

PHYSICS ALUMNI NEWSLETTER

Spring 2009

<http://swosu.edu/academics/physics> ♦ physics@swosu.edu ♦ Terry Goforth, Editor

Home is where the heart is



Come home for a visit, and join us for the 2009 Physics Spring Alumni Banquet on Saturday, April 18, at 7:00 p.m. in the Student Union Ballroom. The evening will be filled with the usual festivities—food, old friends, and lots of awards and recognition. Our speaker this year will be Joe Beisel ('87) of Halliburton. Ticket prices haven't changed—still just \$12 per person. You may pay at the door, but we do request that you make advance reservations so we can give a head count to the caterers. Let us know if you plan to attend and how many will be in your party by April 15. (That date seems familiar...) Call us (580/774-3109), e-mail us (physics@swosu.edu), FAX us (580/774-3115), mail a note (100 Campus Dr., Weatherford, OK 73096), or just drop by.



Our Honored Guest

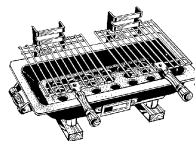
Joe Beisel graduated from SWOSU with a B.S. in Engineering Physics in

1997. He then attended graduate school at OSU in Stillwater

and received a M.S. in Mechanical Engineering in 2000. Joe spent the next several years in Malawi working for the African Bible College in Lilongwe. While there he was involved in civil engineering work including construction of hospitals, schools, staff houses, and a radio station. Upon returning to the U.S., Joe returned to graduate school at OSU. He studied solid mechanics, elasticity, and instrumentation at the Web Handling Research Center in Stillwater and received his PhD in 2006. Joe now works for Halliburton at the Duncan Technology Center, where his work focuses on Finite Element Analysis, modeling, instrumentation, and data analysis. Joe's accomplishments include conference presentations, journal articles, and pending patents.

Food, fun, food...

If you can't make the banquet (or even if you can), why not join us for the annual gotta-love-it you-won't-go-away-hungry Physics Shish-kebab? The event takes place on Saturday, May 2, at Crowder Lake. Dinner is served around 6 p.m., but come early to enjoy hiking, canoeing, fishing, or just sitting on the porch and visiting. You remember how good it is,



don't you? Come on out and refresh your memory while you satisfy your tummy.



An Evening with the (Physics) Stars

Q: What do you have when you

combine five new inductees, seven scholarships, five awards, and a speaker well-versed in differential equations then stir in some good food and good conversation? A: The 2008 Physics Alumni Banquet of course! Some 40 gentle folk including alumni, students, faculty, family, and friends gathered in the Upper Lounge of the SWOSU Student Union on a pleasant Saturday evening last April to enjoy a nice meal, reunite with friends old and new, and honor the hard work of several aspiring physicists and engineers. These awards are detailed throughout the newsletter.

Randy Cabeen

('84) of Northrop Gruman Corp entertained and informed all present with many experiences and lessons learned on his path from Oklahoma farm boy to his current position with Northrop where he



works on many varied projects such as technology detecting unconventional nuclear weapons for Homeland Security and several other re-engineering, sustainment, maintenance, and troubleshooting projects. Randy emphasized the value of practical experience and common sense for success in the engineering marketplace.

Other alumni in attendance were **Stan Powers** ('57), **Justin Whipple** ('01), **Benny Hill** ('57), **Richard Vaughn** ('99), **Terry Goforth** ('81), and **Bishnu Pokhrel** ('07). In addition to Dr. Hill, retired faculty members **Dr. Stan Robertson** and **Dr. Garo Armoudian** were also present.

