

CROSS SECTION

Stetson University Physics Department Annual Newsletter
Spring, 2006

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Area Happenings

Hello! and welcome to this year's edition of CROSS SECTION. As newly appointed chair of the Department, I bring you greetings. We hope this newsletter finds you and your loved ones well, and we are pleased to share your news (see the "Alumni News" section on page 10) as well as what has been going on around the Department.

Compared to last year and its direct hits of three hurricanes, this fall seemed quiet to all of us, although all of central Florida watched this year's hurricane season with cautious interest and concern. We are mindful that Hurricane Wilma affected south Florida for weeks after it blew through, and reminders of Katrina still surface – the Chemistry Department is currently engaged in a faculty search, and one of the candidates they are considering had been with one of the universities in New Orleans; they retrenched (cut faculty, regardless of tenure status) and reduced their faculty by 50%! And we have one major who is from New Orleans; fortunately his family made it out safely.

The Physics Department continues on our steady path. This year, we have three seniors set to graduate in May and three juniors who are embarking on their senior research path by taking PS-497, Senior Project Proposal. Our "sophomore" class (that is, those who took University Physics last year) is large, with 10 who took Modern Physics (the third class in our sequence) last fall, and 7 currently in the Math Methods class (these classes have a few students minoring physics in addition to our majors). In University Physics, I have 13 (but remember, the course is required or recommended for other majors, so not all of them are prospective physics majors). This year's group of students seems close-knit, especially amongst the sophomore level, and the reading room sees constant use for homework, conversation, snacking (with an ever-growing collection of blue bottles lining up along one wall!), and even the occasional nap.

One of our more out-going juniors, **Brandon Marsell ('07)**, has more than a passing interest in astronomy, and he has successfully established a new Astronomy Club. The club has probably more than 40 interested members, and Brandon frequently takes the department's telescope(s) out for star-gazing. Brandon is also president of SPS this year, and under his guidance the group has seen a resurgence of activity, with the occasional movie night supplementing our very successful T-shirt contest this fall.

Over the past year Laura re-worked our web site to make it easier to navigate and reduce redundancy. She's working in html and admits that it's not done yet (web pages

never are!) as she is still climbing the learning curve, but it is up and “flying” and an improvement. If you’d like to take a peek (including a virtual tour), you can find us at www.stetson.edu/artsci/physics. And please feel free to e-mail any comments you might have to Laura – she’s always looking for a way to improve it.

One brief note – you will notice that we are not including any comments from Dean Grady Ballenger this year. This is not because we didn’t want to or because he was unwilling. He was in a serious accident right around New Year’s Day; he was hit by a motorcycle while riding his bicycle, and he suffered a broken pelvis. Reports are that his surgeon is very pleased with the outcome of some surgery and he is mending as well as can be expected. He’s finally been able to come home, which I’m sure is a welcome change from Halifax Hospital, but recovering from an accident of this magnitude takes time and I don’t expect to see him on campus for at least several more weeks.

As always, if there is ever anything we can do for you, please don’t hesitate to ask. And if you’re ever in central Florida, do drop by! Best wishes to you all for this year, and please, keep in touch...

—George Glander, Chair
physics@stetson.edu

Student News & Announcements

This year, we’ve expanded this set of announcements to include any and all accomplishments of note, including awards, acceptances to programs, and anything else of note in the academic lives of our majors...

Society of Physics Students:

President for 2005-2006: Brandon Marsell

The Astronomy Club:

2005-2006 — the inaugural year!

