

# CROSS SECTION

Stetson University Physics Department Annual Newsletter, Spring 2011  
[www.stetson.edu/physics](http://www.stetson.edu/physics) ~ [physics@stetson.edu](mailto:physics@stetson.edu)

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## Hello from the Physics Department!

Once again, I find myself at the helm of the Physics Department as department chair. Although anyone who has served as a department chair might agree that it's a dubious appointment comprised mostly of more meetings and administrative paper-shuffling, I'm sure George Glander would agree with me that one of the real pleasures of being chair (again) is the opportunity to share our news with you. I took over from George as chair this past summer after his five year term finished up. Little did he know that it wouldn't be back to "just teaching" when he rotated off; late this summer George was asked by Dean Grady Ballenger to be an associate dean for the college. And so, he has "joined the dark side" and now spends half his time fielding "deanly" issues. We in the sciences like that one of the associate deans is a scientist, and fortunately for the Physics Department, George continues to anchor our majors by setting their foundation in his introductory University Physics course.

To assist with the teaching load now that George is an associate dean, we have "imported" Tom Vogel, assistant professor of mathematics. Tom's professional work bridges math and physics and he is a well-liked math prof; we are thrilled to have him join us over here in Sage. This semester, Tom is teaching Quantum Mechanics II, freeing me up to teach Advanced Lab Techniques which has usually been taught by George.

It's our second year of having Physics Colloquium, which is a co-requisite for all physics courses after the University Physics sequence. We've engaged in lively discussions amongst our majors and had several visitors on the calendar as well: Myron Campbell, the Associate Dean for the Natural Sciences at the University of Michigan (and REU mentor to current senior Angela Steinmann last summer) who came last semester; and Joe Romm, Environmental Expert Senior Fellow at the Center for American Progress, Justin Black, '07, Failure Analyst Materials Engineer with Northrup Grumman Laser Systems, and Renee Dickinson, '05, Medical Physicist with the University of Washington, who will be visiting this spring. Additionally this spring all of our seniors will be presenting their senior research projects in colloquium. We announce these on the "Stetson University Physics Department" Facebook page; you're welcome to come join us if you're in the area. Colloquium meets Mondays from 12:30-1:30 in the Jenkins Room

We have an especially lively group of majors this year, with eight seniors! We have been branching out on displays in the hall, with a "graffiti board" for physics graffiti, and a physics scrabble board which "zitterbewegung" as the leading word (any physics word counted). We had a fabulously successful star-gazing event, SPS has had bowling nights and movie nights, and we are looking forward to our now-annual gathering at the Glander's for pizza dinner and story-telling (and occasionally paper airplane flying) and for home-made ice cream at the Sigma Pi Sigma initiation event at Tom Lick's home later this spring.

—Kevin Riggs  
Physics Department Chair

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Just as we do with gravity, the motions of the planets or of electrons, and all those theoretically possible particles that form our world, we sometimes take things for granted.

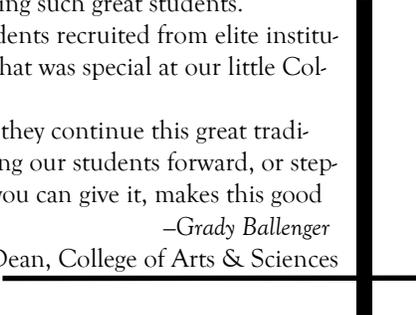
I hope I'll never be accused of taking our physics program for granted. What a remarkable record we have of producing students with great basic understanding of physics that they'll need for their lives as citizens or further study in the sciences or health professions! What an impressive record we have of producing students who go on to become physicists who research, teach, advance human knowledge, or lead development of commercial applications. Small numbers, yes, but important too!

It sometimes takes a new frame to appreciate fully what has always been there before us in plain view. Recently, Dr. Myron Campbell, Associate Dean for Natural Sciences at the University of Michigan, showed up on campus. He was here as an explorer, an investigator. At the University of Michigan, he had encountered several Stetson students, Michelle Adan '08 (currently a graduate student in physics at UM), Angela Steinmann '11 (who did an REU last summer with him at UM), and Stephanie Lengemann '11 (with whom he had several conversations during his visit to Stetson), and as he put it to me, "These are truly special young scientists." "I didn't know anything about Stetson," he added, "but I knew I needed to see how this place was producing such great students."

