Department of Chemistry & Physics ✦ 100 Campus Drive ✦ Weatherford, OK 73096-3089

PHYSICS ALUMNI NEWSLETTER

Spring 2010

http://swosu.edu/academics/physics ✦ physics@swosu.edu ✦ Terry Goforth, Editor

COME ONE, COME ALL Join us for the 2010 Physics Spring Alumni Banquet on Saturday, April 10, at 7:00 p.m. in the Student Union Ballroom. Our speaker this year will be **DR. L. DEAN CHAPMAN** ('75) of the University of Saskatchewan. (More on Dean below.) The evening will be filled with the usual festivities–food, old friends, and lots of awards, presentations, and other well-deserved praise. Ticket prices are $15 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 7. 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.

DR. LEROY DEAN CHAPMAN

earned his B.S. in Physics and Mathematics from SWOSU in 1975. He went on to earn a Ph.D. in Physics from Purdue University in 1981. Dean spent several years (1982-1995) at the National Synchrotron Light Source at Brookhaven National Laboratory as a beamline scientist, first at the X18A, then the X17 materials science beamline and finally on the synchrotron medical research facility beamline. In 1995, he moved to the Illinois Institute of Technology in Chicago to help direct that institution's synchrotron efforts (three beamlines) at the Advanced Photon Source at Argonne National Laboratory. He and colleagues from Brookhaven National Laboratory developed the diffraction-enhanced imaging method which is now one of the common synchrotron methods for imaging soft tissue. In 2003, he moved to the University of Saskatchewan where he is the scientific lead of the Biomedical Imaging & Therapy (BMIT) project at the Canadian Light Source (CLS), founded a research group on synchrotron imaging of gene expression, and serves as the Canada Research Chair in X-ray Imaging and professor of Anatomy and Cell Biology.

SPRING SIESTA

Don't forget the annual food-you-could-die-for Physics Shish-kebab! We'll be at Crowder Lake on Saturday, May 1, 2010, with steak, chicken, and veggies on kabobs and, of course, all the trimmings. Food will be served around 6 p.m., but you'll want to come early to visit, fish, canoe, hike, or just to sit on the patio and take in the beautiful Oklahoma scenery. You want to come. You know you do. Indulge yourself this year. You'll be glad you did!

MORE ALUMNI! Five students received their B.S. in Engineering Physics in 2009. **Jonathan Wallace** (Weatherford), **Jon Keahey** (Crawford), **Ashleigh Streit** (Weatherford), and **Jerrod Hunt** (Cheney, KS) crossed the stage at the SWOSU Convocation Ceremonies in May and joined the ranks of SWOSU Physics Alumni. **David Davis** (Burns Flat) received his diploma *in abstentia* while completing his service to the U.S. Army. (Check out pics from the graduation ceremonies in the collection at the SWOSU Physics and Engineering Group page on Facebook.) Congratulations, one and all!

Research is to see what everybody else has seen, and to think what nobody else has thought. (Albert Szent-Györgi)

CALLING MISSION CONTROL

The Stafford Museum is preparing a display on the Mission Control Center at NASA's Johnson Space Center. In conjunction with this display, they hope to feature the connection between SWOSU and NASA. Let's face it, an inordinately large number of home-grown western Oklahoma kids have received degrees at SWOSU (in physics and other fields) and gone on to work for the space agency. We're helping in the effort to locate and recognize these grads. One thing we'd like to do is collect a full set of names of our graduates who have been employed by NASA. We'll need your degree and graduation year and where you worked. We'd also like to get your comments or reminiscences. Just send them to use by email, snail mail, or by filling out the Alumni Update form on the Alumni Web Page (at *www.swosu.edu/academics/physics/alumni/alumni-update.asp*). And by the way, you really should plan to visit the Stafford Air and Space Museum at the Weatherford Airport the next time you're in town. General Stafford and his staff have collected an absolutely amazing array of air and space memorabilia worthy of any major museum in any major city, and it's all right here in Weatherford! You'll definitely be impressed.)