Founding student & president for 2005-2006: Brandon Marsell

Sigma Pi Sigma:

President for 2004-2005: Sarah Caudill

New members, inducted April, 2005: Sarah Caudill and Brandon Marsell

Honors Convocation Honorees—May, 2005:

The George L. Jenkins Prize in Physics, awarded annually to the top student in the

University Physics course sequence: shared by Michelle Adan and Douglas Edwards

Outstanding Seniors: Sarah Caudill*, Renée Dickinson, and Wes Langston

** Sarah came to Stetson with substantial credits earned in high school, so she was considered a senior due to the credits she had earned by last spring even though this honors convocation took place during her third year at Stetson. She plans to graduate in May of 2006, along with the rest of her class.*

2005 Stetson Undergraduate Research Experience Grant Awardees:

Sarah Caudill — *Sarah turned down this opportunity to participate in the REU listed below...*

2005 Summer Research Participants:

Sarah Caudill — with Peter Shawhan and Duncan Brown at LIGO, California Institute of Technology

LIGO Detection Efficiency Studies in Searches for Gravitational Waves from Binary Neutron Star Inspirals

The Class of 2005:

Renee Dickinson — pursuing a Ph.D. in medical physics at the Graduate School of Biomedical Sciences at the University of Texas, Houston

Wes Langston — pursuing an MBA at Auburn University and intends to follow that with graduate work in engineering.

Abstracts

Every spring in Senior Seminar (PS-499), our senior majors (this year, Sarah Caudill and Danielle Mollman) present their senior research projects in a variety of formats. Here are/ their abstracts...

LIGO Detection Efficiency Studies in Searches for Gravitational Waves from Binary Neutron Star Inspirals

Sarah Caudill, Stetson University, DeLand, FL 32723

Mentors: Peter Shawhan and Duncan Brown, LIGO, CalTech, Pasadena, CA 91125

Gravitational waves are one prediction of Albert Einstein's general theory of relativity. The Hulse-Taylor binary pulsar offers indirect evidence for these waves but direct tests have not been possible until recently. Scientists at several sites across the globe, including LIGO (Laser Interferometer Gravitational-Wave Observatory) are currently utilizing optical interferometry in an attempt to detect gravitational waves. Several astrophysical events including binary neutron star inspirals may act as sources of gravitational waves by creating ripples in spacetime. Binary neutron star inspiral waveforms are described by only two parameters, the masses of the two stars (neglecting spin). Detecting gravitational wave signals from inspiraling binary neutron stars thus requires a two-dimensional bank of theoretical waveform templates for matched filtering. The method of template bank construction was analyzed from a study of the LIGO algorithm library (LAL). The goal of the bank construction algorithm is to ensure that any signal in the region of interest of the parameter space closely matches one of the templates without wasting CPU time. Accuracy of the expected 0.97 minimal match value was reviewed using ellipses of constant match drawn around templates in both the currently used square bank and a promising new hexagonal bank. The more efficient hexagonal bank layout system will soon be implemented in place of the square system. Further research will involve generalization of the mismatch measurements to the higher dimensional parameter spaces (including spin) used for binary black hole searches.

Building a Computer Controlled Liquid Nitrogen Cryostat
Danielle Mollman, Stetson University, Deland, FL, 32723
Mentor: Dr. George Glander

Many physical properties depend on temperature. While experimentation at extremely low temperatures can be beneficial because of uncharacteristic results, experiments can often be very difficult to execute and manage due to the difficulty in controlling the temperature. The purpose of the research was to create a computer controlled liquid nitrogen cryostat. A cryostat is a small chamber capable of regulating its internal temperature and the temperature's rate of change when used in conjunction with liquid nitrogen. The chamber is a thin aluminum cylinder of length 7 cm, diameter 5 cm, and minimal thickness, with the capability of having an aluminum cold finger extending down from the bottom of the chamber. A wire heater with a 25 W maximum is wrapped circumferentially around the outside of the chamber, allowing for temperature regulation. The cryostat is completely managed by computer using Labview. The purpose of the Labview program accompanying the cryostat is for the chamber to reach a desired set point temperature internally. A proportional integrating differentiator (PID) was used in the Labview program to help minimize temperature oscillation. The PID controls the heater voltage by constantly monitoring the difference between the chamber's actual temperature and the set point temperature, using the value to determine an appropriate proportional output voltage. The cryostat will be greatly beneficial in future research because it will help eliminate error and difficulty when experimenting at low temperatures.