When you think that the University of Michigan has a top-ranked graduate program, with students recruited from elite institutions around the globe, you can see how remarkable it is that Dr. Campbell had here to come to find what was special at our little College of Arts & Sciences tucked away in "old Florida."

I know all of you will join with me in supporting the work of our faculty and students, so that they continue this great tradition of teaching and learning. As we look to the future, we're taking nothing for granted. We're pushing our students forward, or stepping aside to let them push their ambitions forward. Your encouragement, your help in whatever way you can give it, makes this good work possible.

—Grady Ballenger  
Dean, College of Arts & Sciences



## From the Dean



**Find us on Facebook and become a fan!**  
 Search on: "Stetson University Physics Department"

## Current upper-class majors



Igor Domladis '11



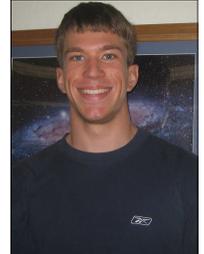
Stephanie  
Lengemann '11



Sommer White '11



Brett Abraham



Eric Hall



Robert Erdman '11



Angela  
Steinmann '11



Daniel Yount '11



Jacob Ethier



Nick Puerling



Amanda Hartlieb '11

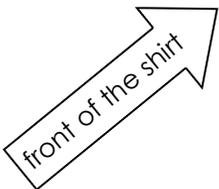
Not pictured:  
Christopher Rowley '11

## Physics Department Annual T-Shirt Contest

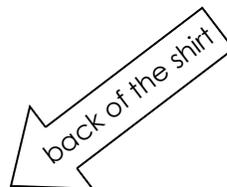
It was a fierce competition this year, with over two dozen entries!  
 The winning design was created by Evan Foley.

**You think I don't know the mass of an electron?**

**Try  $m_e$ .**



$$0.510998910(13) \text{ MeV}/c^2$$



(The design was printed on a dark green shirt with white lettering.)

# Senior Research Projects

ROBERT ERDMAN

## Calculating the Local Acceleration Due to Gravity Using a Pendulum

The main goal for my research is to identify the local acceleration due to gravity using a tried and true method of employing a pendulum in its simplest form. Starting with a simple pendulum, then increasing the complexity to include two rotary motion sensors, increasing the resolution of the sine wave, while also using a power series for the period equation eliminating the small angle approximation, I am able to achieve a decent figure for the local acceleration due to gravity. This figure can and is used in determining the local value of "g" to get indirect measurements on the local geological conditions under the surface soil.

AMANDA HARTLIEB

## Roemer's Speed of Light

We measured the speed of light in the same way Ole Roemer did in the 1600's. Using a telescope, we observed Jupiter's moon, Io, eclipsed at one part of the year when Jupiter was close to Earth and once again when Jupiter was farther from Earth. There is a difference in time between the actual time Io eclipses and the time obtained from calculating the periods of Io. Using this time difference and the distance difference between the two times, we used the equation,  $v=d/t$ . This gave us results within 3% of the accepted value of the speed of light.

STEPHANIE LENGEMANN

## Building an Optical Pyrometer that Calculates Blackbody Temperatures Using the Intensity of Two Infrared Wavelengths

An optical pyrometer is a temperature measuring device that uses electronic and optical components for non-contact temperature measurements. Devices such as these are highly desired in industrial and research settings when temperatures cannot be measured with thermocouples or other probe-like sensors. Examples include objects that are moving or inside a vacuum. This project focused on the design and initial construction of an infrared optical pyrometer that will eventually be used to measure the temperature of a sample of silicon inside a vacuum chamber. By measuring the intensities of two infrared wavelengths emitted from the sample, blackbody laws can be used to find the temperature of the sample. Our optical pyrometer was constructed of two converging lenses, a photodiode with the appropriate electronics for signal amplification, and two narrow bandpass filters, 980nm and 1550nm. Initial tests of the pyrometer were performed by using it to measure the temperature of a glowing filament inside of a custom blackbody oven. Another optical pyrometer, which uses a disappearing filament method, was used to determine the accuracy of our constructed pyrometer. At this time the constructed optical pyrometer is measuring temperatures within 9.5% of those measured by the disappearing filament pyrometer for temperatures near 900 °C (1173 K).

