

# WELCOME

*We're sorry it's a little late*

by UP News Staff

Once a month every year, professors pass this newsletter out to their students. This is the very first issue of UPNews (the Undergraduate Physics Newsletter), and if you've never seen one before, you might read the articles then forget about its existence. However, we slowly creep back into the classroom: another one will show up again next month. "Hey, how about that? Another one of these... what's going on?" Again, you may dismiss the newsletter.

We here at UPNews don't know about you, but one our favorite parts of our undergraduate classes was getting to slack off in class while we read these cool, distracting newsletters! While we don't condone \*not\* paying attention, we waive our reprimands if the subject material is of no relevance. Besides, when are you actually going to need to find the induced current between two infinitely large planes of charge  $Q$  separated by a dielectric medium of conductivity  $\sigma$ ? Now if \*that's\* not something you use every day, we don't know what is.

The point is: after a while of having fun while reading these newsletters, you may want to join us. After all, that's how most of us got into this cult... er, organization. If you have any interest in physics and either writing, editing, producing, or graphic art-ing-ing, send us an e-mail at [upnews@phys.ufl.edu](mailto:upnews@phys.ufl.edu). Freshmen highly encouraged!

Speaking of which, we've again compiled our list of "The Freshman 5 - Top Tips for Surviving Physics Classes". They're the top 5 tips for making sure you get off to a good start this year:

1. You are going to miss approximately 40% of your 8:30 physics classes.
2. Practice playing Frogger. You'll need it while you illegally jay-walk across Museum Road and onto the physics building sidewalk.
3. The shrubbery area right outside the entrance to the building (near the blue 'Physics Building' sign) smells really, really bad. All year long. No, it does not go away.
4. Develop He-man like biceps and pectoral muscles. These will come in handy when you try to open the 2-ton steel barricades they call 'doors' at the main entrance.
5. Don't be a magnetic field. Ask questions often and be prepared to DO WORK.

In the end, remember: as any student of General Relativity knows, taking physics classes is the mathematical equivalent of physics classes taking \*you\*. But it's still possible to be a physics major and live an ortho-normal life. To counter the stress and the strain of your classes, learn to integrate with the flow, or just curl up with a good B-field. If some of this doesn't make sense now, it surely will soon. And if you get it but don't find it funny, we'll try harder next time. Remember to keep up with your work and occasionally visit the Physics Lounge. Located in NPB 2229. There you'll surely find another lost physics student doing his/her homework. At least you can be lost together!

**Welcome to UF physics!**

## who we are

UPNews is a monthly undergraduate physics newsletter sponsored by the University of Florida's chapter of the Society of Physics Students, for students, by students. We seek to strengthen the undergraduate physics community at the University of Florida by providing a forum for undergraduates to share their views and experiences with each other and act as a source of information for opportunities and events in physics.

## SPS Meeting

Monday

October 22nd

6:30pm - NPB 2205

FREE PIZZA

## what's UP

In this issue

### Front

Bienvenue

### Inside

Former Undergrad Catch-up  
Advisor Musings/Advice  
ALL SPS ALL THE TIME

### Back

Return of the Physics Crossword  
A Song for Sputnik  
Join UPNews! Yes, you!

# WHERE ARE THEY NOW

## ADVISOR ADVICE

by Erica A. Bolin

College is transitional. We come for a few years (four for some...others go the senior +5 route) then move on. But it's still good to know that we met people and are remembered. We tracked down three graduates from last fall to see how they were doing in their physics travels. Among them is Amruta Deshpande, UPNews founding member and former Editor-in-Chief. Read on as our great expatriates give a blip of insight on their lives post-undergrad.



### Amruta Deshpande

I'm at Rutgers in the PhD program in the Physics and Astronomy Department. I'm getting my butt kicked by first year courses (review your calculus II real well and that'll help a great deal for all you graduating seniors). I'm just taking Electromagnetism 1, Quantum Mechanics 1 and Classical Mechanics, which are standard first year courses, and attending all kinds of seminars, but mostly in astrophysics. I'm learning about a lot of exciting developments in Astrophysics. I'm also slowly, steadily exploring bits of the American North East (which is exciting !!)