The difference between genius and stupidity is that genius has limits. -Albert Einstein



Membership Grows to 182

The requirements for induction to are set out by the national organization as follows: undergraduate students be in the top third of their class in general studies and have completed at least three semesters of full-time col-

lege work and three semester courses in physics that can be credited toward a physics major. Physicists in industry and government working in a physics or physics-related field may be elected based on their professional record. As of April 12, 2008, the SWOSU SPS Chapter membership totals 182. Five of these members were inducted at the 2008 banquet: **Stephen Duerr** (Soph, Foss), **Kevin Freeman** (Soph, Bethany), **Jonathan Keahey** (Sr, Crawford), **Wessley Lamoreaux** (Jr, El Reno), and **Randy Cabeen** ('84 Alum, Clinton). To our five new members, congratulations on your achievements!

Through Your Generosity...

With tuition and fees rising every year, most students find it harder and harder to stay in school without the added burden of taking on a full-time job. In demanding fields like physics, this is particularly difficult since it takes away from much-needed study time. It is through the generosity of our alumni, faculty, and friends that we are able to reduce that burden by offering scholarships to deserving and needful students.

Last April, we were able to award a total of \$6,750 in seven



scholarships for use in the 2008-2009 academic year. \$2,000 of this came from donations by Chesapeake Energy (OKC). The remaining money came from interest on endowed scholarship funds and direct contributions by individuals.

Awards made this year were: *J.R. Pratt Scholarship*, \$1,500 to **Wessley Lamoreaux** (Jr, El Reno); *Ray C. Jones Scholarship*, \$1,000 to **Justin Silkwood** (Jr, Norman), *Arthur McClelland Memorial Scholarship*, \$1,000 to **Jonathan Wallace** (Sr, Weatherford), *Chesapeake Scholarship*, \$1,000 to **Jonathan Keahey** (Sr, Crawford), *Chesapeake Scholarship*, \$1,000 to **Ashleigh Streit** (Sr, Weatherford), *Physics Alumni Scholarship*, \$750 to **Stephen Duerr** (So, Foss), and *Physics Alumni Scholarship*, \$500 to **Sean Wright** (Sr, OKC).

Congratulations to all our scholarship recipients, and a big **THANK YOU to our SUPPORTERS.**

Honor and Scholarship

Each year we recognize a few individuals who have stood out among some pretty impressive fellow classmates. For the 2007-2008 academic year, we honored five young scholars for achievements both in and out of the classroom. Selected by a committee of faculty in the



School of Arts and Sciences, two of our students were chosen for membership in *Who's Who Among American College and University Students*: **Bishnu Pokhrel** (Sr, Nepal), and **Jonathan Wallace** (Sr, Weatherford). The *Outstanding Midclassman in Physics Award* is presented each year to a "rising star" whose performance in the General Physics classes promises great things to come. The 2008 recipient of this award was **Kerry Williams** (Sr, Crowell, TX). Of course, the Physics and Engineering Club is always active, and its president can be a major factor in the club's success in recruiting new members and completing various projects. For outstanding service in this area, club president **Justin Silkwood** (Jr, Norman) was presented with the *Leadership Award*. The *J.R. Pratt Award for the Outstanding Student in Physics* is the highest award offered by the Physics Division. This former "Duke Award" goes to the man or woman whose scholarship and service is deemed outstanding. Last year's award was presented to **Jonathan Wallace** (Sr, Weatherford). Congratulations one and all!

Any sufficiently advanced technology is indistinguishable from magic. -Arthur C. Clarke



Will Work for Paycheck

This May (and December) we will see several students move on to the next step in their lives—jobs and graduate schools. They've become like family to us, and we hate to see them go, but we do want to send them on their way feeling secure about their futures. If your company is hiring, or if you know of a company that is hiring, please let us know. Times are tough and the job market is lean, but you know that our graduates are top-notch. Of course, we may occasionally contact you directly about jobs or just advice, and we really appreciate your feedback and help when we do. Thanks to those that have notified us of hiring opportunities and given us and the students guidance in the past, and thanks in advance for future aid as well.