From our newest Featured Alum

A word about this program —

In 1998, the Physics Department established our "Featured Alum" program. Our goal was to provide our current students with peeks into the array of opportunities which await them after their tenure here at Stetson. We encourage our featured alumni to write an open letter to our current majors (and anyone else who may be interested) to discuss why they came to Stetson, what they found here, and how that has impacted their life after graduation. We've also encouraged them to share anything they wish to regarding their current professional endeavors (a personal biography, web sites, etc...). We have published this information to the Physics web site: <http://www.stetson.edu/artsci/physics> (choose "Featured Alum" from the menu), and we encourage you to go and browse the page. The letters we've received over the years have been so thoughtfully and well written, that archived letters from all former participants can be found by following the links on the page. This year, we are pleased to feature our newest "Featured Alum," Josh Colwell, here in the newsletter.

You, our alumni, are a distinguished group, and we proudly salute all of you! Please keep in touch with your lives, accomplishments, and goings on — we love to hear how you're doing and what you're up to.

Meet our current "Featured Alum"

Joshua Colwell, Ph.D.
Stetson class of 1985



Biography:

Josh Colwell was a Stetson man from birth. He grew up in DeLand, the son of Professor C. Carter Colwell in the English Department and Ann K. Colwell, and the family was a fixture at Stetson basketball games. Josh entered Stetson early, after the 11th grade, as a Physics major with his sights set on getting a Ph.D. in astrophysics. Josh met his future wife, Anne-Marie Caubet, during his senior year at Stetson, and they married in the midst of graduate school exams in 1985. Josh got his Ph.D. from the Department of Astrophysical, Planetary, and Atmospheric Sciences (APAS, which has since dropped the Atmospheric part in order to have a less humorous acronym) at the University of Colorado in 1989. His dissertation was on the origin and evolution of the rings of Uranus based on new data returned by the Voyager 2 encounter with Uranus in 1986. He has remained at the University of Colorado's Laboratory for Atmospheric and Space Physics with the exception of a year in Toulouse, France, as a Fullbright Senior Research Scholar in 1995-1996. His research activities have included flights of two experiments on the space shuttle, numerous flights on the NASA "Weightless Wonder", and science planning and analysis for the Cassini mission to Saturn since 1991. His extra-curricular activities include running, hiking, writing, and acting in local theater groups. His smallest but most memorable role was a bit part in the 1998 movie "Deep impact". He and Anne-Marie have one daughter, Aylia.

January 17, 2006

Open Letter to Stetson Physics Majors:

I always wanted to be involved in space exploration in some form or another. My mother claims it started when she witnessed a launch from Kennedy Space Center (before it was named that) when she was 8 months pregnant with me. An undergraduate degree in physics was the obvious first step to take. At Stetson, where I also got a minor in Applied Mathematics, I took just about every physics course available. This put me in a good position to take the next obvious step: a Ph.D. in astrophysics.

I got my Ph.D. in 1989 from the University of Colorado in the Department of Astrophysical, Planetary, and Atmospheric Sciences. Since then the Atmospheric component has formed its own program here. My dissertation involved analysis of observations of planetary rings made by the Voyager 2 spacecraft. That led to some research projects funded by NASA doing further data analysis.

At this time, as a post-doc at CU (as the University of Colorado is peculiarly known), I applied for faculty jobs at a number of colleges and universities around the country. A glaring weakness in my resume at that time was a lack of teaching experience in graduate school. As a research assistant throughout grad school I had not done much teaching. I encourage anyone thinking of a faculty position to actively seek out opportunities to develop her or his teaching skills. It will make you more marketable. Also at this time my thesis advisor won the contract to build an ultraviolet spectrograph for the Cassini mission to Saturn. I got involved in that project early and so stayed at CU as a member of the science team for the Cassini Ultraviolet Imaging Spectrograph (UVIS).

