

PHYSICS ALUMNI NEWSLETTER

Spring 2014

<http://swosu.edu/academics/physics>

♦ physics@swosu.edu

♦ Terry Goforth, Editor



2014 Banquet

The Physics and Engineering Club and the Division of Physics cordially invite you to join us for the Spring Physics Alumni Banquet on April 5, 2014, at 7 pm. This year's venue will be the Stafford Air & Space Museum located at the Stafford Airport at 3000 E Logan Rd in Weatherford. Our speaker this year is **Eric Brown** ('95), an independent consultant in a range of information, analysis, and management areas. (See his bio below.)

The evening will give us a chance to recognize and reward several worthy students with honors, scholarships, and of course the annual induction of new members to the SWOSU Chapter of Sigma Pi Sigma. Tickets are \$20 each, and may be paid for in advance or at the door. We need an accurate head count by Wednesday, April 2, so if you plan to attend, let us know how many will be in your party by then.

Feel free to contact us by email (physics@swosu.edu), phone (580/774-3109), FAX (580/774-3115), snail mail (100 Campus Dr, Weatherford, OK 73096), or with a personal visit!

Eric Brown

Eric Brown graduated from SWOSU in 1995. He immediately attended Oklahoma State University and earned a Master of Science in Electrical Engineering in 1998. After completing his MSEE, Eric worked in various positions in the Telecommunications industry including a stint with Marconi Wireless as Director of Technical Services where he managed service teams spread across North and South America.



In 2003, Eric transitioned from telecommunications into general technology and information technology and worked at and with Fortune 500 companies, non-profits, and start-ups including the Boy Scouts of America, CapGemini, IBM, Microsoft, Dell, Intel, EMC, Thomson Reuters and many others. His consulting practice spans areas of Information Technology, Marketing Technology, Data Analysis, Predictive Analytics and Knowledge Management.

In 2007, Eric entered a doctorate program and is on track to complete a Doctor of Science in Information Systems from Dakota State University in Madison, SD, in 2014. The title of his dissertation is "Analysis of Twitter Messages for Sentiment and Insight for use in Stock Market Decision Making" and is scheduled to be

completed in Spring 2014.

In addition to his BS in Engineering Physics from SWOSU and MSEE from OSU, Eric earned an MBA from the University of Texas at Dallas and has also earned the Project Management Professional designation.

Eric currently lives in Tulsa with his wife Tracie Brown, and they both enjoy traveling and engaging in wildlife, nature and landscape photography when they have time.

All science is either physics or stamp collecting. -Ernest Rutherford



2014 Shish-Kebab

And speaking of landscapes, nature, and wildlife, Crowder Lake will again be the venue for the Physics Shish-kebab, on Saturday, May 3. The usual array of irresistibly delectable delights will be sure to sate your appetite, and the evening provides a chance to visit and catch up with friends in a casual (and beautiful) setting. Food will be served up around 6 pm, but come

early to canoe, fish, walk the trails, or just sit and visit while taking in the vistas. There is no charge, but if you let us know you're coming we'll be sure to have plenty of yummys on hand.

Physics and Engineering Club Officers

Pres: Luke Kraft
VP: Yimfor Yimfor
Sec: Brian Koehn
Treas: Steve Doughty
Sponsor: Dr. Tony Stein



2013 Graduate

The class of 2013 was small but quite successful. Michael Moore (OKC) received his degree at convocation in May, 2013. Mike is now teaching at a charter school in Oklahoma City, making sure the future generation of citizens has a better understanding of the science around them (and maybe sending a few more majors our direction?). Congratulations, Mike!

Science is what you know.
Philosophy is what you don't know. -Bertrand Russell

2013 Shish-kebab

An unusually chilly evening couldn't discourage a hardy if small group of determined picnickers at the



2013 Physics Shish-kebab. Alumnus Jim Sweeney ('60) joined us for some great food and the induction of the new Physics and Engineering Club officers. The planned activities were book-ended by canoeing at the start and the usual presentation of "Igggy" (ignoble) Awards.