Send Us Your Career Profile

When high school students visit SWOSU's physics program, they often want to know what they can do with a degree in Engineering Physics. We of course describe various options: graduate school in a



variety of fields including physics, engineering, medicine, law, architecture, business, etc., jobs as engineers (of many different flavors), physicists, managers, and so on. However, we find that specific examples can help these potential students gain a better grasp of the opportunities that await them. With that in mind, we are developing a "catalog" of careers that our graduates have gone into. What we need from you is your name, employer, job title, and a brief (no more than one page) description of some of the things you do written in language that is accessible to a high-school senior (very important). If additional education is needed (grad school or employer-provided training), please say so. A picture (if e-mailed) is optional. Not working in engineering or physics? Great! Part of what we hope to demonstrate is that a degree in Engineering Physics leads to career choices that are vast and varied. E-mail (to physics@swosu.edu), snail mail (Terry Goforth, 100 Campus Dr., Weatherford, OK 73096), or FAX (580-774-3115, attn: Terry Goforth) your career page to us. We'll put it to good use.

I am satisfied, and sufficiently occupied with the things which are, without tormenting or troubling myself about those which may indeed be, but of which I have no evidence".
-Thomas Jefferson

Our Distinguished Leaders



The Physics and Engineering Club, SWOSU's local chapter of the Society of Physics Students (SPS), has always been an active organization. The vitality of the club depends heavily on its leaders. This year has been no exception, so we'd like to recognize the 2008-2009 officers:

President:
Wessley Lamoreaux

Vice President:
Justin Silkwood

Secretary:
Travis Goucher

Treasurer:
Jonathan Keahey

Public Relations:
Jerrod Hunt

Historian:
Jonathon Wallace

Faculty Sponsor:
Tony Stein



Physics Club earns another Outstanding Chapter Award

The Society of Physics Students awarded the SWOSU Physics and Engineering Club with an Outstanding Chapter Award for 2007-2008. The selection was "based on the depth and breadth of SPS activities"

conducted by our chapter such as "physics research, public science outreach, physics tutoring programs, and providing social interaction for chapter members." We are proud to receive this honor (as we have so many times), and we will work hard to continue that streak.

Some things have to be believed to be seen. - Ralph Hodgson

Cell Phone Power



I was running late as I arrived on campus, and all of my usual parking places were taken, so I drove behind Stewart Hall. Since that parking area cannot be seen from the street, sometimes empty spaces survive there unnoticed. Today there were none, so I turned around and had almost made it back to Bradley street when a girl talking on a cell phone while driving made a fast left turn through traffic and nearly hit me head on in the parking lot entrance. The combined entrance and exit is a single lane and runs for about a hundred feet between Stewart Hall and a high retaining wall. The girl tried to back up onto Bradley but was

prevented by traffic, but rather than waiting for a break in the traffic, she insisted that I back up. Reluctantly, I did.

I was doing fine until a pedestrian walked by on the passenger side. Moving over to give him room, I heard something that sounded like a car scraping against the concrete retaining wall. It was. Finally having backed into the parking lot, the girl whizzed by, turned around and went back out. I parked by the campus police station, went to my office, and sat down all the while thinking malevolent thoughts about drivers talking on cell phones.

There was a knock at the door. "Come in."

"Hi professor! My name is Wes Warbler, and I need just a few moments of your time. I need to talk with someone who knows the laws of thermodynamics."

"I may be able to help," I said, "what do you have in mind?"

"I want to invest in some energy production schemes, and I would like your advice."

“Interesting that you should use the word *schemes*,” I said. “I hope it isn’t like that scheme where an ocean liner pulls heat from the ocean, uses it to propel the ship, and ejects the chilled water, or even ice cubes out the back end of the ship.”

“Oh, you mean that won’t work?” asked Wes.

“Not a chance,” I answered. “It uses energy from the ocean and so it obeys the first law of thermodynamics, conservation of energy. But it requires energy to flow from cold to hot, contrary to the second law.”

“What do you mean?” asked Wes.