I spent the next decade or so doing research on a variety of problems in the origin and evolution of the solar system, all the while working on preparations for UVIS observations of Saturn's rings. People frequently assume that during the 7 years preceding launch of Cassini in October 1997 and the 6.5 year cruise before it got to Saturn in July 2004 that we didn't have much to do. The opposite was true, with many late nights spent planning observations during Cassini's four-year mission down to the minute. While it was fascinating and exciting to be involved in a such a large space mission from the earliest stages, that kind of work does not result in many publications which are the standard by which scientific productivity is measured. Fortunately that hard work paid off and Cassini is a tremendous success. The observations I spent so much time planning are now taking place and returning a spectacular data set that will keep us all busy for many years to come. My very first observation with Cassini has in fact become a well-known image in the popular media, garnering a two-page spread in Time Magazine's Pictures of the Year issue for 2004. I created this false-color image of Saturn's rings in the ultraviolet in the wee hours following the arrival of Cassini at Saturn. My favorite appearance of this image was on "The Daily Show with Jon Stewart", but it is still showing up all over, most recently on the cover of Science News in December.

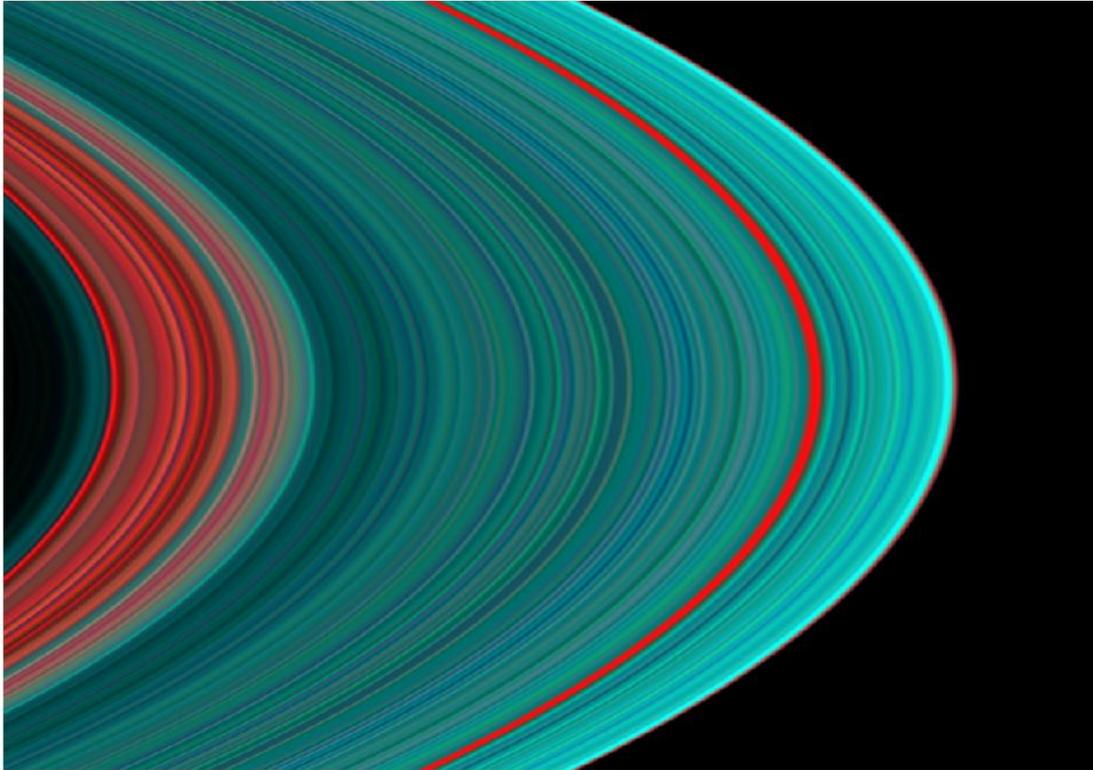


Image Credit: NASA/JPL/University of Colorado

NASA, probably wisely, insists that only institutional credit be given for images from its funded missions, but I can still tell you that this famous picture was made by a Stetson grad.