Gravity is a contributing factor in nearly 73 percent of all accidents involving falling objects. -Dave Barry

2013 Banquet

The SWOSU Physics and Engineering Club and the SWOSU Physics Division hosted a modest group of alumni, students, faculty past and present, friends, family, and supporters at the 2013 Physics Spring Banquet. Ken Elkins ('82) of the Naval Surface Weapons Center (NSWC) was our speaker for the evening. Ken described how he was able to turn the oil bust of the early 1980's into a job by utilizing contacts to get an interview with the NSWC. Much of his work has been around the Tomahawk missile and its development as a reliable and accurate weapons delivery system with multiple launch configurations and platforms. He shared with us (as much as he was allowed) a variety of techniques for reading surface topography,



how comparing it to digital photos of terrain could improve accurate target acquisition, and how later improvements were obtained using GPS for guidance. He also talked about some of the other aspects of his work including risk-damage assessment, failure investigation, and safety standards for nuclear weapons. Ken provided the students with some good advice on obtaining, keeping, and advancing a career. He stressed the importance of making contacts, treating people fairly, working beyond what is expected, and being willing to take risk and to occasionally fail. All-in-all some good advice for us all.

The evening also included the usual array of recognition and awards. Amy Fields (So, Seiling), Dylan Frizzell (Jr, Mountain View), and Luke Kraft (So, Hooker) were inducted into the SWOSU Chapter of Sigma Pi Sigma. Club president Michael Moore (Sr, OKC) was recognized with the Distinguished Service Award, and Luke Kraft was named the Outstanding Midclassman in Physics. The JR Pratt Award for the Outstanding Student in Physics was a three-way tie (for only the second time in the history of the award) between Dylan Frizzell, James Tyler Overton (Jr, Cordell), and Yimfor Yimfor (Jr, Cama-

room). Six scholarships were awarded as well, and will be detailed in a separate section.

Once again, physics demonstrations were scattered among the tables and along the walls, and attendees were encouraged to experiment and decide what physics principles could be demonstrated.

Alumni in attendance included the speaker Ken Elkins ('82), Troy Hardin ('80), Ron Barber ('79), Loyal Barber ('82), Stephen Russell ('99), Lynn Small ('66), Benny Hill ('57), and Terry Goforth ('81).

An experiment is a question which science poses to Nature, and a measurement is the recording of Nature's answer. -Max Planck

Because of You...

One of the highlights of the year for us is the chance to help several well-deserving students get closer to a degree in physics by awarding them with some much-needed and greatly-appreciated financial assistance. It is through your generosity that we are able to do so.



Last year, we handed out \$6,500 in scholarships to six physics majors. Receiving

\$1,000 each were Steven Doughty (Jr, Yukon) who received a Physics Alumni Scholarship, James Tyler Overton (Jr, Cordell), recipient of the McClelland Memorial Scholarship, and Luke Kraft (So, Hooker), who was awarded the Ray C. Jones Scholarship. Chesapeake Energy kicked in for two \$1,000 scholarships awarded to Amy Fields (So, Seiling) and Yimfor Yimfor (Jr, Camaroon). The J.R. Pratt Scholarship for \$1,500 went to Dylan Frizzell (Jr, Mountain View).

It is only through your donations that we can continue to offer this kind of assistance to deserving students who struggle to meet the continually rising cost of tuition and books. The expense of a college education has far outstripped any rise in income or minimum wage.

When I (TLG) was a student in the late 70's, the state paid about half of the cost of a college education for in-state students. One hour of tuition could be paid for with about five hours of work at minimum wage. Living in the dorms, one could pay for room, board, tuition, and books working about 20 hours per week.

Today, the state pays only about 17 percent of the cost, and is poised to lower that to 15 percent. A student must work nearly 25 hours at minimum wage just to pay for

one credit hour! A student working full-time at minimum wage can only pay about half of his/her college expenses. The rest must come from family, financial aid, or loans. The stories of college graduates beginning their careers in debt are no longer limited to the fields of law or medicine. They apply to everyone. We strive to reduce that need by providing modest assistance to students who are working hard to stay in college and keep their GPA's up while also working both on and off campus to help pay the bills. We know that hours spent working are hours NOT spent studying, so any way we can reduce a student's need to work results in improved chances of success.

You can help us help these students succeed. Any amount you can donate will help, and they all add up. Donations are fully tax-deductible. Many of you work for companies that will match your donation, effectively doubling the amount you can give. Our endowed scholarships include the Benny J. Hill Scholarship, the Ray C. Jones Scholarship, the J.R. Pratt Scholarship, and the McClelland Memorial Scholarship. You may give by mailing a check (payable to the SWOSU Foundation) to us (address to Terry Goforth c/o Physics Department, 100 Campus Dr., Weatherford, OK 73096) or directly to the SWOSU Foundation (100 Campus Dr.). Be sure to

indicate which fund you would like your contribution to go to. You can also donate directly online at www.swosu.edu/alum-foun/foundation/scholarship/physics.aspx. Any and all donations will help. To those of you who give, and to those who decide to give, on behalf of the students who benefit from these generous contributions, THANK YOU.