“Well suppose that we fill a boiler tank with sea water and that it somehow absorbs a small amount of heat energy from its surroundings. Now we pump new sea water past the boiler so it can absorb heat energy from it; but heat energy will not spontaneously flow from the cold sea. If anything heat energy will flow from the warmer boiler to the passing seawater. It is a second law problem, since it

requires heat energy to spontaneously flow up the energy hill ”

“Too bad,” said Wes. “A gentlemen promised a big payoff for a scheme that is kind of like that. Ok, how about this idea, it’s a new idea for energy generation, and I’m thinking of investing in it. Let me show you. That will be easier than explaining it.”

Suddenly we were in front of a large building. As we entered, I noticed O-ring seals around the doors like on an airplane. It must have been an air lock because we went through a second O-ring equipped door before coming out into a cavernous room filled with endless rows of people talking on cell phones. The noise level was nearly unbearable with everyone trying to make themselves heard by talking louder than their neighbor. I turned to Wes. “What is going on?” I asked, shouting to make myself heard.

“Just listen for a few minutes,” he shouted back.

At first all I heard was noise, but then I noticed that the sound rose and fell like waves crashing on-

to a beach, and there was barely audible music rising and falling with the waves of noise.

I asked Wes about the waves, but he shook his head and pointed to the door. We went back into the air lock and closed the inner door so we could talk without shouting. “We have discovered some music that makes people breath in time with it,” Wes explained. “After people inhale, they compress the air in their lungs so that they can talk or exhale. When the air is compressed in their lungs, it takes up less space that it did outside of them, so the room pressure goes down. When they exhale and then expand their lungs preparing to inhale, the room pressure goes up. We run large air turbines off the difference between air pressure in the room and atmospheric pressure outside, and those turbines drive generators that make electricity.”

“Brilliant!” I exclaimed, “but even given the size of the operation you have here, you must not generate a huge amount of electricity.”

"Several hundred million megawatts nationwide," Wes replied.

"Wow! I take it back. That is a lot, but how do you get that many volunteers?"

"They are not volunteers." Wes smiled. "Whenever someone is ticketed for driving while talking, they are required to spend a certain number of hours per week here." He pointed through a window. "Here is one you might recognize."

I saw endless rows of cars whose drivers were talking on cell phones, and right next to the window was the girl from this morning. There is justice in this world!

I felt someone gently shaking me. "Wake up, Dr. Rogers. "It is time for you to teach your class." All right, so in your dreams there is justice. Well, at least there is in mine.

Ignorance is preferable to error; and he is less remote from the truth who believes nothing, than he who believes what is wrong.
Thomas Jefferson



News from the Physics and Engineering Club

The Physics and Engineering Club continues to be a vital and important part of the department. In addition to the Spring Banquet and Sigma Pi Sigma induction, our students were active both in serving the community and each other.

Our annual Physics Day extravaganza went well. We had 110 high school students from ten area schools attend for a half-day of physics demonstrations. Club members were tour guides and led one of the five hands-on demonstration stations.

The banquet itself was well-attended by students. This year we were also blessed by the number of parents who attended to support their children. We hope that this continues since family support can be so vital to students, especially in a challenging field like physics.

The Physics and Engineering Club also hosted a number of professional and social events such as lightning research discussion, astronomy viewing sessions, etc. This year we added tutoring sessions for first-year students in general physics.

This seems to be working very well. Our freshman attendance at meetings has definitely improved, and the general physics students appreciate the extra help.

Last year's end-of-the-year shish-kebab at Crowder Lake was a popular event. Provost Blake Sonobe and department chair Bill Kelly joined us as we enjoyed the scrumptious spread and inducted new club officers. The weather cooperated, and those who wanted to go to enjoy canoeing on the gorgeous lake.

The cure for a fallacious argument is a better argument, not the suppression of ideas.

Carl Sagan and Ann Druyan

Let's Go Camping!!