### Amlan Biswas

*A lazy physicist from Bangalore*

*Found free-body diagrams to be a bore*

*Then one day he felt joy unbound*

*When in mechanics 2 he found*

*that minimizing action wasn't such a chore*

### Katja Macheva

The first extrasolar system planet was discovered in 1995.

For the last twelve years more than 250 new planets have been observed orbiting around distant stars.

This is more than 20 completely new and unique worlds each year! Can you imagine all the discoveries that await you?

### Selman Hershfield

We have previously taught in intro physics that airplanes are able to achieve flight because of Bernoulli's Principle. Imagine a plane's wing as a flattened, overturned bowl. Air rushes faster over the curved top (i.e. with higher velocity). In order for the formula to hold, the pressure on the top of the wing must be less than the pressure on the bottom. However, this explanation of flight must be incorrect, because the geometry flips when planes fly upside-down! You are all more than welcome to see me for advising and to discuss the flight problem.

by Stephanie Lewkowitz

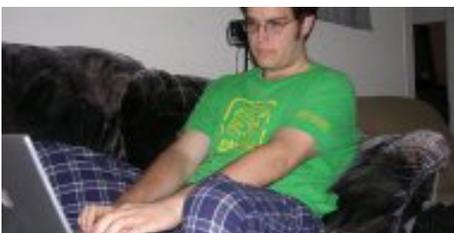
### Mandi Hughes

Right now, I'm in rural Cambodia volunteering with an NGO called Sustainable Cambodia. I'm working mostly with the education sector, teaching preschool, English, computers, math, and even a little physics. I'll be here for a few more months, then spending some time working with a similar organization in Africa, and then going to graduate school for education. Or something else :)



### Lindsey Gray

I'm at The University of Wisconsin in a TA position. I am with the CMS group and I'm currently working on calibrating the regional calorimeter trigger output. Oh, and Wisconsin beer is awesome.



# SOCIETY OF PHYSICS STUDENTS

by James Stankowicz

So physics is phun, right? Components, constants and tricky trig identities lend to your life hours of unequalled joy, yes? Well, here's a suggestion that could factorial-ly increase your physics-related fun - or at least allow you to score several slices of very free and therefore very tasty pizza every month: join the Society of Physics Students (henceforth lazily called the SPS)!

The SPS is in many ways analogous to all those high school clubs of which you were no doubt an all-star member. There are monthly meetings, the next of which will be October 11 (there'll be signs all over the physics building). The SPS plans Physics is Phun shows where members take some of the demos you'll see in classes to elementary schools. The point is to get the kids interested in and excited about magic - no, wait, physics (the two are easy to confuse). The SPS also encourages its members to join National SPS, which amounts to joining the American Physical Society. For national membership there is a \$20 per year fee, which the UF SPS tries to meet half way. National membership gets

you such perks as subscriptions to various physics magazine (which, if nothing else, look really impressive sitting around your room), and that intangible, warm, fuzzy feeling of belonging that goes hand in hand with joining any organization. The SPS also has an umbrella honors organization called Sigma Pi Sigma, which is a nice resumé booster, and gets you a cool pin, pen, and card.

Now unlike many high school clubs, the UF SPS is very well funded without forcing its members to pay dues. Among other things, this means free pizza and drinks for everyone who attends meetings, as well as an SPS funded picnic at the end of the year for all interested undergraduate students, graduate students, professors, and any associated families. The SPS and the Chemistry Club used to have annual paintball fights, which have turned into SPS only affairs, undoubtedly because the chemists realized that in the realm of velocities and trajectories they were well outmatched. SPS meets its members halfway in paying for the paintball fights, and it is lots of fun, regardless of whether or not

there are chemists to use as targets. Also, the SPS has its own secret club house - sort of. The SPS lounge is on the second floor of the physics building and is a great refuge for anyone looking for a quiet place to read or do homework.