Our species needs, and deserves, a citizenry with minds wide awake and a basic understanding of how the world works. -Carl Sagan

Physics Club Remains Active



by Tony Stein
The Physics & Engineering Club continues to be an

active and important part of our students' development. Highlights over the last year (2013) include a spring trip to the National Radio Astronomy Observatory Very Large Array (a.k.a. the VLA) near Socorro, NM, Physics Day, and the Spring Banquet, in addition to the other social and professional meetings.

The Club visited the VLA in New Mexico in May, 2013. Six physics students were able to make the trip. We were treated

to a close-up view of one of the massive 25-meter diameter (wider than a baseball diamond) radio telescopes. (See <http://www.vla.nrao.edu/> for more information about the VLA). Each of these 230-ton behemoths is several stories tall and mobile thanks to two sets of parallel tracks. The walking tour had plenty of signs warning us about the local wildlife including rattlesnakes. Unfortunately (or fortunately?), the worst we saw was a rabbit.

Physics Day attendance was down this year compared to most years, but still covered a broad swath of western Oklahoma schools. The high-school students were treated to a large number of fun and informative physics demonstrations over a three-hour period. As usual, the Physics & Engineering Club members served in vital roles; guiding students from station to station and running a station of their own. Drs. Goforth, Campbell, Stein, and Trail ran the other stations that covered almost every area of physics and astronomy.

The Club hosted a number of events to encourage student research at SWOSU. Various research projects opportunities were discussed on a physics research information day held

by the Club early in the school year. This year the weather, so far, has not cooperated with visiting the SWOSU astronomical observatory. We also discussed building a Rep Rap 3D printer, and a freshman student volunteered to lead the task. The Club held a contest to design a mechanism made of a limited amount of paper (paper plates, etc.) to stop a falling wood punch. The falling punch simulates the effect of a fast moving particle hitting a space-suit in low-earth orbit. The challenge turned out to be more difficult than expected, but we learned a fair amount during the process.

A year without the various social meetings hosted by the Physics & Engineering Club would not be complete. We had good weather for our year-end shish-kabob. The welcome-back hamburger fry was well attended and featured Paul Woods (Fr, Weatherford) giving us a puzzle to find the next number in the sequence of 1, 11, 21, 1211, 111221. (Feel free to contact us to check your solution.) The Holiday Christmas party was held at Dr. Stein's house this year. Other activities of note were making liquid nitrogen ice cream, celebrating pi day (March 14), and tearing apart the movie Armageddon. (At

one point in the movie it was mentioned that the asteroid was the "size of Texas." Only Ceres comes close to that.)

Upcoming activities include organizing the Spring Alumni Banquet on April 5, and the annual shish-kebab on May 3.

The great tragedy of Scienc—the slaying of a beautiful hypothesis by an ugly fact. -Thomas H. Huxley

Cambell wins Bernhardt



Dr. Brian D. Campbell is the winner of the Bernhardt Academic Excellence Award for 2013 at Southwestern

Oklahoma State University in Weatherford. Campbell, professor in the SWOSU Department of Chemistry and Physics, was surprised with the prestigious award at the annual Bernhardt banquet held March 12 in the Memorial Student Center on the SWOSU campus. For winning the award, Campbell received a \$5,000 cash award, clock, pen and medallion.

SWOSU alumni Dr. William and Theta Juan Bernhardt of Midwest City are sponsors of the annual award that goes to an outstanding faculty member who exhibits exceptional achievement in teaching, scholarship and service. Guest speaker for the evening

was Oklahoma State Regents for Higher Education Vice Chancellor for Academic Affairs and former SWOSU Provost Dr. Blake Sonobe.

At SWOSU, Campbell has taught geology, physical science, astronomy and science education courses. He serves the community by volunteering at the Thomas Stafford Air and Space Museum and Weatherford Public Library. He attended Leadership Weatherford 2009, and has offered a free grant consulting service for the Western Oklahoma Literacy Coalition.