The Bernard

Harris ExxonMobil/NASA Summer Science Camp is a two-week overnight camp for middle-school students (entering grades 6 to 8). The 2009 camp will included about 50 students and will be held from the 12th to the 24th of July. The purpose of the camp is to enhance education in STEM (Science, Technology, Engineering and Mathematics) fields by providing a variety of hands-on/minds-on activities and



classes taught by high-school teachers, university professors, and professionals in STEM fields. The camp is funded by ExxonMobil Corporation and SWOSU. You can check us out at

www.swosusciencecamp.org and
www.theharrisfoundation.org.

Recognizing the need for greater cultural diversity in STEM fields, the Bernard Harris camps focus foremost on groups under-represented in these fields, but also strive to enhance opportunities for all cultural groups. One of the goals of the Bernard Harris camps is to provide the students close contact with teachers and other professionals in STEM fields; these role models show the students a STEM career is within their reach. Because continued contact with the students is the best way to ensure their success, the Bernard Harris camps attempt to maintain contact with the students throughout the school year by providing "Saturday Academies." At these Saturday academies the students return to camp for one day in which they participate in one or two activities designed to reinvigorate them about STEM fields, boost their self-confidence, and show them that there are professionals committed to their success.

The camp is directed by **Dr. Wayne Trail** and taught by a number of SWOSU faculty (notably **Dr. Tony Stein**, Dr Trail, and Ms. Sue Ball in Biology) and local high school teachers. This year's theme will be "*Seeking Life beyond Earth.*" Students will take classes in biology (*What is Life?*), astronomy (*Where do we look for it*), physics (*How Do We Get There? Newton's Laws.*), and Lego Robotics (*How do we explore a new world?*). They will also take classes in mathematics, writing, research, nutrition, and more. The curriculum is designed to show students the sciences are connected and that they should explore all areas. They will see, for example, that mathematics appears in all fields.

Because adventures can take place outside the lab as well as inside, we will also take field trips to the *Oklahoma Science Museum* (formerly known as the *Omniplex*), *The Thomas P. Stafford Air and Space Center* (if you haven't been there recently you need to go), *Frontier City Amusement Park*, and the *Crowder Lake Ropes Course*.

As scarce as truth is, the supply has always been in excess of the demand.
Henry Wheeler Shaw (Josh Billings)

To the nines: Important anniversaries in physics



Four years ago the American Physical Society celebrated the

100th anniversary of the great papers of Einstein and others (covering relativity, Brownian motion, and the photoelectric effect, among others) by declaring 2005 a "year of physics." But 1905 is not the only 'great year in physics'. Here are the important anniversaries in physics that we celebrate:

100 years ago (1909):

One hundred years ago, near the beginning of the twentieth century, the world saw a continuation of the development of modern physics. Albert Einstein introduced the wave-particle duality of the photon with his paper "Über die Entwicklung unserer Anschauungen über das Wesen und die Konstitution der Strahlung"

(http://en.wikisource.org/wiki/The_Development_of_Our_View_s_on_the_Composition_and_Es_sence_of_Radiation). At the same time Robert Millikan was beginning his great work of measuring the charge of an electron using oil drops.

150 years ago (1859):

The middle of the nineteenth century was an important time for the development of classical

electrodynamics, culminating with Maxwell's equations near the end of the century. The year 1859, though, was important for two contributions for which the effects would not be known until the beginning of the next century. In that year, Johann Wilhelm Hittorf discovered cathode rays (beams of electrons in a vacuum from a negative electrode), and Gustav Kirchhoff and Robert Bunsen were beginning to catalog the spectral lines of elements.

250 years ago (1759):

In Russia, just a few years after Benjamin Franklin showed that lightning was an electrical phenomenon, Franz Aepinas discovered charging by induction and wrote one of the first successful attempts to mathematically describe electricity and magnetism..