Some things need to be believed to be seen. (Guy Kawasaki)

AN EVENING WITH FRIENDS

Dr. Joe Beisel ('97) from the Halliburton Technology Center in Duncan was our speaker for the 2009 Physics Spring Banquet. Joe entertained us all with stories of how he went from being an Oklahoma farm boy through his student years at SWOSU and OSU to a practicing engineer, including a few years in Malawi where he helped design and construct hospitals and schools. His talk certainly enlightened our students about the types of questions, problems, and challenges an engineer can expect to encounter.

Of course, we also took some time to honor, recognize, and reward students for their achievements and performance during the past year. After a delicious meal and enjoyable conversation, we began the festivities by inducting **Sean Wright** (Sr, OKC) into Sigma Pi Sigma, bringing the SWOSU Chapter membership to 183. Seniors who would be graduating with honors at the May, 2009 Convocation Ceremonies were awarded their medallions: **Jon Keahey** (Crawford), **Ashleigh Streit** (Weatherford), and **Jonathan Wallace** (Weatherford) were recognized. Receiving the Distinguished Service Award for service to the Physics Program were **Justin Silkwood** (Jr, Norman), **Ashleigh Streit**, and **Jonathan Wallace**. The Leadership Award was presented to Physics and Engineering Club President **Wessley Lamoreaux** (Jr, El Reno). Finally, the highest award presented by the Physics Program, the JR Pratt Award for the Outstanding Student in Physics, went to **Jon Keahey**. The scholarship awards are be detailed below.

Newton, forgive me. (Albert Einstein)

THANKS FOR THE HELP

Once again, through the generosity of our supporters, we were able to provide greatly-needed support to several outstanding and well-deserving students. Chesapeake Oil sponsored two $1,000 scholarships for Physics Engineering Students. Receiving these awards were Cal Humphrey (Fr, Rocky) and Michela Alexander (Fr, Newalla). A Physics Alumni scholarship for $1,000 was awarded to Stephen Duerr (So, Foss). The $1,000 Arthur McClelland Memorial Scholarship went to Daniel Lundy (Sr, Cordell), and the 2009 recipient for the Ray C. Jones Scholarship in the amount of $1,000 was Justin Silkwood (Jr, Norman). Finally, $1,500 was

awarded in the JR Pratt Scholarship to Wessley Lamoreaux (Jr, El Reno). On behalf of these recipients and the Physics Program, we thank all of you who help us to fund these scholarships. Your generous donations, whether for $10 or $10,000 are all greatly appreciated and are always put to good use. Thank you!!!

All of physics is either impossible or trivial. It is impossible until you understand it, and then it becomes trivial. (Ernest Rutherford)

TOUGH TIMES REQUIRE TOUGH FOLKS

The economic downturn has hit a lot of folks hard. College students are no exception. Dwindling state resources mean less funding for public schools. While Oklahoma is working hard to resist further tuition increases, other expenses for students such as textbook prices, fees to cover lab expenses, and room and board to cover rising energy and food costs, continue to rise. We know our alumni are struggling too, but we must continue to ask you for support. Scholarships allow us to recruit quality students to our program and to keep the great students we already have. If everyone contributes, it needn't be a large burden on any individual. Tax-deductible donations of even $10 or $20 can add up fast and allow us to continue to run a quality program and to support the students of western Oklahoma. Please consider whether you can contribute. Checks can be sent to us (send to Terry Goforth, Dept of Chem & Physics, 100 Campus Dr, Weatherford, OK 73096), or you can send them directly to the SWOSU Foundation Office at the same street address–just be sure to specify that you want your donation to go to Physics. And don't forget to see if your employer or organization will match your donation. You can double your money that way. Thank you so much for your help!