In the midst of Cassini planning I was busy with a number of other projects. I spent a year as a Senior Fullbright Research Scholar in Toulouse, France, studying the thermal evolution of comets. When I returned to Boulder in 1996 I led the development of a small experiment that flew two times on the Space Shuttle. This experiment was built by engineering students at CU. That led to further experiments on NASA's infamous "vomit comet", the airplane that flies parabolic trajectories to provide researchers 15-20 seconds of weightlessness. The only problem: it does that 40-50 times per flight, with a pull-out maneuver of about 2 g's. I'll just say that for me the airplane lived up to its nickname and leave it at that. You can find out more about these research projects at my web site: <http://lasp.colorado.edu/~colwell>

—*Josh Colwell*

From the Faculty

GEORGE GLANDER, *Chair*

Hello!

Time marches forward, and as it does, the rhythm of the department becomes apparent...and so I now find myself taking over the reins of the department as chair. The position rotates every 5 years or so, which is a good thing as it helps keep things fresh and prevents burn out. Fortunately for me, Laura's experience supporting first Tony Jusick (who was chair when we arrived) and then Kevin Riggs means that she has most of the deadlines already marked out on the calendar and can easily tap into documents generated last year so they can be updated for this year. Also, Kevin and I work well together and so as his tenure as chair was winding down we simply began to shift things as they came up from his files to mine. It's made the transition relatively smooth, I think...

I taught our new Laboratory Techniques course last spring. The course replaces the old Experimental Physics course. The new course has a weekly lecture that starts with a formal introduction to error analysis, and then goes on to survey experimental methods that are used in a wide range of sub-fields in physics including high and low temperature, vacuum, radiation detection and safety, signal processing, etc. The weekly labs were chosen to give the students some hands-on experience with many of the things that were introduced in the lecture. It was a fun course to teach, and the students seemed to enjoy it as well.

My other teaching tasks were a little more routine. I continue to teach University Physics I & II, and I taught Modern Physics in the fall. This is the first time I have taught Modern Physics since we changed the curriculum, so I had to remove a lot of the quantum mechanics to make room for nuclear and particle physics. Quantum mechanics is still introduced in Modern Physics, but the bulk of that material is now taught in a 300-level course devoted entirely to quantum mechanics.

Probably my biggest project this year is the on-going work I'm doing at home. The project involves putting a deck in between our garage and the front of the house where there is currently a breezeway. The project also includes raising the garage roof (so you won't hit your head when you're on the deck) and re-orienting which side of the garage has the car door. Over the summer I managed to repair significant termite damage (mostly old stuff which we inherited), replace all the roof trusses, and re-orient the car door. Installing a new garage door header proved to be substantial engineering project, because the header weighs substantially more than 400 lbs. and I do most of the work alone. My daughter, who had recently done a science fair project on pulleys, wanted me to use at least 20 pulleys to heft the header into place. I ended up using two hydraulic truck jacks with bracing to hold it at various intermediate heights to slowly lift it into place. The project is a source of great entertainment for the neighbors, most all of whom slow down as they drive by to see what I'm up to now. It's a big project, though...so expect to hear more in next year's newsletter.

Meanwhile, Laura is embarking on her own engineering projects, although much softer ones. Quilts have temporarily taken a back seat as she and our daughter's dance teacher are currently making about 6 professional quality tutus for the advanced girls to wear this spring in assorted community performances and for the spring recital. Each one is quite an undertaking, as they are cramming 12-15 yards of fabric around a dancer's hips in about 8 or 9 layers (the tutu skirt); the process is easy in theory, Laura says, but it is hard work, especially as you get to the final layers – it wants to curl up on itself, and it fights the sewing machine every step. The bodice is less of a battle with the machine, but

no less work, with hours of hand stitching involved. Laura enjoys that more, I think, as she can take it with her on her “taxi” rounds about town with the kids.

Beth, at 13, is in 8th grade and more entrenched in her love affair with ballet than ever. Last fall saw her dancing as Snow Queen and Sugar Plum Fairy in a jazz dance and play version of *Nutcracker*, produced jointly by her dance studio and Storybook Theater Company at the Sands Theater. She continues to spend about 20 hours a week or more at the dance studio, and we are currently considering how we are going to continue to support this passion as she is outgrowing what our local studio can provide.