Campbell's grants (totaling more than \$2.6 million) and research over his years at SWOSU have been impressive. He continues to serve as director of the long-running SWOSU Summer Science & Math Academy. Campbell has interacted with over 700 public school students and 250 teachers, published more than 50 science activities, and was a guest author in the text "The Physical Universe" 9e by Krauskopf and Beiser. He is also a textbook reviewer for several companies, and has given over 70 presentations at local, regional, national and international conferences.

Campbell continues to mentor students in their research as well as his. Recently he has begun a general paleontological survey of Ordovician West Spring Creek Formation, Arbuckle group, Kiowa County, OK. He also has research interests in nature, mean-

ing, and philosophy of science and the improvement of STEM education.

Campbell spends what little free time he has with his wife of 13 years, Melaine Mathieu-Winston-Campbell.

Campbell is the fourth member of the Chemistry & Physics Department to be recognized in the 20-year history of the award. Previous winners include Dr. Stuart Burchett, Dr. Charles Rogers and Dr. Tim Hubin.

Science may set limits to knowledge, but should not set limits to imagination. -Bertrand Russell

Dr. Benny Hill Publishes Book and Announces New Scholarship

Dr. Benny Hill ('57, faculty) finished his magnum opus, *History of the Department of Physics at Southwestern Oklahoma State University*. The publication was celebrated with a book-signing event at The Mark Restaurant on September 26, 2013. Many friends and alumni were in attendance along with current and former faculty members and university president Randy Beutler.



The book covers the Pratt and Hill eras of the department,

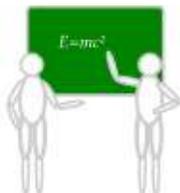
running from 1928 through 1990. It features the accomplishments and memories of many of the graduates from the program during this time period and stresses the contributions of SWOSU physics graduates to so many areas including the aerospace industry, national defense, petroleum and nuclear power, the semiconductor industry, education, research and development, the medical field, and many other areas in both the private and public sector.

The event also served as the initial announcement of the newly-endowed Benny J. Hill Scholarship for physics majors. (This scholarship had formerly been supported by annual contributions from Jo Hill.) When fully endowed, this scholarship will be available to outstanding candidates in their freshman year and may be renewed each year as long as the required standards are maintained. Contributions may be made by mailing a check to us or the Foundation (be sure to specify the donation is for the Benny J. Hill Scholarship) or by going online at

www.swosu.edu/alum-foun/foundation/scholarship/physics.aspx.

Science is facts; just as houses are made of stones, so is science made of facts; but a pile of stones is not a house and a collection of facts is not necessarily science. -Henri Poincare

Relativity Revealed: A Concrete Approach You Can Understand!



by Stan Robertson

In both 1984 and 2003, **Dr. Ray Jones**, presented a series of public lectures on the special theory of relativity. Those of you who were so unfortunate as to have missed these excellent and entertaining presentations can now see what you missed. Dr. Jones' book with the above title will soon be available on Amazon. The book is presently being touched up for publication by Dr. Jill Jones, Stan Robertson, Tonya Shook and others, but it is already a delight to read.

The many alumni who took Ray's classes know that he was a superb teacher and also a friend for life. He truly believed that anyone could understand the special theory of relativity. His book, which was essentially complete, but not published before his death, will validate that belief, but it must be said that few people could present the topic so clearly and in such an engaging manner. Put it on your list of future purchases!

As a physicist for fourteen years at Southwestern, I was often the beneficiary of Ray's insights into physics as well as his unwavering support for any positive thing I attempted to do while here. I

could spend many hours recanting things that set him apart as a physicist, special friend and teacher, but I think perhaps Al Harris, former SWOSU president, said it best on the occasion of Ray's retirement: "I always tried to spend our money on teachers and students. Ray was one of my best buys. At a time when we had one of the best physics departments in the state, Ray was the best we had. He is one of the most outstanding teachers ever to teach at Southwestern. His ability to communicate physics is second to none. His intellectual abilities are among the best ever on campus. He is also a very fine individual, very dynamic and very honest. He has been very good for us and very good for the state of Oklahoma."

P.S. (by TL Goforth) We will, of course, notify you by email once the book is available. If we don't have a current email address for you, be sure to send it to me so I can let you know.