Science is organized knowledge. (Herbert Spencer)

STRIKING SUCCESS

Working under the supervision of Dr. Stein, two students (soon to be graduates), **Justin Silkwood** (Sr, Norman) and **Wessley Lamoreaux** (Sr, El Reno), continued their lightning research from the summer of 2008. They improved on their capacitive electric field antennae and corresponding circuitry and built and tested additional magnetic field loop antennae and circuitry.

They also tested, calibrated, and used the electric field antennae to detect the electric field signals from lightning in the field. During one Oklahoma thunderstorm last summer, they connected the antennae (outside) to the circuitry and oscilloscope (inside) and recorded around thirty lightning strikes in a two-hour period from the safety of the observatory. There were no close strikes as the main storm missed the observatory by a couple of miles, but they were able to measure both nearby cloud-to-cloud and more distant cloud-to-ground lightning. Unfortunately, the Oklahoma weather refused to cooperate after that. The coming spring and summer will hopefully give us more opportunities to test out the equipment.

Justin and Wessley presented their results in a poster session at the Oklahoma Research Day in November, 2009, and will do so again at SWOSU this April.

It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories instead of theories to suit facts. (Sherlock Holmes)

SEEING SPECTRAL

Under the guidance of Drs. Wayne Trail

and Tony Stein, four SWOSU engineering physics students, **Michela Alexander** (So, Newalla), **Michael Moore** (Jr, OKC), **Kenneth Franke** (So, Brownfield, TX), and **Jonathan Brooks** (Fr, Weatherford) have been performing basic astronomical research at the observatory. Over the course of a semester the SWOSU Astronomical Spectroscopy group has been perfecting astronomical photography techniques and calibrating a new high-resolution stellar spectrometer. Using the recently-upgraded equipment at the SWOSU observatory, the group has taken pictures of the Orion Nebula (M42), the Pleiades Cluster, Mars, Jupiter, and the Moon. They are still honing their techniques, but the pictures are beginning to look very good. Soon Saturn will be in a position to photograph easily as well.

Currently, the group is calibrating and optimizing a new astronomical spectrometer and has just received two highly sensitive CCD cameras designed for stellar spectroscopy. The first is designed to measure the spectrum and the second is designed to keep the telescope pointing toward the correct target while measuring that spectrum. They are also calibrating the spectrograph using the neon spectrum and fine-tuning the instrument.

The spectrometer grating the group uses is designed for high-spectral resolution; it can resolve extremely fine differences in colors (wavelengths). The tradeoff is that the spectrum of light is spread over such a large area that the spectrograph can only measure a small portion of the spectrum at one time. Spreading the light out so much also makes the intensity of the light measured significantly dimmer. The spectrograph can be pointed directly at the Sun and looked through with a naked eye for that reason. With our sixteen-inch scope, though, the group should be able to measure the spectrum of any object visible to the naked eye by taking long-term exposures with exposure times of hours.

The spectroscopy research project is supported primarily through a NASA grant administered by Madeline Bauer. Dr. Warren Moseley from Computer Science has provided some addition funding through a grant he administers, and SWOSU has also provided financial support.

A little knowledge is s dangerous thing. So is a lot. (Albert Einstein)

SUMMER IS FOR SCIENCE

The Physics Department hosted its fourth consecutive Exxon-Mobil Bernard Harris Summer Science (EMBHSS) Camp last summer from July 12-24. The two-week overnight camp is for rising 6th, 7th, and 8th graders, with an emphasis on drawing students from culturally underrepresented groups . This past year we had 48 students from all over Oklahoma and a few from outside Oklahoma.

The campers live in the dorms, eat in the cafeteria, and take classes in Newton's laws, robotics, energy, cell biology, astronomy, mathematics, writing, research, and more. The classes are taught by SWOSU faculty including Drs. Stein and Trail in the physics department, Ms. Ball in biology, and Ms. DeVaughan in mathematics, and local high school teachers. We have a total of eight teachers and twelve teaching assistants including physics major Jonathan Brooks (Fr, Weatherford), who was our robotics wizard.