400 years ago (1609):

The year 1609, is just as important to physics as 1905 for its contributions to the birth of modern science and astronomy. The invention of the compound microscope is sometimes credited to this year, although it probably was invented years earlier with the details being lost to the ages. Meanwhile, another new invention, the telescope, was spreading across Europe like

wild fire. Galileo Galilei was busy building his own telescopes for his great discoveries of 1610 which include the phases of Venus and the Galilean Moons. Meanwhile Thomas Harriot beat Galileo Galilei by being the first to map a celestial object, the Moon. Most importantly, 1609, was the year that Johannes Kepler published his *Astronomia Nova* which laid out the first two of his laws of planetary motion. From a modern perspective, Kepler's laws, by describing the orbits of the planet to phenomenal precision, was the final stake into the heart of the Ptolemaic (Earth-centered model) of the solar system. In many ways they signaled the birth of modern astronomy.

Lightning Research at SWOSU

(<http://faculty.swosu.edu/tony.stein/lightning/2008/SummerResearch.htm>)

Lightning produces pulses of electric and magnetic fields that can be detected hundreds of kilometers away. Last summer two Southwestern students (Justin Silkwood and Wessley Lamoreaux) designed, built, and tested a magnetic field loop antenna and a capacitive electric field antenna with accompanying signal amplifying circuits to measure these fields.



Despite years of research, lightning is in some ways poorly understood. A 'typical' lightning strike transfers five coulombs of charge in a fraction of a second and carries tens of kiloamps of current. The potential difference depends on the length of the bolt but is on the order of hundreds of millions of volts to a billion volts or more. Therefore the 'typical' lightning strike imparts 500 MJ of energy and has an average power of tens of terrawatts. Such large transfers of charge generate electric and magnetic fields that can be detected long distances from the lightning strike using suitable antennae. These electromagnetic pulses are called *sferics* and have radio wave frequencies in the kilohertz range. Simple antennae designs can be used to measure separately the magnetic field and the electric field components of the sferic.

The electric field component of the sferic can be detected using a capacitor antenna. The voltage signal creates a current by Ohm's Law which is amplified with a simple homemade integrator circuit. The configuration of the charge antenna we used was designed so that it could be calibrated and tested by placing a plate above the antenna. In this configuration the plate and the main portion of the antenna form a parallel plate capacitor with a relatively uniform and well-known electric field.

The magnetic field component of the sferic can be measured using a magnetic loop antenna. The change of magnetic field of the radio wave signal generates a voltage in a conducting loop due to Faraday's Law. The current signal is then amplified in an integrator circuit designed and built by Justin and Wessley.

During the summer Justin and Wess designed, built, and tested both types of antennas and each one's accompanying amplifying and integrating circuits. Currently we are waiting for "good storms" and planning to extend this research. (For instance, building a second magnetic antenna would allow us to get the direction of the storm.)

Learning without thinking is useless. Thinking without learning is dangerous.
-Kong Fuzi (Confucius)

Alumni Notes



Bhaskar Basnet ('07) is now working for Halliburton Energy Services as a Field Technology Engineer in Burns Flat.

Ken Elkins ('81) received a United States Patent (Patent # US 7,183,183) for "Method for using Ion Implantation to treat the sidewalls of a feature

in Low-k Dielectric Film." Congratulations, Ken.

Ross Gibley ('04) has a new job with Sandridge Energy in OKC. He is an Operations Engineer working in northwest Oklahoma. His job is Completions-taking over the well from when the rig moves off until the well goes on production.

Craig Huffman ('83) has relocated to Leuven, Belgium, where he is employed by Imec, an R&D company with a huge range of far-out technical projects. Craig's part involves working on new and different methods and materials connecting transistors in the integrated circuit. He says the work is interesting while the culture and language make everyday life interesting and entertaining! Gelukwensen*, Craig! (*Dutch for Congratulations!)

Stephen Russell ('99) is now working for Stanley Associates. He didn't actually change jobs, but Stanley bought Stephen's former employer Tchrizon. Just a different name on the paycheck!

Ashis Shrestha ('07) was accepted into the M.S. Petroleum Engineering Program at OU and began classwork in January. Good luck, Ashis!