More importantly than all the rest, the SPS meetings are great places to meet other physics students. Some of the best advice you'll get as a physics student will come from the students who have been there and done it, and your best chance of meeting said students is at the SPS meetings (believe it or not, physics students aren't really big on having their own, 'physicists only' parties other than SPS). It is certainly much easier, much more fun, and much more convenient to discuss a class or a professor with a student who had it last semester than it is to try and hunt down an advisor's office hours and office.

Anyways, if you're a physics major (and, since you've read this much, I'm supposing you are), or if all the above seem to you like good times, seriously consider joining the SPS!

## SPS HAPPENINGS

by James Stankowicz

OK, so there's already an article in this issue about how great and fantastic and yadayadaya the SPS is. But what do its members actually do?

Between the beginning of the school year and now:

The first meeting was September 13. The turnout was huge. There was very free and therefore very tasty pizza, and very free and therefore very tasty beverages. Then some of the things mentioned in the SPS article in this issue were discussed. Then liquid nitrogen was used to make vanilla ice cream (along with several other ingredients, of course). It was good, despite the limited number of toppings. The night ended when the president of the club took the last of the liquid nitrogen and, with a large following, proceeded to the main lobby of the physics building upon the floor of which he poured the last of the nitrogen to the general confusion of the numerous students in the lobby who had just finished testing. Fun times for all.

The first Research Experience For Undergraduates (ROFU) was on October 1. October 1 happens

to be in a small window of days during which this article must be submitted so that it can be properly formatted into the newsletter and distributed to you all. Therefore, exactly what went on there cannot be in detail described. However, there are some things guaranteed to happen, and, for consistencies sake, the past tense will be used. There was very free and therefore very tasty pizza, and very free and therefore very tasty beverages. Drs. Ray and Furic, both of whom work in high energy physics and inquire as to what happens beyond the Standard Model, spoke to a group of undergrads about their fields of research, and discussed openings for undergraduates in their labs. This was a great way to learn about beginning research with a professor.

Yet to come:

The second SPS meeting will be October 22, in room 2205 of the New Physics Building. There will be very free and therefore very tasty pizza as well as very free and therefore very tasty beverages. There will be discussion of business. There will be games of some sort, and very many physics jokes.

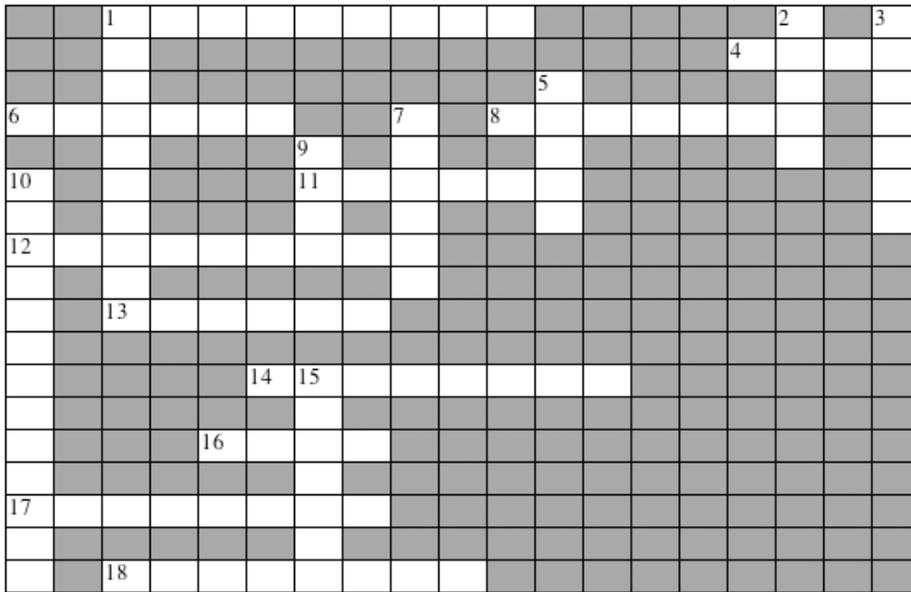
A Physics Is Phun show is scheduled for the not-too distant future. For these shows, SPS members take some of the demonstrations that professors do in class to an elementary school so as to wow the little people who attend said school, and pique their interest in physics and science. It's fun for the SPSers and the Elementary-ers alike.