Among the many things the students do are: building and launching paper, water, and model rockets, building and testing solar cars, building and testing wind generators, building and programming a variety of robots to solve a range of problems, using a telescope to study the heavens (this year we saw Saturn and Venus),

and much more. All classes are hands-on/minds-on; the students do lots of problem solving on their own. We take field trips to the Oklahoma Science Museum (formerly the Omniplex), Frontier City Amusement Park (where we study the physics of rides), Crowder Lake (for the ropes course), and the Stafford Air and Space Center. Photographs of our campers in action can be seen on our website, www.swosusciencecamp.org.

Bernard Harris (www.theharrisfoundation.org) is a former shuttle astronaut who is African-American and grew up on a Native American reservation. He has spent the last 15 years or so developing programs to draw children from underrepresented groups into science, technology, and engineering fields. Funded by ExxonMobil Corporation, the camps, which started at SWOSU and the University of Houston, are now held at thirty universities across the country and are advertised nationally.

OUTSTANDING AGAIN

Once again the national Society of Physics Students organization recognized SWOSU as an Outstanding SPS Chapter for 2008-2009. The club accomplished a lot over that period. It served the department and the community through a number of sponsored events such as Physics Day, helped the students to grow professionally through study sessions, trips to the observatory, and promoting our student research opportunities in stellar photography, spectroscopy and lightning research, and held social events to provide much needed relaxation and to build a sense of community.

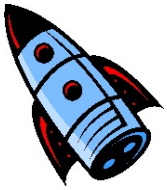
Innocence about Science is the worst crime today. (Sir Charles Percy Snow)

PHYSICS CLUB OFFICERS

The Physics and Engineering Club, SWOSU's local chapter of the Society of Physics Students (SPS), continues to be 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 2009-2010 officers:

President: Wessley Lamoreaux
Vice President: Cal Humphrey
Secretary: Jonathan Brooks
Treasurer: Michela Alexander
Public Rel: Justin Silkwood
Historian: Daniel Lundy
Faculty Sponsor: Dr. Tony Stein

PHYSICS IS PHUN



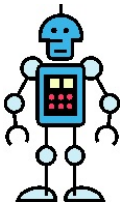
Many of the club's activities over the last year involved physics outreach. Our annual outreach to high school students, Physics Day, was well-supported by our students and would not be possible without them. We welcomed and demonstrated for about 100 students from eight local high schools including two schools who have never attended before.

The Physics and Engineering Club was also active in two new outreach activities involving the Stafford Air & Space Museum and the Girl Scouts. The club, along with Dr. Trail and Dr. Stein, assisted the Stafford Air & Space Museum with a star party in October 2009. Club members wowed elementary students by helping them build and launch paper rockets. They also assisted with demonstrations of the scale of the solar system and spectroscopy. Finally, they helped Dr. Trail to show off the night sky at our recently-refurbished observatory.

A "Fun with Physics" day with the Girl Scouts of Western Oklahoma was ultimately canceled due to weather, but we learned a lot in preparing for it and hope to use the experience to host future events.

Science is a series of judgements, revised without ceasing. (Pierre Emile Duclaux)

TENDING TO BUSINESS



The best-attended Physics and Engineering Club events this year have involved research. Our informational day for the new spectroscopic research was popular, as were observation sessions designed to get the students familiar with our facilities and telescopes. Other mini-projects such as building and launching paper rockets and building robots using the Lego NXT robotics kits were also quite popular.

One exciting aspect of this year has been a fresh burst of the energy for the club. Our sophomores and freshmen have brought renewed enthusiasm to the organization. They have suggested and implemented a number of events and ideas that have helped the club, such as a joint meeting with the Math club. They have proposed an update of our constitution and bylaws that will better-define our purposes and streamline the defined duties of the officers. The revision was long needed and will allow us to function more efficiently and effectively.

