

RU Physics/Physical Science Alumni Newsletter—Fall 2010

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New web site:
<https://php.radford.edu/~physics/>

Your chance to donate:
<http://www.active.com/donate/ruphysics>

RU Physics News

We have now completed our curriculum changes, although some of it may look familiar to some of you. Within the RU Physics major there are now three concentrations: Physics, Physics Education, and Earth & Space Science. Having these three concentrations will allow our majors to fit their time at RU. You can also read more about our updated program at our new website at <https://php.radford.edu/~physics/>.

The Physics concentration is geared towards students who wish to pursue graduate studies in physics, astronomy or some types of engineering. The Earth and Space Science Concentration allows students to take a number of applied physics classes and prepares students for a career immediately upon graduation in fields such as applied physics, civil engineering, and others. This also allows students in our 3:2 Engineering program with Virginia Tech to take upper level applied classes that will better prepare them for their chosen engineering concentration. This might also be the concentration of choice for those who would like a career in astronomy given the suite of upper level observational (ASTR 310) and theoretical (ASTR 421, 422) astronomy classes that we offer.

Students choosing the Physics Education concentration can complete their physics requirements as well as receive their teaching certification during their 4 years at Radford. Physics and Education faculty work closely with students to make this 4-year plan work for students who wish to take their physics degree into the K-12 classroom.

Selu Observatory

The Selu Observatory is proving to be not just a great resource for our students. In addition to RU student observing projects Dr. Brockway has worked on projects with students from the nearby Southwest Virginia Governor's School for Science, Mathematics and Technology. Some of these projects have ended up in the Governor's School Science Fair.

Dr. Brockway has been opening the observatory to the general public every clear Friday night. Visitors can see stars, planets, comets, nebulae, galaxies and other wonders of the universe that happen to be visible during their visit.

The number of visitors continues to grow. From September 2008 through August 2009 Dr. Brockway recorded 292 total visitors. Then from September 2009 through August 2010 Dr. Brockway recorded 438 total visitors. Read more about the Selu Observatory at <http://www.radford.edu/observatory/>.



M57, The Ring Nebula taken through the Observatory's 14.5" f/9 Ritchey-Chrétien telescope.

RU Faculty/Alumni Scholarship Winner

Congratulations to sophomore Physics major Matt Trayer. Matt was awarded a scholarship from the RU Physics Faculty/Alumni Scholarship this year. Thanks to your generosity these funds will continue to be used to help physics majors to further their educational goals. To donate to this fund please go to <http://www.active.com/donate/ruphysics>. Note that all donations—especially those with certain numerical “significance”!—are appreciated.

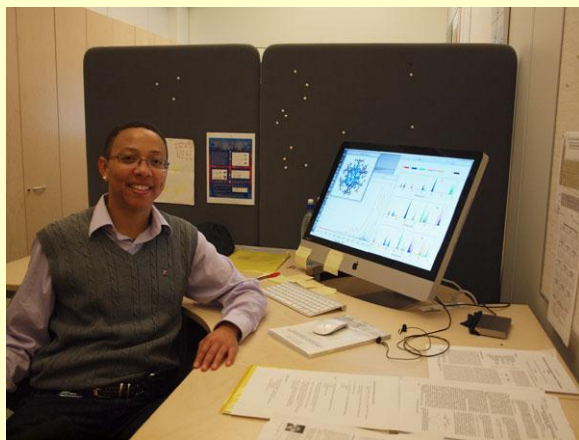


AEP Planetarium Scholarship

Thanks to the generosity of American Electric power new freshman Ben Lichtman has been awarded an AEP Planetarium Scholarship for the fall semester. Ben will be running the Tuesday/Thursday evening shows this semester. He has quickly learned how to run the planetarium and has already run his own “solo” shows.

Alumni Spotlight

Penee A. Clayborne is a Physics alumna well known for her zest for life and all things educational. In fact she went so far in the “educational” path that she had very nearly completed a second major in chemistry by the time she graduated. This dual path to her degree has served her well. We caught up with Penee recently and asked her how things were going. Now Dr. Penee A. Clayborne’s title is “Postdoctoral Researcher” at the University of Jyväskylä in Jyväskylä, Finland. Here is some of what else she had to say.



My primary responsibilities are to investigate the electronic, optical, and geometric properties of ligand-protected clusters composed of gold, aluminum, gallium, and now Group IV metal atoms in the core and organic ligands (i.e.- C_5H_5 , NH_3 , $Si(Si(CH_3)_3)_3$, etc.) using computational codes that use density functional theory. One of our goals is to identify Ligand-

protected superatoms for uses in materials with specific properties. And of course then to write papers and assist with students, etc.

When asked about what led her to her current position she said,

After graduation from RU, I went into industry outside of the scientific field at first. Decided I did not like the pressure and went through a temp agency, then obtained a position at an environmental company. However, then decided to go back to graduate school at Virginia Commonwealth University where I obtained a M.S. in Applied Physics and a Ph.D. in Chemical Physics.

Now, I am in a postdoctoral research position because I am a teacher first and would like to become a professor at some point (and most universities require some postdoctoral experience).

Thus her extra studies in chemistry certainly factored into her career. And a cool thing about her job now? *“The freedom to explore any avenue I choose with research and the hours (which I choose too).”* That type of freedom is a rare and valued thing indeed.

How about the manner in which her RU degree factored into her current position?

Let me state most people think I graduated with two degrees from RU, one in Chemistry and the other in Physical Science [Physics]. ... both the Chemistry and Physics courses I was able to take at RU have helped significantly in my graduate studies. The research experience I was able to participate in as an undergraduate has really broadened my background on Astronomy, Physics and Chemistry to apply to my current research. Also being able to help with the Physics Help Session, Planetarium, and in the Chemistry labs has helped me with the teaching I have done in the past and now.

Penee was proactive in searching for this postdoctoral position.

Initially, I waited until almost the last minute to apply to postdoc positions. I searched a variety of websites including APS, ACS, and IOP (<http://tiptop.iop.org>) for postdoc positions. Then, I was advised by someone that I should be sending out at least 3 letters to people within the “cluster community” (which is my particular field) or applying for 3 positions a day. So for three weeks I did this, even applying to one or two tenure-track positions. Finally, I heard back from two people. One in Michigan and one in Finland. I had phone interviews, then traveled to Jyväskylä for a formal interview and had two job offers. Of course when choosing between somewhere in Europe and the US, I chose Europe.

Those of us in academics know about the large number of applications we sent out, and the thrill of getting that one that we might have wanted all along (whether we realized it or not). Penee does have plans for future publications including a hoped-for paper in the prestigious journal *Science*. She hopes to eventually obtain a tenure-track position *“...at a university with a research group that explores using clusters for various applications in chemistry, physics, medicine, and nanoscience in collaboration with experimentalists.”* We are confident that she will achieve her goal.



Penee in front of the department where she works. With Finnish words on the sign!

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And finally when asked about what she would think of someone choosing RU for taking the same career path that she has taken, Penee said,

RU would give anyone a great foundation to advance their career to obtain a Ph.D. in any field of Chemistry or Physics.

We're there for the next generation and will help out in any way we can. Nice work, Penee!

Don't forget our Physics Faculty/Alumni Scholarship Fund. You can donate to this fund at <http://www.active.com/donate/ruphysics>.

Note that some \$\$ amounts are more 'fun' than others for your donations!

PS—Let us know how you are doing! Please email Dr. Rhett Herman (rh Herman@radford.edu) with an update. We would love to hear from you.