CHRISTOPHER ROWLEY

## Determining the Hall coefficient of gold thin films

Gold films were grown on a microscope slide using a sputtering chamber. Argon gas ions were bombarded against a gold target to lay the films. A current ran through copper wires attached to the film while the film was exposed to a magnetic field. The Hall voltage induced was measured through copper wires attached to tabs perpendicular to the current. The thickness of the film,  $t$ , was determined using the total time that gold particles were laid on the surface. The thickness of the film was 293.8 nm. Values for the Hall voltage and magnetic field were also used to calculate the Hall coefficient,  $R_H$ , of  $7.49 \times 10^{-11} \text{ m}^3/\text{C}$ . This value was 4.0% away from the accepted Hall coefficient for gold,  $R_H$ , of  $7.2 \times 10^{-11} \text{ m}^3/\text{C}$ .

ANGELA STEINMANN

## Using a Toy Monte Carlo Simulation to Accurately Measure the Distance between a Neutral Pion and a Cesium Iodine Detector

A.Steinmann<sup>1</sup>, M. Campbell<sup>2</sup>

<sup>1</sup>Department of Physics, Stetson University, Deland, FL 32723

<sup>2</sup>Department of Physics, University of Michigan, Ann Arbor, MI 48109

The KOTO collaboration is an ongoing high energy physics experiment located in Tokai Japan. Its main experimental goal is to detect rare meson decay modes, specifically that of neutral K-mesons (kaons). Mesons are atomic particles composed of a quark and an anti-quark. If observed, this rare kaon decay will help us understand the predominance of matter over antimatter in the Universe. Kaons are highly unstable and typically decay into neutral Pi-mesons (pions). In turn, these pions immediately decay into a pair of photons, which then travel towards a cesium iodine detector. However, not all photons will reach the detector, due to the physical limitations of the detector's size and the specific location of the decays.

While participating in the University of Michigan's REU summer program, I created a simplified Monte Carlo, implemented in *Mathematica*. This program was used to calculate the optimal distance between the detector and the location at which the pion de-

cays into two photons. Ultimately, a million random pion positions were generated within a ten meter range of the detector. As the simulation varied the pion's location, the final position of each photon was calculated. It was found that the pair of photons had the best probability, 78.5%, of hitting the crystals when the pion decayed around 1.05 meters from the detector. By understanding the most probable decay location, the KOTO collaboration will use this result to fine-tune the alignment of the detector apparatus.

#### SOMMER WHITE

##### **A Study of the Frequency Doubling Conversion Efficiency of the Non-Linear Optical Crystal KTP**

Potassium titanyl phosphate or KTP is a non-linear material that is ideal for frequency doubling electromagnetic waves. Many applications favor KTP over the traditional KDP (Potassium Dihydrogen Phosphate) due to its increased efficiency of conversion from the 1064 nm wavelength to the 532 nm wavelength. This can be seen in the manufacture of green laser pointers. The most cost effective and efficient way to manufacture a green laser pointer without using the costly green laser diode, is to use a 1064nm Nd:Yag Neodymium: Yttrium Aluminum Garnet laser in conjunction with a KTP crystal to achieve a 532nm wavelength. In this study we examined both polarized and non-polarized variable intensity incident light, measuring the ratio of 532nm intensity compared to that of the 1064nm input wave. We expected to find that the relative intensity of the frequency-doubled wave was directly proportional to that of the original wave but received surprising results upon close analysis.

#### IGOR DOMLADIS

##### **The Role of Voltage Dependent Dendritic Ion Channels in Linear Synaptic Integration**

#### DANIEL YOUNT

##### **Drag Coefficient ( $C_D$ ) of a Model Rocket**

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## Student News

#### Society of Physics Students:

- Co-Presidents for 2010-2011:  
Stephanie Lengemann  
Angela Steinmann  
Sommer White
- *Net Force* intramural teams  
Basketball captain: Eric Hall  
Flag Football captain: Eric Hall  
Soccer captain: Dan Marulanda  
Volleyball captain: Dan Marulanda

#### Sigma Pi Sigma:

- New Inductees:  
Stephanie Lengemann '11  
Angela Steinmann '11
- Co-Presidents for 2010-2011:  
Stephanie Lengemann  
Angela Steinmann

#### Honors Convocation Honorees—May, 2010:

- The George L. Jenkins Prize in Physics, awarded annually to the top student in the University Physics course sequence:  
Eric Hall
- The Jack Gibson Endowed Physics Research Award, given to the top student in the senior research sequence:  
Andrea Belanger, '10
- Outstanding Senior: Timothy Holifield, '10
- Outstanding Junior: Stephanie Lengemann '11

#### 2010 Summer Research Participant:

Angela Steinmann – University of Michigan summer REU.