Summer Science and Mathematics Academy

by Brian Campbell

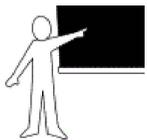


The Southwestern Summer Science and Mathematics Academy will offer year two of its three-year grant this coming summer, June 15 – June 27. SSMA is a Summer Academy designed to give 25

high school juniors and seniors a two-week experience in science, mathematics, and technology. This program is designed to motivate students towards pursuing higher education and careers in STEM disciplines. SSMA will be located on the SWOSU campus with participants living in dormitories, eating in cafeterias, and taking classes in a variety of science content areas. Laboratory and field experiences will enhance the participants' problem solving skills. During the second week, participants will be involved in a problem solving competition. The SSMA is free of charge, being funded by the Oklahoma Regents for Higher Education and SWOSU. If interested contact Dr. Brian D. Campbell at 580.774.3118, brian.campbell@swosu.edu or the Recruitment Director, Dr. David Esjornson at 580.774.7143 at david.esjornson@swosu.edu.

Nothing shocks me. I'm a scientist. -Harrison Ford (as Indiana Jones)

Teaching Is Learning



by Wayne Trail
One of the consequences of the retirement of Dr. Rogers was that

someone had to teach his classes. After a lot of squabbling I got to teach both Classical Mechanics and Fluid Mechanics. These classes

consumed much of my time over the last year. It has been both a challenge and lots of fun.

It is a somewhat fitting that I get Dr. Rogers' classes because I think I have a similar style in the classroom (although I cannot come close to his dry wit). For example, I like to use demonstrations as much as possible (many of the demonstrations I use in the beginning physics classes are his).

Fluid Mechanics last semester was particularly challenging because not only had I not taught it before, I also hadn't taken it as a student. It was a learning experience for all of us. Drs. Rogers and Robertson were both very helpful with demonstrations (and analysis!). One demonstration we enjoyed all semester watching silly putty flow (quasistatically) through a funnel. We were still getting a few drops even at the end of the semester. Interestingly, the "no-slip" approximation held. That is, the putty flowed out of the funnel, but it left a thin layer in contact with the funnel.

One ambition I have had is to bring computing tools into these classes. I was motivated somewhat by Dr. Robertson who did programming projects when he taught fluid mechanics and other classes. Our fluid mechanics textbook came with some software that allowed us to do modeling of fluid flow. It took until about halfway through the semester to get the licensing worked out, but we had some success with it.

This semester, in Classical

Mechanics, I decided to incorporate Sage, a freeware mathematics package for a PC that performs analytic solutions to integral and differential equations, does contour, vector, 3D surface plots, is reasonably easy to use, and has tons of documentation. If you don't want to download it to your PC, you can set up an account (for free) on the website (cloud.sagemath.com) and use it from your smartphone (or tablet). It is certainly fun to be able to plot the velocity versus time for an object falling through air using several values of the viscosity, or plotting a gravitational field as a vector plot, or graphing the solutions to a damped oscillator for several values of the damping constant of the spring constant. It is easy to change a parameter and redo the integral or the plot—things that can be very tedious when done by hand. While we are still struggling a bit with Sage (a third of the way through the semester), it is promising enough that I intend to use it in the General Physics II next year.

Both Fluid Mechanics and Classical Mechanics have been a delight for me. While I love teaching General Physics and Basic Physics, these classes allow us to use more sophisticated mathematics tools, and solve far more interesting problems.

The scientist is not a person who gives the right answers, he's one who asks the right questions. -Claude Lévi-Strauss

Ellis County Bison Dig



by Brian Campbell

As you likely know, over the past 15 years, I have seemingly developed a reputation as the go to guy for anything geology, paleontology, and the planetary sciences related in the western half of the state.

Mr. Jerry Johnson of Ellis County, contacted me a few months ago. Mr. Johnson owns >2,200 acres in south central Ellis County and had the occasion to walk some of his dry river washes. About 12 m from the base of one of these washes he saw something unusual sticking from the bank. On closer inspection he identified it as a large bone. The bone was still more than a meter from the top of the ground, which usually indicates it was deposited some time in the past; not yesterday, not last year.

He asked me to come to his land and take a look. Every semester I get several people bringing me something; wanting me to drive to their land and explain something... To be honest, rarely have I ever found anything worthwhile. Of the scores of wishful meteorites brought to my lab, only one was confirmed genuine.

Mr. Johnson's images and descriptions were convincing

enough for Melaine and me to take a Saturday jaunt to his ranch to take a look. What we found was convincing enough for SWOSU to establish a dig team and get to work.