Ian, at 16, is a sophomore at DeLand High. His trip abroad to New Zealand and Australia this past summer was amazing, and he’s been bit by the travel bug and wants to do more! At home, he’s very involved in theater tech work, even landing the occasional paid position. He’s also serving as vice president of the school’s Model UN club and is currently looking forward to their state conference in March. And, he’s begun to think about college...

So all in all, life is busy but good. Please keep in touch...

—George
gglander@stetson.edu
& Laura's at: lglander@stetson.edu

TONY JUSICK

Well, here we are again. Another year gone by. We fortunately dodged the bullet as far as hurricanes went this year. Others, of course, were not so fortunate. As scientists we wonder why this is all happening to us. Things seem to be happening more frequently and storms seem to be getting more ferocious. We are now told that we can expect this pattern of activity for the next ten to twenty years. There is a cycle of approximately fifty year duration for which the number of storms maximizes. We are just beginning one of those cycles. However the number of storms we are encountering seems to be somewhat greater than in past cycles. It makes one wonder if something like global warming might be responsible. I would recommend that you get Michael Crichton’s latest book, State of Fear, which deals with this very subject. It is well referenced and displays just how complicated a subject we are talking about. Today most people take global warming as a fact. Crichton’s book will give you a whole new outlook on something we might call media misinformation and just how complicated predicting global weather phenomena really is. I highly recommend this book and predict that you will find it not only informative but exciting reading!

I am now what they call a senior lecturer, which essentially means that I am only teaching half time. Astronomy in the fall and Math Methods in the spring. I am really enjoying this. I really only have to be here in the mornings but find that I spend part of most afternoons here as well. My golf game has gone south, deep below the equator, so I actually have more fun here. Hopefully my golf game will exhibit a recovery phase but at this point in time I am not highly optimistic. I guess it’s just part of getting older. But I haven’t given up yet!

This fall my astronomy class was part of a new freshman year program. Instead of my normal 40-45 juniors and seniors I had 22 freshmen and 4 seniors. It was a blast! It was so refreshing for me. They were still at that stage where they hadn’t figured out what college was all about and eager to learn. We developed a really good rapport and it was so different from the usual group, most of whom are there solely to satisfy a requirement. Not all, but unfortunately most. I felt like I was “born again.” I haven’t had so much fun in years and it was stimulating for the great majority of those participating, mostly me. We plan to reserve a significant number of spaces in this class for first year students from this point on.

Well, that about does it for me. I hope all of you have had a productive year! Hope to be joining you again next year!

—AJ
tjusick@stetson.edu

TOM LICK

The Christmas season appeared different this year. Gone were the colorful bright blue tarps that were so evident last year and which added an additional bright hue to the traditional Christmas colors. And to a physicist the blue helps balance the traditional reds and greens so that when they are added together we have a “white” Christmas. But according to the accepted pontifications, we might have a “white” Christmas again next year. We were lucky this year in that Deland received only moderate winds from Wilma, and almost no winds from the other hurricanes. My wife holds firm to the belief that the hurricanes of last year were sent to convince me that Florida is an uninhabitable region and that I should accept that reality, retire, and move back north to God’s country which to her means Ohio. I am not yet ready to retire, but I have appeased my wife (always remember: if Ma ain’t happy, ain’t nobody happy) by purchasing a house up north for our eventual retirement. We will be spending part of the summer in Ohio each year and thereby qualifying as genuine “snowbirds”.

I am told by Dr. Glander that we have a good freshman physics major class this year. Since I am no longer teaching University Physics, I do not now have my former direct contact with our freshmen. I always enjoyed teaching first year students (the politically correct term for freshmen) and only with reluctance gave up this class several years ago. As all who have had that class can testify, it was not an easy class and involved a major change in depth and intensity from high school. But you knew that if you did well in both University Physics and Mathematical Methods, you were certain that you could handle any other Physics course thrown at you. It would be nice if there was an equivalent to this in life; that is, a major hurdle that when passed ensures that you will be successful in everything you do after that in life. But alas, there is no such magic hurdle and as soon as we surmount one such barrier in our lives another looms in our vision. And many of the hurdles turn out to be stumbling blocks. I guess I am waxing too philosophical at the moment only because I am now in sight of another barrier that I must surmount and I am not certain what lies beyond. I am of course alluding to retirement and I have not yet decided when I will vault (or stumble) over that hurdle. Perhaps after next year?