## **Congratulations to our graduating seniors!**

*Igor Domladis  
Robert Erdman  
Amanda Hartlieb  
Stephanie Lengemann*

*Christopher Rowley  
Angela Steinmann  
Sommer White  
Daniel Yount*



# Meet our current Featured Alum

## RENÉE L. DICKINSON, M.S.

Medical Physicist, Diagnostic Imaging  
University of Washington Medical Center, Department of Radiology



**WORK** University of Washington Medical Center

**ADDRESS** Department of Radiology  
4000 15th Ave NE  
Box 357987  
Seattle, Washington 98195-7987  
206-543-7671 (office)  
rdickins@u.washington.edu

### **EDUCATION**

2005-2007:

Master of Science, Specialized M.S. Medical Physics Program, University of Texas  
Health Science Center Graduate School of Biomedical Sciences, Houston, Texas

2001-2005:

Bachelor of Science, Physics, Cum Laude, College of Arts & Sciences,  
Stetson University, Deland, Florida

### **BOARD CERTIFICATION**

Board Eligible, American Board of Radiology (ABR)  
Specialty: Diagnostic Radiological Physics  
Part 1 - Completed and passed, August 20, 2008

### **WEBSITES**

<https://www.rad.washington.edu/radiology-personnel/rdickins> (includes my Curriculum Vitae)  
<https://www.rad.washington.edu/academics/academic-sections/diagphys> (UW Diagnostic Physics)

### **PROFESSIONAL ORGANIZATIONS**

2008-present: Full member, American Association of Physicists in Medicine (AAPM)  
Education Council: Education & Training of Medical Physicists: Minority  
Recruitment Subcommittee Member (MUSE)  
2005-2007: Student member, American Association of Physicists in Medicine (AAPM)

### **OTHER MEMBERSHIPS**

2004-present: Member, Sigma Pi Sigma, Physics Honor Society  
2003-present: Zeta Tau Alpha  
2005: Mortar Board, National College Senior Honor Society

### **OPEN LETTER TO PHYSICS MAJORS:**

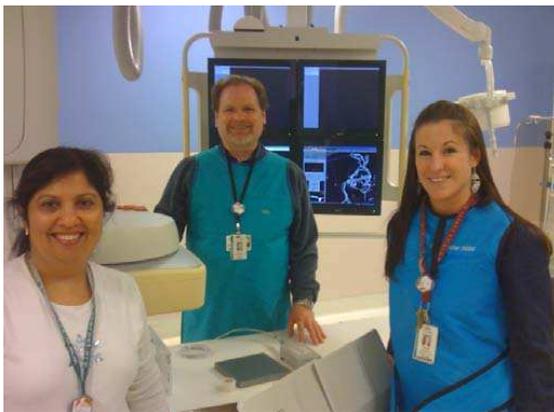
I was very lucky to spend most of my childhood and college years in the wonderful state of Florida!! I grew up in Pensacola, FL and moved to Deland to attend Stetson University... I remember when I toured Stetson as a high school senior, I absolutely fell in love with the buildings and layout of the campus. As a student, my friends and I used to regularly sit in the grass on the quad and enjoy the warmth of the hot sun and an iced coffee from the kiosk. To this day, I still enjoy strolling through the campus and city with my college friends when we return for visits. My tentative plans to visit Stetson next is in the Spring of 2011... I hope to meet the current students of the Physics Department at that time.

