters.

### Physics Major's Wind Tunnel Research

Senior physics major Brian Uthe was interviewed by reporter Orlando Salinas from Roanoke TV station WDBJ7. Brian described his research into a possible means of increasing gas mileage in cars by using divots to change the air drag on cars. Brian said of the work he is doing, "It's so much fun and it's relevant stuff." While Brian is not advocating that we all put divots in our cars—yet!—he is at least investigating if there is a "sweet spot" for the size and location of these divots. One idea that he had was to see if these divots could be effective in they were on the sides of the cars so that they would not collect dirt and water, which would collect unwanted weight and rust if they were e.g. on the roof or hood.



Above: Wooden cars with the dimples that Brian used in his wind tunnel studies.

After his graduation in May, 2014, Brian plans to take a year to teach high school physics while studying for the GRE physics subject test. He plans to enter graduate school in experimental physics in the fall of 2015.



Above: Brian pauses during his end-of-semester research presentation to explain the vortices that he quantified with the wind tunnel's pitot tube system.

You can see Brian's full WDBJ7 interview online at <http://www.wdbj7.com/news/local/new-wind-tunnel-at-radford-university-making-noise-/20128466/23113742/-/891aqr/-/index.html>

### Contact Us

*Let us know how you're doing, what you're doing, and where you're doing it!*

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