TIME-OUT

The Physics and Engineering Club recognizes the value of peer support and socializing for the success of college students. Last year's end-of-the-year shish-kabob at Crowder Lake saw a changing of the guard as we inducted new officers, and our soon-to-be graduates found themselves wrapped up in bubble wrap for protection from the "real world." Alumni **Warren McCarthy** ('81) and **James Brooks** ('88) were also able to attend. James' son Jonathan is a freshman here and was inducted as the secretary of the physics club. Jonathan was actually a member of the club before he finished with high school and entered Southwestern. Way to pass on the torch fellows! It was also a wonderful day for canoeing; many of us got wet.

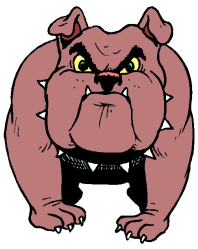
The welcome-back hamburger fry featured a number of raucous volleyball games. **James Brooks** ('88) and his wife and several of the faculty's children also joined in the volleyball. The annual Halloween party featured Johnny Depp as Ichabod Crane (*The Legend of Sleepy Hollow*) and included many a severed head. The movie may have lacked for science, but was enjoyed nonetheless. (It did however give new meaning to the expression "heads will roll.") The Physics Division's Holiday Party was at Dr. Stein's house and was well attended. Dr. Jones' snakebite kit made one final appearance after which it was opened and retired from future Dirty Santa games. A merry time was had by all.

OPERATION: OBSERVATORY

Through the persistence of Dr. Trail and the hard work of our Physical Plant the observatory received a much-needed facelift. The patio was expanded and re-paved, and a higher, sturdier fence was installed to block out stray light and wind. The observatory was cleaned and re-painted both inside and outside, and the carpet was replaced. The parking lot has been graveled over to eliminate those pesky grass burrs. Overall the observatory is a much more pleasant place to visit, observe, and do experimental research in. We can now show off the refurbished (and sticker-free) facility and proudly host public observations such as the one we did for the Stafford Air & Space Museum star party.

Theory guides. Experiment decides.

BULLDOG BUZZ



Dr. John Hays, President of SWOSU, retired on January 31, 2009. Hays, a 1969 SWOSU Alumnus, served SWOSU in

a variety of capacities for 30 years, most recently as SWOSU's 16th President since 2001. He was a friend of the Physics Program and supported us in numerous ways. We appreciate his enthusiastic service and wish him well in his retirement. Thank you, Dr. Hays, and good luck!

Taking over the reins as the 17th President of SWOSU is Mr. Randy Beutler. A 1979 graduate of Canute High School, Beutler received a B.S. in Education from SWOSU in 1983 (graduating Cum Laude) and a Master of Education in 2003. He taught social science at Washita Heights Public Schools and Weatherford High School, where he was twice named Teacher of the Year. He served eight years in the Oklahoma House of Representatives, where he held the position of Majority Whip for that body. In 2003, Beutler was appointed to serve as Legislative Liaison for Governor Brad Henry and was later promoted to Director of Legislative Relations. During this time, he also worked as an Adjunct Professor of History at SWOSU. President Hays hired Beutler to work at the university full-time in 2006. He assisted President Hays with external affairs, legislative matters, grant development and development of external funds, and in planning the strategic direction of the university. He also developed the President's Leadership Class. Beutler serves on the Quartz Mountain Arts & Conference Center Board of Directors and Oklahoma Higher Education Chancellor Glen Johnson's Legislative Advisory Network. He is a member of the Weatherford Kiwanis Club and has been active in the Elk City Kiwanis Club. He has served on the Oklahoma Academy of State Goals Board of Directors and the Elk City Old Town Museum Board of Directors. We welcome President Beutler to his new job, and we wish him well.

Happy is he who gets to know the reason for things. (Virgil)

RAY GUNS

The fictional Anthony (later changed to "Buck") Rogers first appeared in a short story in 1928. He was a mining engineer checking the deepest part of a mine when he encountered a strange gas that held him in suspended animation for 500 years. He awoke as "Buck Rogers of the 25th Century" and proceeded to have adventures that were told in comic strips, movies, and radio and television programs. He introduced the public to the ray gun, a gun that killed with a beam of light. When the laser was invented it looked like fiction might become reality, but the hand-held, killing laser has yet to be invented.