### *My professional development – a little about how I got to where I am now...*

I graduated from Stetson University in 2005 with a Bachelor's degree in Physics with a minor in Mathematics. During my undergraduate studies, I had the opportunity to complete my senior research project by accepting an internship in Bioengineering at Clemson University. The work was funded by the National Institute of Health and the National Science Foundation and focused on undergraduate students applying their respective disciplines to bioengineering research and education. I completed a nine-week research project focused on the design of a force sensor using strain gauges for real-time tension testing of cell/material constructs.

In 2005, I was accepted as a Medical Physics Master's Candidate at The University of Texas Health Sciences Center at Houston. This program is one of twenty-five accredited Medical Physics graduate programs in the United States and Canada (approved by the Commission on Accreditation of Medical Physics Educational Programs, Inc). I received my Master of Science degree in 2007. As a graduate student, I completed both didactic course work as well as a Master's thesis research project under the supervision of Richard E. Wendt III, PhD. My Master's thesis was entitled Technical Improvements of Lymphoscintigraphy; the two main focuses were to develop a 2-D localization methodology for breast lymphoscintigrams using 3-D SPECT/CT scanners with the aim of reducing radiation dose to the patient and to determine the most efficient collimator type for planar scintigram imaging.

My current position of Medical Physicist at the University of Washington Medical Center (UWMC) is to provide physics support to the personnel in the Department of Radiology. My main focus is to oversee and implement regular quality control programs to ensure superior diagnostic imaging across all modalities (general radiography, computed tomography (CT), magnetic resonance imaging (MRI), fluoroscopy/angiography, and ultrasound) and to minimize patient exposure to ionizing radiation. I also regularly assist with obtaining and maintaining our American College of Radiology (ACR) accreditation for computed tomography (CT) and magnetic resonance image (MRI) modalities as well as teaching imaging physics principles to UWMC Radiology Residents. My role here is a fine balance that allows me to practice professionally in a clinical environment, while enjoying the opportunities to teach and perform clinically-relevant research. In fact, my research was presented at two annual meetings in 2010: the national meeting for American Association of Physicists in Medicine (AAPM) in June 2010 and the international meeting for the Radiological Society of North America (RSNA) in November 2010. Please check out my CV (on my website) for information on my abstracts!



Although I have finished my course-work, I am currently in the process of obtaining certification as a Diagnostic Radiological Physicist by the American Board of Radiology (ABR). This process takes several years to complete (at least 24-36 months). It requires practical experience for a specified number of months (either on-the-job or as a physics resident at a CAMPEP accredited residency) as well as passing two initial qualification written exams – a general physics/clinical exam and a specialty exam – and one oral examination in the candidate's specified specialty. I have currently satisfied my clinical experience requirements and have passed part I of III for the exams.

***UWMC Radiology Physics Section:** Dr Kalpana Kanal, Dr Brent Stewart, and Renee Dickinson – Here we are performing the acceptance testing of a new Philips flat-panel detector angiography suite at Harborview Medical Center.*

### *My personal adventures since graduation...*

So if you've followed my professional development, you'll know that I've moved a bit since my undergraduate years! From Florida to Texas to Washington state....

But let's back up a bit first. Although I grew up in Florida and went to school there, my family is actually all from the great state of New York... UPSTATE, although I love spending time in NYC as well!!! Every summer since I was in middle school, my family has vacationed to Keuka Lake where we swim, boat & water ski, and jet ski. If you ever have the chance in your life to visit the NY Finger Lakes region, you will experience a great treat!

Although I didn't have much "free time" in graduate school, I had a great 2.5 years in Houston, TX. I have to say, studying in the Texas Medical Center – the largest medical center in the world – was a real treat and researching at MD Anderson Cancer Center – ranked #1 in cancer care for 7 of the past 9 years, including 2010 – was sort of surreal!! When I wasn't studying or writing abstracts or finishing my thesis work, I spent time in Texas scooting around Austin (...think 6th Street Nightlife) and San Antonio (...think Riverwalk) or enjoying the Houston Livestock Show and Rodeo. I think that Rodeo Houston was the highlight of my Texas adventures... it has the world's largest livestock exhibition, draws some of the world's biggest country stars (Brooks & Dunn and Gretchen Wilson were among my favorites), and all the typical rodeo action including bull riding and bucking broncos.