A physics movie night is planned for the not-too-distant future, as well (n.b.: this not-too-distant date is different from the Physics Is Phun show not-too-distant date, and will likely coincide with an SPS meeting). There will be very free and therefore very tasty pizza as well as very free and therefore very tasty beverages. The previous movie was a Mystery Science Theatre 3000 episode shown in one of the classrooms in the physics building. Also under consideration to show this year are some 'popular science' films. SPS has a collection of those, if you can believe that!

The items listed here are limited by space. To learn all about what SPS does, and to get more precise dates, be sure to come out to the next meeting!

# PHYSICS CROSSWORD

by Steven Hochman



## ACROSS

1. describes a complex number by which multiplication of another complex number yields its squared magnitude
4. rest mass of a photon
6. electron reservoir in electronics applications
8. charge flowing per unit time
11. massless entity formerly postulated as the medium for EM waves
12. thermodynamic process without a change in entropy
13. shape with largest volume for smallest surface area
14. won Nobel Prize for discovery of Neutron
16. where to find residue
17. common cryogen that condenses at 77K
18. antimatter counterpart of electron

## DOWN

1. study of low-temperature phenomena
2. painful frequency
3. unit of electric charge
5. never found alone and possesses fractional charge
7. light physics
9. meters-squared-kilograms per seconds-cubed
10. certain type of wave which we can only indirectly detect
15. an inner product space crucial to qm

Answer in next issue

Happy birthday to you, happy birthday to you,  
***Happy birthday dear Sputnik,***  
 happy birthday to you

by Larry Camarota Last week (October 4) marked the 50th anniversary of the launching of Sputnik I. The scientific purposes of Sputnik I were to measure the density of the upper atmosphere, the propagation of radio waves in the upper atmosphere, and the density of meteorites in low orbit. Sputnik wasn't a large or complicated satellite by today's standards: 185lb, 23 inches in diameter, with 4 antennae ranging from 8 to 10 feet long. Sputnik I was polished smoothly enough that it appeared as a 6th magnitude object in the night sky (dimly visible on a clear night), and it emitted a regular series of radio beeps. These last two properties brought the space race into prominence. The satellite itself only lasted a couple of months, but it's effects are still being felt today.

## UP Staff

Editor-in-Chief

Larry Camarota

Layout Director

Erica Bolin

Online Editor

Harold Rodriguez

Production Manager

Stephanie Lewkowitz

Assistant Editor

James Stankowicz

Staff Writers

Jonathan Young  
Steven Hochman

Faculty Advisor

Dr. Yoonseok Lee

## CALL FOR WRITERS

UPNews is always looking for undergraduates who want to contribute. If you'd like to get involved, e-mail us at [upnews@phys.ufl.edu](mailto:upnews@phys.ufl.edu) (see plug below)

## LIKE TO WRITE?

Want to get involved with the physics scene? Want pizza?

If you answered yes to any of these questions, you may want to consider a position in the Undergraduate Physics Newsletter (UPNews).

UPNEWS is a great place to meet new people, visit new places, and write about them. We strive to keep the undergraduate population up to date on events in SPS and physics, as well as on the Gainesville community.

If you are interested in joining the UPNews staff, send an email to [upnews@phys.ufl.edu](mailto:upnews@phys.ufl.edu). We usually meet on the first Tuesday of the month shortly after 6:00. The meetings begin with a pizza, and usually end in a half an hour. You do not need to be a physics major, nor do you need to be a member of SPS. The only requirement is that you want to write.