A typical laser works by promoting an electron in the majority of the atoms of a working substance into a long-lived, high-energy state. This is called forming a population inversion. A passing photon of the same energy will stimulate the electron to return to the ground state and emit a photon that matches the stimulating photon. Soon an ever-increasing flood of photons surges back and forth through the working substance reflected by mirrors on either end. One mirror is only partially reflective and allows the beam to escape.

The Tactical High Energy Laser (THEL) was developed jointly by the US and Israel with a primary mission of shooting down Katyusha rockets. During tests it has shot down 28 Katyusha rockets along with various artillery shells and mortar rounds. THEL has a range of 5 km and is powered by mixing deuterium with fluorine to form deuterium fluoride in an excited state. Each shot uses $3,000 worth of noxious chemicals which makes it too expensive to use against poorly aimed mortar shells. Besides that, the system was still too unwieldy to be fielded. Despite its successes, THEL has been shunted aside in favor of a high-powered

solid-state laser.

A solid-state laser typically uses a neodymium doped yttrium aluminum garnet crystal as the lasing element. Electrons are pumped to form the population inversion by light-emitting diodes. In 2008, Northrop Grumman announced the *Firestrike Laser*, a 15-kW solid state laser. They demonstrated that it could explode unexploded munitions and improvised explosive devices, if they could be seen. In 2009, they showed that seven lasers could be linked to form a 105-kW beam, enough to bring down nearby missiles. Since less than 20% of the energy from the light-emitting diodes goes into forming the population inversion, the laser requires about 500-kW electrical input.

The most powerful weapons laser is the Boeing YAL-1 Airborne Laser (ABL). Mounted in a Boeing B-747 jumbo jet, on 12 February 2010, it shot down a liquid-fueled and a solid-fueled missile during their launch phases. The ABL system is a megawatt-class High-Energy Laser fueled by mixing oxygen and iodine molecules. The weapons beam is 1.315-micron infrared radiation which propagates well through the atmosphere. Two weaker laser beams are used to track the target, and a third laser measures the amount of atmospheric disturbance between the laser and the target. Information from this laser is used to shape the attack laser's adaptive optics system so that the beam will remain focused as it reaches the target. The ABL is expected to have a range of 200-250 km.

Advantages of laser weapons include that they can be quickly activated and fired. The beam can be locked onto the target and, there is no need to lead it or predict its future path. A single weapon can destroy several targets sequentially. Although chemical lasers are expensive to operate and produce noxious byproducts, solid-state lasers are clean and relatively inexpensive to operate. On the down side smoke or fog can defeat weak lasers. Spinning a target to distribute the laser beam's heat, or painting the target with reflective paint makes it harder to shoot down. Coating the target with ablative tile works even better, but the increased weight decreases the target's range. Any countermeasure could probably be overcome by using a more powerful weapons laser. Finally, the ABL must have a line-of-sight to a launching rocket. This means the laser-carrying plane must loiter where it can monitor the launch site. This could probably be done for North Korea or Iran, but not for Russia. Regardless, weapons lasers are likely to find a niche on the battle field. They seem to be such a neat solution, they ought to solve some problem.

Dr. Charles (Buck) Rogers
Old physicists don't die. They just gradually lose their phizzle.

There are in fact two things, science and opinion. The former begets knowledge, the latter ignorance.
(Hippocrates)

CORRECTION TO THE 2009 NEWSLETTER

Ken Duerkson ('66) received a United States Patent (Patent # US 7,183,183) for "Method for using Ion Implantation to treat the sidwalls of a feature in Low-k Dielectric Film" in February of 2007. Last year we erroneously attributed this patent to another alumnus. A belated congratulations, Ken!

ALUMNI UPDATES

Lee McClune ('69) continues his work with OSU on developing sorganol (biofuel from sweet sorghum). His McClune Industries has developed a harvester for sorghum. You can check his work at www.sorganol.com.