Thus far we have made three dig trips to the sites. Walking the washes on Mr. Johnson's land we have found at least eight exposures with large vertebrate bones. With the help of Tommy McDaniel, head custodian of the CPP Building, a quite fine bison skull has been reconstructed. This reconstruction is of an extinct species of bison – either a juvenile *B antiquus* or *B intermediate*. A small display can be seen at the SWOSU Library.

Once the weather is cooperative, further trips will be made to collect more fossils. Stay tuned for future developments.

Gastropod Fossil Identification Project



by Brian Campbell

It is often difficult to identify the family or genus of invertebrate univalve gastropod cast and mold fossils found in a sedimentary matrix. What is usually seen is but a two-dimensional slice of the object. One of my former geology students, Katy Kirkpatrick, and I are

investigating a method of using three-dimensional extent univalve gastropod shells as an aid to the identification of these two-dimensional images found in thin-sectioned fossiliferous rock. Using a grinding wheel, a wide range of known gastropods is being ground in a set pattern along the X, Y, and Z-axis of rotation. From impressing on an ink-pad the known shell's two-dimensional footprint, comparisons can be made with actual fossils. This will generate a database with which field samples can be compared.

There have been several papers published addressing the geometry of gastropod shells. The equations governing the shape of such shells have been well known for centuries. By adjusting the variables of these equations, taking thin planar slices of the resulting three-dimensional shapes, geologists and paleontologists have been able to identify general and specific organisms from their two-dimensional fossil exposures. Though there are publications showing specific shells through many thin slices, Katy and I have found no general application of this approach in the literature. We are hoping to continue this work and formalize the results.

The strongest arguments prove nothing so long as the conclusions are not verified by experience. Experimental science is the queen of sciences and the goal of all speculation. -Roger Bacon

ALUMNI NEWS

This is the part of the newsletter that is written by YOU. We love hearing about your work and activities, and we hope you enjoy hearing about your friends and classmates as well.



Mike Alsobrook ('86) is program manager for the Naval Air Systems Command at the Naval Air Station Patuxent River, MD. He is one of the IPT leads for the Nex Generation jammer. They were just awarded their first major increment contract for the system to cover the mid-band of the spectrum. He is now transitioning from that effort to begin standing up and leading the team to develop the next increment, which will cover the lower bands of the spectrum. Mike says it is "interesting work with lots of state-of-the-art and bleeding-edge technologies in the RF and GaN based power amplifier fields." He anticipates there will be lots of jobs in this area in the next few years.

Steven Thomas ('78) retired from BP in May 2013 after working for Amoco/BP for over 32 years. He's not ready to fully retire, so he's looking for something else to do. (Anyone in the Atlanta area with some ideas?)

Santosh Bhatt ('06) graduated from the University of Tennessee with a Ph.D. in 2012 and is now working for Areva as a Nuclear Fuels Engineer in Thermal Hydraulics. Way to go, Santosh!

Kevin Intemann ('81) continues working at Western Technology Center as an Industrial/Safety Coordinator.

Paul Schneider ('97) continues working as a staff psychiatrist at Green Oaks Hospital in Dallas, TX. Last year he was recognized with the 2013 Physician of the Year award. Congratulations, Paul!

Raymond Stas ('61) has been retired since 1997. He keeps busy with hobbies, volunteering, etc. In March he is working at the Great American Conference Basketball Tournament, where he will (hopefully) be cheering the SWOSU Bulldog Men and Women on to victory!

Kevin Johnson ('93) has moved to Georgia where he is the founding director for a new Family Medicine Resi-

dency Program in Lawrenceville. Impressive.

Bhaskar Basnet ('07) continues to work for Halliburton (6 years and counting) in western Oklahoma and the Texas panhandle. He was promoted to District Tech Manager last year and is managing a group of about 40 Field Engineers in the district. His area of expertise is cementing, hydraulic fracturing, acidizing, and some completion tools in oilfield services. Good job, Bhaskar!

Jerrod Hunt ('09) moved to Topeka, KS area. He is working for West Continent Energy Services, with whom he began an internship as a student. West Con is a pipeline construction company. Jerrod works as a project estimator and is working towards becoming a full project manager in the future. He is based out of Independence, MO, and does work throughout the Midwest, currently on projects that are on-going from MN all the way to Houston and from the Mississippi to the Rockies. (A big territory.) Jerrod says "Thank heaven I kept my notes (stress and structural figures). They've come in handy."