And now SEATTLE! By far one of my favorite homes to date! I moved here in December 2007 and have enjoyed a wide variety of activities and opportunities in the city and surrounding countryside. In one view, you can see the Puget Sound flanked to the east by the Cascade Mountains and to the west by the Olympic Mountains. Although I love my job, I have really enjoyed my **!!FREE TIME!!** after work and on weekends. I got a dog (Tucker) in 2008, so we spend a lot of time outside hiking and swimming at Lake Washington. I have even learned to snow ski this year! Although the saying goes that "Seattle is a rainy city..." in all reality, it is more an **OVERCAST** and mild climate city so it's pretty easy to get outside year round. Every year, I hike to Ross Dam on Hwy 20 (the Cascade Loop has plenty to keep me busy... football games at Qwest Field (either Seahawks or Sounders FC... I like both footballs!), enjoying a hot dog at Safeco when the New York Yankees come to town, meeting friends at a local pub downtown to watch the UF Gator football games, shopping at the Public Market (home to the famous flying fish), traveling out to the mountain passes for a day on the slopes, hiking in the desert east of the Cascade Mountains, drinking a glass of wine from one of the hundreds of vineyards in Oregon or Washington, or heading to the Gorge (a natural amphitheater overlooking the Columbia River) for some good music... I really have grown to love everything about my life in Seattle (both at work and at home).

***My "take-home" point for this letter... you know... like the summary slide in a PowerPoint presentation!!!***



Often my life has so many opportunities and choices to make. To date, I have had two major cross-roads in my life where I've had to make what I consider to be major decisions. One was where to go to graduate school (after all the great years I spent at Stetson both on campus and studying in the Physics lounge... I knew that I wanted to continue my physics education). My choice in graduate school landed me a great job at a nationally renowned hospital. My second choice was whether I wanted to stay on the west coast or move back east... although I really miss my family and friends back home, I have found a really fun & reasonable balance between a great job at the University of Washington and all the adventurous possibilities Seattle has to offer. So for the time being, I'll be sticking around the Emerald City! BUT, I'm always interested in entertaining the idea of any new adventure that may cross my path!

I consider myself blessed to have been offered all the wonderful opportunities I have shared with you in this letter... maybe you have just taken note of a good location for a vacation based on my experiences, but maybe you'll see that either during your years at Stetson or shortly thereafter you'll be making big decisions yourself!

I wish you all the best in your futures!!

*Renee Dickinson*

Above:

Hike to Ross Dam on Hwy 20 (the Cascade Loop Hwy)  
Renee & Jack with Tucker

Below:

Fall River Falls near Winthrop, WA



My sister, Nicole, and I at the top of Snoqualmie Falls (Snoqualmie, WA)



# Faculty News

## George (& Laura) Glander

Life in Florida is good, but very busy. Late in the summer I was asked to be an Associate Dean in the College of Arts & Sciences. I am now responsible for all of the student academic issues that go through the Dean's Office. Unfortunately, the appointment came too late to redo my teaching schedule for the semester, so my work load has sky-rocketed. I work hard to keep puttering around the yard on the weekends, as I really enjoy (and need) the physical activity. I also enjoy my Saturday morning coffee while working on family genealogy, largely through Ancestry.com. I keep telling myself that I will be able to sleep during breaks.

Laura is now working full time. She works half the day as secretary for the Physics Department and the other half working for the Provost in Academic Affairs. It keeps her busy - and also gives her interesting perspectives on the University (department secretary, administration secretary, faculty wife...), which intrigues her sociology/anthropology college major background. At home, she continues to putter at sewing. No major projects are on her plate at the moment, but she has designs brewing for the perfect beach combing backpack and I expect that the local dance studio will begin bringing in costume alterations soon, as they have a recital scheduled for May.

We enjoy our lives as empty-nesters. Our son, Ian, is a junior at Carleton College, living in the Sci-Fi interest house and majoring in political science/international relations. Our daughter, Beth, is in her second season dancing with Milwaukee Ballet in their second company, auditioning for first company positions around the country, and she has started college courses online through the University of Maryland University College. That leaves Andromeda (Andi) and Gemini (Gem), our two cats, at home with us. But, the cats are independent, and so we enjoy the freedom to come and go as we please. Last spring we visited the Edison/Ford mansions in Ft. Myers and Cayo Costa State Park. This fall, over fall break, we went over and enjoyed Honeymoon Island State Park and Caladesi State Park. We love the beach combing on the Gulf coast beaches, and are working on our shell collection...