—TAL
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KEVIN RIGGS

It seems that each year flies by at an ever increasing rate (as one of my guitar heroes Stevie Ray Vaughan says in his song Tightrope; “Feels like I'm losin' time at a breakneck pace”) and it is time again for another edition of the Stetson Physics newsletter. In the last few years I have been teaching my course “The Science of Music” every spring. I enjoy combining my love of physics with my interest in all things musical. Last spring I also taught Mechanics II (including all that fun Lagrangian and Hamiltonian stuff) and an independent study course in advance Quantum Mechanics.

Last summer I spent part of the time on my own research and a good deal of time helping one of our students, **Sarah Caudill ('06)**, prepare for a very prestigious summer internship at the California Institute of Technology (Cal-Tech) working on the Laser Interferometer Gravity-wave Observatory (LIGO) project. LIGO is the single largest project supported to date by the National Science Foundation (at a current cost of

about \$300 million). While Sarah was not lucky enough to see any gravity waves last summer, with planned upgrades in the works it should only be a few years before LIGO will announce the first direct detection of gravity waves (Taylor and Hulse won the 1993 Nobel Prize in physics for indirect evidence of gravity waves from a binary pulsar). However, Sarah did contribute to the data analysis scheme that will be necessary to detect gravity waves from the inspiral of binary neutron stars systems (for more details on her project, see her abstract in the student research section of the newsletter). Sarah was able to meet one of the prime movers of the LIGO project at Cal Tech, physicist Kip Thorne who often makes public bets with his friend Steven Hawking. Sarah graciously had Kip Thorne sign my copy of his book “Black Holes and Time Warps: Einstein’s Outrageous Legacy” that I had lent her (which by the way is highly recommended and has won the AIP popular audience science writing award). Sarah is considering studying gravity wave physics at the graduate level and so I am currently doing an independent study with her on general relativity. I have nominated Sarah to present her work in Washington DC at the Council of Undergraduate Research sponsored event “Posters on the Hill”. Regular readers of the newsletter may recall that **Jon Gosnell** (**‘04**) presented his work on magnetic force microscopy at “Posters on the Hill” in 2004.

Last fall I taught electronics and our new intermediate quantum mechanics course. Now we have both 300 and 400 level courses in the three main pillars of physics: classical mechanics, quantum mechanics, and electricity & magnetism. I also spent a considerable amount of time out at Lake Beresford with the president of our newly formed astronomy club, **Brandon Marsell** (**‘07**) trying out our new Celestron 9.25” GPS telescope with a CCD camera. Brandon now has the experience necessary to lead “star parties” and has taken out students from the astronomy club and students in our introductory astronomy course. Brandon is also planning on using the telescope to do a senior research project measuring the magnitude of a variable star over time.

Over the Christmas break my wife and I decided to take a break from trekking up to the great white north to visit relatives and instead took a Christmas Caribbean cruise. We have lived in Florida almost 20 years and had yet to avail ourselves of one of its major tourist attractions. While on the cruise ship, my wife Lori discovered a talent for art appraisal, having guessed within \$5 of the auction price of an original Picasso sketch. She won some very nice prints (unfortunately not the Picasso original itself!) that we are planning to have framed for display at home. Of course we did lots of snorkeling around some of the smaller islands of the US and British Virgin Islands and got some good deals on jewelry (for Lori) and a new Swiss Army knife (for me) on the island of St. Maarten. One of the most impressive locations we saw was on the island of Virgin Gorda (British Virgin Islands) where they have giant granite-like (technically called intrusive igneous) boulders right on the beach (see www.thebathsuvi.com/map.htm for a nice photo and map). You can hike around in natural caves formed in the boulders via wave action. Christmas day was spent on at the beach on a private island and of course Santa made an appearance (but he arrived via parasail instead of the more traditional sleigh and reindeer). Naturally we also ate way too much great food and drank lots of tropical libations. We even took a course in how to make various flavored martinis. I now have a framed certificate from the martini course to display next to my Ph.D. To compensate for not traveling north for Christmas we are planning a “Christmas in July” trip up to Wisconsin when the weather is considerably more hospitable. I hope all of your holiday activities were equally enjoyable to our own and I encourage all of you to keep in touch. One of the joys of teaching is to see former students going out into the “real world” to do great things, so make sure to keep us informed of your latest accomplishments.