Dale Burrows ('93) has made the move from engineer to investment realtor. He's working as a real estate agent with Keller Williams in the DFW area.

Ken Duerkson ('66) retired from Tokyo Electronics Limited on June 29, 2009. Ken worked in Process Engineering Development, specifically on Low k Spin on Dielectrics, attempting to shrink the chip design parameters in our never-ending quest for more speed. Enjoy yourself, Ken. It's well deserved.

Stephen Russell ('99) is attending graduate school at Midwestern State University in Wichita Falls, TX. He's working on a degree in Computer Science.

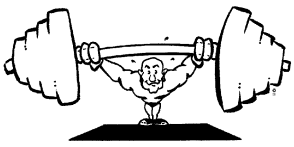
Ross Giblet ('04) is an Operations Engineer for SandRidge Energy He is responsible for about 160 wells in the South Texas/ Gulf Coast/Gulf of Mexico area, assigned to maximize production out of all existing wells, and to complete new wells that are drilled in the area and turn them to production.

Clint Miller ('93) is the Founder and CEO of Wino Knows Wine, a planned online and mobile application intended to centralize the myriad of information sources related to wine knowledge. The intent is to provide the maximum amount of information requiring a minimum of wine knowledge in order to enhance the general consumer's overall wine experience.

David Davis ('09) is out of the army! He's currently employed in a Federal Technician position at the Oklahoma Military Dept. Directorate of Engineering. He is responsible for basic building and facility inspection, and space occupancy study (measuring square footage and determining what purpose it's used for). He'll be participating in a renovation as a project manager next month. Dave says "So far I'm loving it! Civil engineering is not really where I saw myself, and I can't say that I'll stay with it, but there are some really fascinating components to it."

Dan Swartwood ('74) is the Director for Process and Chain Supply Design at Satellite Logistics Group in Houston.

WHATCHA UP TO?



Once again we thank you for letting us stay in touch. It's fun for us to look over the past year and remember the activities and challenges that filled our time and kept us moving forward. We also like to hear what you're up to and to share that with your friends and classmates, but we can't do that if you don't first share with us. We need to know if you move, change e-mail, change jobs, whatever, so please let us know. It's so easy. We have an update form on the web page (see the next article), or you can email us, snail mail us, call us, or fax us (addresses below). To facilitate communications, we also have a presence 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 on both sites. 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! If you'd like to suggest another networking site, let us know. Let's get hooked up!

NO EXCUSES!

We have added an Alumni Update form to the web site at SWOSU. Just go to the Alumni Update Info Form at

www.swosu.edu/academics/physics/alumni/alumni-update.asp.

You'll be required to fill in your first and last name and email address. You can then fill in anything else that needs to be changed. There are also sections there for you to make comments or share stories. The information will come directly to us as soon as you hit the Submit button.

WE'RE WAITING...

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.

AT A WEBSITE NEAR YOU

You can find us at www.swosu.edu/academics/physics. Click on the Alumni link for newsletters past and present, announcements, or to update your information.

In these days, a man who says a thing cannot be done is quite apt to be interrupted by some idiot doing it. (Elbert Green Hubbard)

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 or if you prefer to use a different address, 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!

The second law of thermodynamics holds, I think, the supreme position among the laws of nature. If someone points out to you that your pet theory of the Universe is in disagreement with Maxwell's equations - then so much the worse for Maxwell's equations. If it is found to be contradicted by observation - well, those experimentalists do bungle things up sometimes. but if your theory is found to be against the second law of thermodynamics I can give you no hope; there is nothing to do but to collapse in deepest humiliation. (Arthur Eddington)

PHYSICS ALUMNI BANQUET 2010

Saturday, April 10, 2010 7:00 p.m. SWOSU Student Union Ballroom $15/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 7, 2010

SHISH KEBAB 2010

Saturday, May 1, 2010 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 to confirm for either/both event(s).