We both hope you and your family are well! Keep in touch through Facebook, email, or dropping by!

–George & Laura  
[glander@stetson.edu](mailto:glander@stetson.edu)  
[lglander@stetson.edu](mailto:lglander@stetson.edu)

Tony Jusick sends greetings to all.

[tjusick@stetson.edu](mailto:tjusick@stetson.edu)

## Tom Lick

As many of you already know, my wife Miriam passed away in July following a second massive stroke. Since we were married for almost 44 years, that event has been a complete game changer for me, especially since I was her primary caregiver since her first massive stroke 12 years ago. I have therefore started to pursue several outdoor activities which were not feasible before because I could not leave Miriam alone except for brief periods. I have purchased both a mountain bike and a kayak and have been using them regularly. Unfortunately the last month has proved to be too cold for kayaking. I am also going to plan at least one cruise and one trip to Europe during the coming year. This is my second year as a Senior Professor and it may therefore be the last year of my tenure at Stetson if the administration decides not to renew my contract. So if you do not see my meager contribution to the Physics Newsletter next year, you will know that I am enjoying at least one of the aforementioned activities as you read the newsletter. If that is the case, I will be reminiscing about all of the great students like yourself that it was my pleasure to work with during my 43 years at Stetson. It has been a great life for me at Stetson and I doubt that I would change it even if given the chance!

–TAL  
[tlick@stetson.edu](mailto:tlick@stetson.edu)

## Danielle Morel

Warm greetings and (belated) Happy New Year from DeLand, where the total snowfall amount is ... zero! Reading the news from up north, I cannot say that I am unhappy about leaving behind snowstorms, icy roads, and wind chill factors that make temperatures fall into the negative range. I experienced my share while living in Québec but hopefully those times are behind me for good, except for the occasional visit or ski trip, of course!

But back to the business at hand ... another year has flown by and what a busy time it was! Between new courses, research, committees, conferences, house projects, and family sorrow, 2010 was a professionally and personally demanding year. In the spring semester, I took over teaching Math Methods (Tony Jusick's pride and joy for decades) and Mechanics I. They were both brand new course preparations for me with all the trials and tribulations associated with that process. Learning was definitely a two-way street during the entire semester (as it always is, in reality). Fortunately, I had an awesome group of students (many thanks to each of them!) that made my struggles worthwhile. Hopefully the second time around will be smoother.

The summer brought a different set of challenges as I returned to my research after nearly two years of absence. As expected, I had to spend a considerable amount of time getting reacquainted with my previous work (how quickly one forgets!) and catch up with the literature. Additionally, the software needed for the next phase of my research comes with a steep learning curve so getting familiar with its numerous peculiarities swallowed the rest of my summer. As some of you may know, my research blends basic physical principles and physiological data to build computer models of single neurons. The goal is to better understand information processing within neurons as well as communication between them. It's pretty fascinating stuff so I can't wait to get this new model up and running! I am

happy to report that I received another grant to support my research over the upcoming summer. As a result, and if all goes well, I should be able to spend part of my 2011 summer working with my colleague at the University of Virginia, located in Charlottesville.

Somewhere in the middle of the summer I did manage to squeeze in a quick trip to Québec to visit family & friends and later 4 days in the Florida Keys with my sister. The drive north to Québec offered a perfect opportunity to listen to all 21+ hours of Harry Potter 7 on cd (Deathly Hallows). The drive south to the Keys afforded priceless one-on-one time with my sister, whom I picked up in Fort Lauderdale where she was attending a workshop. We indulged in some serious (and some not-so-serious) photography, clicking away at wildlife, landscapes, and architecture. Hurray for digital cameras and for the overwhelming beauty of the Keys!

Before I knew it, the fall semester started and summer quickly became a distant memory (sigh!). New for 2010: a course about the solar system and another about stellar evolution now replace our previous single offering in astronomy. The rationale behind this change is to not only cover each topic in more depth, but also set the stage for a future minor in astronomy (gotta dream!). The new courses will be offered on a rotating basis each fall. This new sequence of courses will evolve over the next several years as current and future space missions reshape our knowledge of the solar system and indeed the Universe. One nice complement to the first solar system course was yet another successful physics department star party at the Glander's. Some wonderful sights were seen on that clear fall evening, including several constellations, nebulae, galaxies, and Jupiter with the Galilean moons in all their splendor. We did miss the meteor showers and the total lunar eclipse (Dec. 21) but still managed to have a great time!