Terry Cox ('86) is a Lead Systems Engineer at GE Transportation in Melbourne, FL. He is currently working on a tramway project in Stock-

holm, Sweden, that is being executed from the GE Transportation office in Florence, Italy. Terry was recently nominated for a "Global Engagement" company-wide award for his work and mentoring on that project. He was also recently selected to participate in a GE Transportation sponsored System Engineering Certificate graduate program at Florida Institute of Technology in Melbourne. Way to go, Terry!

Moin Khan ('06) has been in Houston, TX, for the past four years. He is a reservoir engineer for BP.

Steven Troyer ('86) After years in the commercial and DOE nuclear industries and an eight-year stint in the safety area (chemical weapons disposal), Steven has moved to the oil and gas industry— something he has hoped to do for some time. He has spent the last two years employed as a petrophysicist, and is now working with a small exploration company in Houston. He says "It's been an interesting and great ride,

and I'm enjoying the new environment and the learning experience that comes with it!"

David Davis ('09) works full time for the Oklahoma Army National Guard as the Geospatial Information Systems manager for the Directorate of Engineering. His job is to work closely with the Real Property Specialist and Master Planning to catalog all buildings, utility lines, fencing and other building assets within the OKARNG, and develop suitable building sites for construction of new armories. "The work is deeply involved in Information Technology (computer networking, server administration, and GPS technologies), with a healthy dose of basic construction knowledge and wandering off into the wood line."

Patrick Heys would like to offer some advice based on his observations at work and while doing interviews. (1) Take technical writing courses, literature courses, and speech courses— anything that will force you to learn both how to convey information accurately and in a way that is clear and makes you

look like you know all there is. (2) Carry yourself as the smartest person in the room, not just because you are, but because you are there on request. Whether at an interview, a meeting, or addressing the Joint Chiefs of Staff. I have seen brilliance fail and fall on its face for lack of being presented well. (3) Present your information well, present yourself well, and learn to communicate with both style and quality in order to succeed. In the end, the world needs to hear your message regardless of the magnitude. Make sure you can get the world's attention and keep it. Good advice, Pat!

Gary Ollenberger ('81) retired after a 30-year career with Marathon Oil. According to Gary, "Horizontal drilling is extremely boring, no science at all, just shale farming—drill one mile down, make a right turn, and drill another mile." He spends his time on the farm or searching for meteorites or other artifacts (coins, jewelry...) with a metal detector as a way to appease the science part of his brain. He refers to this as "conducting geophysical studies," of course!

There are no physicists in the hottest parts of hell, because the existence of a "hottest part" implies a temperature difference, and any marginally competent physicist would immediately use this to run a heat engine and make some other part of hell comfortably cool. This is obviously impossible. -Richard Davisson

LET'S STAY IN TOUCH



In this age of connectedness, there's just no reason to lose touch. We send this newsletter out to let you know what we've been doing. Now it's your turn! We always enjoy hearing from you and learning about your activities and achievements. But we're not clairvoyant. You have to tell us yourself. And it's so easy! You can send us email at physics@swosu.edu or at one of the email addresses below. You can call us at one of the phone numbers below or send a FAX. Of course, you can send us a card or letter by snail mail to 100 Campus Dr., Weatherford, OK 73096. And you can also connect with us on Facebook at the SWOSU Physics and Engineering group, or on LinkedIn. We even have a place on the SWOSU website for you to update your address or other contact information (www.swosu.edu/academics/physics/alumni/alumni-update.asp). So no excuses! Let's stay in touch!

HERE'S HOW!



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. Brian Campbell	(580) 774-3118	brian.campbell@swosu.edu
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.

AND WE'RE ONLINE!



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.

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 attending the 2013 Physics Banquet



*Back row: Lynn Small, Troy Hardin, Benny Hill, Loyal Barber
Front row: Ken Elkins, Ron Barber, Terry Goforth, Stephen Russell*

We must not forget that when radium was discovered no one knew that it would prove useful in hospitals. The work was one of pure science. And this is a proof that scientific work must not be considered from the point of view of the direct usefulness of it. It must be done for itself, for the beauty of science, and then there is always the chance that a scientific discovery may become like the radium a benefit for humanity. -Marie Curie

PHYSICS ALUMNI BANQUET 2014

Saturday, April 5, 2014

7:00 p.m.

Stafford Air & Space Museum

\$20/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 2, 2014

SHISH KEBAB 2014

Saturday, May 3, 2014

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).

Somewhere, something incredible is waiting to be known. -Carl Sagan