Brian Stephenson ('91) is now President and Chief Operating Officer of Tronics MEMS, Inc., located in Richardson, TX. The company is one of several Tronics companies worldwide and provides prototyping, qualification, and volume production services for custom micro electro-mechanical systems (MEMS) components. Check it out at www.tronicsmems.com.

Royce Snider ('91) received a new assignment, "Subject-Matter Expert-Acoustics" in October and a promotion in December. Way to go, Royce!

John Cowan ('01) will begin graduate studies for an MSEE in Signal Processing this summer. He's working for Lockheed Martin in Orlando, FL, in signal and image processing with a little electro optical analysis. Good luck, John!



In Remembrance

Sadly, we report that Tom Sullivan ('87) passed away on June 27, 2008, in Pineville, MD. Tom served in the Army National Guard and worked as an aeronautical engineer at Tinker AFB. He enjoyed many outdoor activities. A native of Missouri, he was the victim of a rafting accident. Several of you who knew Tom commented that he was doing something he loved at the time. We'll certainly miss him.

LET'S STAY CONNECTED



We really enjoy bringing you up to date on our activities and achievements. Of course, we depend on you keeping us informed on how to contact you and what you are doing. If you move, change e-mail, change jobs, whatever, let us know. You know where to find us (see below). To facilitate communications, we are also setting up shop on some of the on-line networking sites. At present, Terry Goforth has accounts on Facebook (facebook.com) and LinkedIn (linkedin.com). There is a SWOSU Physics and Engineering group at Facebook as well, and one will soon be set up on LinkedIn. Several of you have already connected with Terry, and we hope the numbers will keep growing. You can of course use Terry's contact list to reunite with some of your "lost" classmates and friends as well! Let's get hooked up!

HERE WE ARE



You can send mail to us at 100 Campus Drive, Weatherford, OK 73096-3098, send a FAX to 580-774-3115, or call or e-mail us at

Dr. Terry Goforth	(580) 774-3109	terry.goforth@swosu.edu
Dr. Charles Rogers	(580) 774-3108	charles.rogers@swosu.edu
Dr. Tony Stein	(580) 774-3107	tony.stein@swosu.edu
Dr. Wayne Trail	(580) 774-3124	wayne.trail@swosu.edu

You can also send your e-mail to physics@swosu.edu. We'll see that it gets to the right person.

AVAILABLE ANYTIME ONLINE



You can find us at www.swosu.edu/academics/physics. Click on the Alumni link for the newsletter (past and present) and other news.

ALUMNI EMAIL ADDRESSES*

If you are a SWOSU Physics Alumnus, drop us an e-mail at physics@swosu.edu and we'll send you the complete list of physics alumni e-mail addresses that we have on file.

If your address is incorrect, please let us know and we'll correct it.

If your address isn't on our list (you haven't received any e-mail from us in the last year) and you'd like for us to add it, let us know! We'll gladly include you.

ALUMNI POSTAL ADDRESSES

Did you receive a "hard" copy of this newsletter by traditional mail? If not, there's a good chance we don't have your current address. Let us know where you are and what you're up to these days. We love to stay in touch!

PHYSICS ALUMNI BANQUET 2009

Saturday, April 18, 2009 7:00 p.m. SWOSU Student Union Ballroom \$12/person

Name _____ No. Persons Attending _____

Address _____ Phone _____

_____ Email _____

Please return to: Dr. Tony Stein ✧ 100 Campus Drive ✧ Weatherford, OK 73096

We need to provide a head-count to the caterers by April 15, 2009

SHISH KEBAB 2009

Saturday, May 2, 2009 6:00 p.m. Crowder Lake University Park

Name _____ No. Persons Attending _____

Address _____ Phone _____

_____ Email _____

Please return to: Dr. Tony Stein ✧ 100 Campus Drive ✧ Weatherford, OK 73096

If you plan to attend, letting us know will help us in planning the food, but feel free to drop in!

Or... just give us a call or e-mail us (physics@swosu.edu) to confirm for either/both event(s).