—Kevin
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This year's T-Shirt contest:

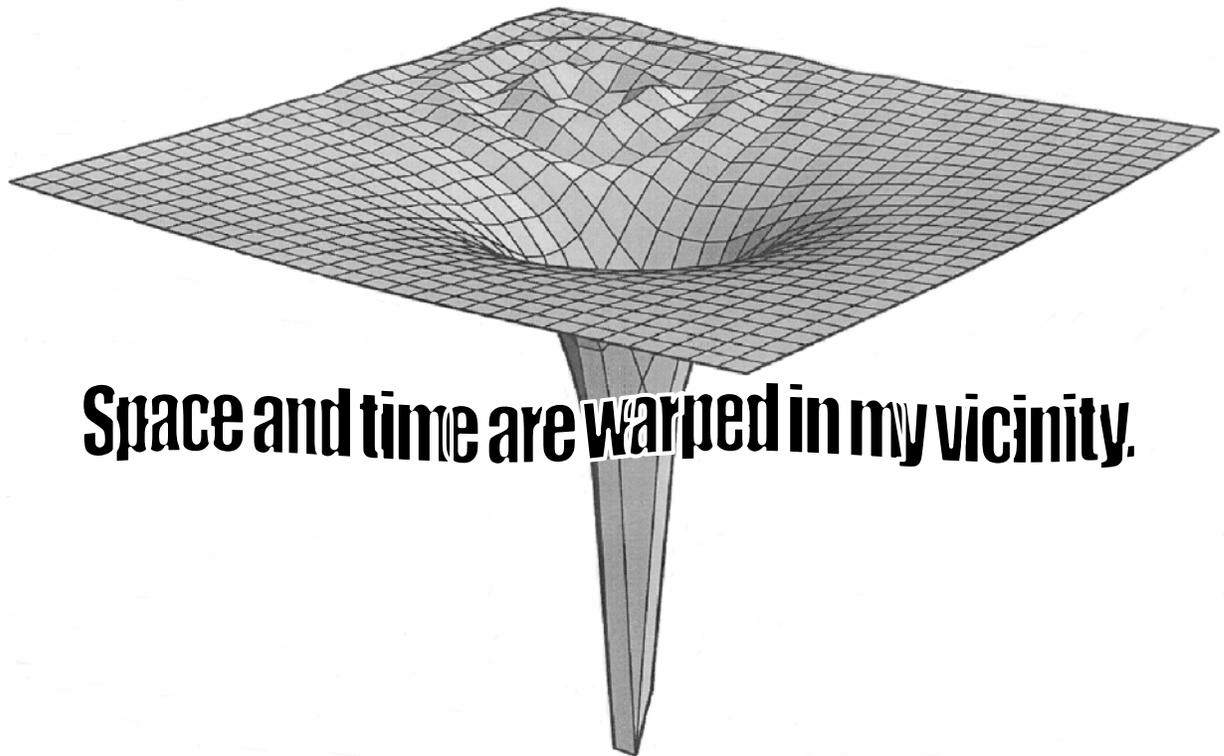
It was another great contest this year, with lots of entries from many students and some of the faculty. Thanks to Dr. Tom Lick for providing the winning design idea, which is done up in a red T with black printing:

On the front:

Stetson University Department of Physics

And on the back:

WARNING: APPROACH WITH CAUTION!!



Space and time are warped in my vicinity.