–Danielle  
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### Kevin Riggs

Another year passes and the Stetson physics program continues to thrive. This year we have eight students presenting senior projects in our new physics colloquium venue, the abstracts of which you can read in another section of this newsletter. I have again taken on the task of leading the department as chair, while George Glander has taken on a new role as associate dean of the College of Arts & Sciences. In order to keep George from being overwhelmed with his new duties, we have invited Tom Vogel, a math professor with an undergraduate degree in physics and graduate level experience in physics, to teach one upper level theory course per semester. He has enthusiastically taken up the challenge this semester and is teaching Quantum Mechanics II. I am listening to one of his lectures from across the hall as I write this. While I miss teaching Quantum II myself, I am enjoying taking on Laboratory Techniques this semester, a course that George has improved substantially over the last few years.

In the spring of 2010, I was asked to chair a review panel considering proposals for the National Science Foundation. While it was an enormous amount of work, it was very gratifying to see the innovations that colleagues at other institutions are proposing and successfully implementing in preliminary pilot projects. I also chaired the university tenure and promotion committee, and while I enjoyed working with my colleagues on this crucial task, I was more than happy to hand over the chair's duties to a colleague when my term on the committee ended.

In the summer of 2010 I attended my last summer meeting as a national councilor in the Council of Undergraduate Research (CUR). This past summer the meeting was held in Ogden, UT. Two of the highlights of the meeting were seeing our new Stetson Provost, Beth Paul, taking over the gavel as president of CUR and listening to local Ogden jazz legend, Joe McQueen, at a CUR reception held at the historic Ogden Union Station museum (<http://theunionstation.org/>). Although he is 91 (I guessed he was in his seventies when he asked), he and his band can still crank out some smokin' live jazz. Joe McQueen has played with such jazz greats as Charlie Parker, Lester Young, Count Basie, Duke Ellington and Dizzy Gillespie. I had a wonderful 15 minute chat with Joe before one of his sets and he told me that Charlie Parker once showed him a song that he was working on and asked him what he thought. The song turned out to be "Now's the Time" and is one of the standards that my jazz band, *Thin Film Magnetism*, loves to play. In fact, it is the theme song of fellow band members Michael McFarland and Sims Kline's Stetson hatter (WHAT) radio jazz program (you can tune in live Wednesdays from 1-2 pm ET at the following link if you wish <http://what.stetson.edu/>). I even scored a couple of great CDs of Joe's music after our chat. *Thin Film Magnetism* continues to play gigs around the area. One memorable gig in the spring of 2010 involved showcasing as a guest artist one of our graduating seniors on the acoustic bass, **Andrea Belanger ('10)**. Andrea is now at Wake Forest University studying for a Ph.D. in biophysics.

In the fall of 2010 I had the pleasure of teaching the second edition of my freshman seminar on energy and the environment. One of our majors who took the first edition of the course, **Jacob Ethier ('13)**, did a great job serving as a teaching assistant for the course. He participated in the class discussions, helped me with some hands-on activities, and served as a tutor for the course. The fall was especially busy as I served as the senior project advisor for four of the eight projects students were working on, and I was looking in from time to time on a few others. I also reviewed abstracts for the Washington DC Capitol Hill event called "Posters on the Hill" and sponsored by the Council on Undergraduate Physics, something I have been doing for the past five years or so in payment for having had a great experience attending the event with Stetson students **Jon Gosnell ('04)** and **Sarah Caudill ('06)**.

Finally, those of you that know I hail from Wisconsin can visualize the big smile on my face after the Green Bay Packers won the Super Bowl. I have to admit I was pretty nervous when the Steelers were driving down the field with two minutes left in the game and down six points. They were a very formidable team to go up against. Fortunately (at least for Packer fans) the defense held and the Packers took the Lombardi trophy back home to Green Bay. Although I always wear my Packer jacket when the weather turns cool, this spring I can wear my jacket more proudly than ever.

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