ECEN News

Spring 2002 "Research, Teaching, Extension" Inaugural Issue

Electronics, Computers, Light?

Inside this Issue

Contact Information

If you have any noteworthy events or would like to see a particular item in the ECEN newsletter, e-mail your suggestions to Karen Holt at: *ecennews@ceat.okstate.edu*

Also check out the newsletter on the web site at: *www.ece.okstate.edu*

Oklahoma State University
School of Electrical & Computer Engineering
202 Engineering South
Stillwater, OK 74078-5032
Phone: (405) 744-5151
Fax: (405) 744-9198

Michael A. Soderstrand, Department Head

The School of Electrical and Computer Engineering is pleased to publish its first ECEN Newsletter, "Electronics, Computers and Light". We hope to make this magazine a regular feature of the department to keep people informed on what is happening in ECEN at OSU.

When I joined the ECEN department as Head in August 1998, the department had sixteen faculty members, 350 undergraduate students and about 130 graduate students. Now, three and one-half years later we have twenty-two faculty members (including four IEEE Fellows), 477 undergraduate students and 205 graduate students. We are recruiting for this year our twenty-third faculty member who will hold the new $2 million Williams Chair in Information Technology. ECEN now offers full BS, MS and Ph.D. programs in Electrical Engineering at OSU Stillwater and OSU Tulsa. This is incredible growth and a testimony to the hard work of our entire faculty and staff and the support of many people in the OSU administration and our alumni.

This issue features our photonics group and some of the cutting-edge research that is occurring in this school. Our department makes up a large fraction of Photonics research at OSU and includes four ECEN faculty along with faculty across the university, including Physics and Chemistry. In addition to B.S., M.S. and Ph.D.'s in Electrical Engineering, ECEN Photonics students have the option of an M.S. or Ph.D. in Photonics, a multidisciplinary program offered jointly by ECEN, Physics and Chemistry. OSU's international reputation in the Photonics area is extremely high, and we are proud to be an important part of these outstanding programs.

This year marks the 100th year of existence for the OSU College of Engineering Architecture and Technology. Over these 100 years, OSU has been a consistent producer of excellent students at all levels in electrical engineering. We are excited at the prospects of expanding our department at OSU-Tulsa and look forward to the challenges ahead.

Feature Article

Following the Path of Light...

Oregon to Oklahoma

Near the seacoast in Oregon is a small town called Coos Bay. The tradition there was that if you were good in math and science, and you wanted to attend college, you would become an engineer. Dr. Daniel Richard Grischkowsky was raised in Coos Bay. Coming from a family without a college tradition, he never really thought of college as an option; even though he did well in high school.

During high school, he encountered his first real engineering problem, trying to increase the performance of his '51 Ford. He bought a used Oldsmobile engine and put it in the car; there wasn't enough room for the engine, so it had to be mounted at an angle. Luckily, according to Dr. Grischkowsky, the universal joint took care of any problems. Perhaps his career path was set after this first engineering trial, after he installed the engine, the car became powerful and lively.

His life long journey into science truly started at Oregon State University, where he did better than in high school. Although his initial interests were in civil engineering, he switched to physics during his junior year. College hasn't changed much, and as with students today many sleepless nights of hard work led to a degree in general science. Once started down the path of science, he never looked back. He attended graduate school at Columbia University in New York City, receiving a Ph.D. in physics, and from there he joined the team of engineers at the IBM T. J. Watson research center in New York.

At that time the IBM research center had some of the greatest scientists in the country. Dr. Grischkowsky gravitated into the relatively new area of lasers, doing ground breaking work with short-pulses and their interaction with optical fibers well before the age of the internet. Today optical fiber networks sending huge amounts of information on optical pulses are a fact of life for many Americans. From short pulses and fibers, a natural transition was into the area of optoelectronics, that he continues to this day. Optoelectronics is the combination of laser technology and electronics. Optoelectronics is a tool that allows researchers to explore fundamental questions of technologies that are not yet on the drawing board.

Vital Statistics

***Name**: Daniel Richard Grischkowsky*

***Date of Birth**: April 17, 1940, in St. Helens, Oregon*

***Family**: wife, Frieda; daughter, Daniela; and twins, Tim and Stephanie*

***Present Position**: Regents Professor and Bellmon Professor of Optoelectronics, Oklahoma State University*

***Education**: Oregon State University, Corvallis, Oregon B.S. in General Science, 1962*

Columbia University, New York, New York; A.M in Physics, 1965 Ph.D. in Physics, 1968

***Hero**: Charles Townes, invented the maser*

***Leisure Activities**: Spending time with his children. Enjoys sailing and playing Tennis*

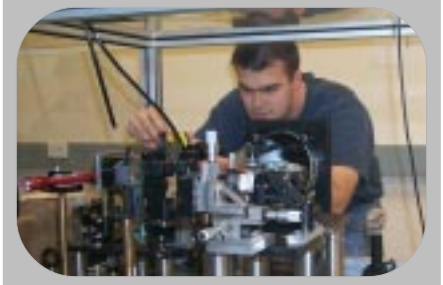
***Memberships**: Fellow of the IEEE, OSA and APS*

***External Awards**: Boris Pregel Award, Applied Science and Technology, 1985; R.W. Wood Prize, Optical Society of America, 1989*

***IBM** Internal Awards: Adiabatic Following, 1974; Two-Photon Vector Model, 1977; Optical Pulse Compression, 1984; Pico-second Measurement Technique for VLSI, 1987*

***Motto**: "Don't Give Up."*

In 1993, a financial crisis occurred at IBM, and many engineers had to leave. Looking again to the future, Dr. Grischkowsky convinced IBM to donate his laboratories to Oklahoma State University after three months of negotiations. "I convinced them that this program is important; you like this program, and the problem is just the time scale," said Dr. Grischkowsky. "If you donate the laboratories to Oklahoma State, then I can still continue the research program, and we can work together." After the complicated task of packing delicate high technology scientific equipment and moving it halfway across the country, the research laboratories were transferred to OSU in 1993 along with a research associate from IBM. Hitting the red dirt of Oklahoma, it took six months to get the laboratories operational here at OSU. As promised, a joint program with IBM continues to this day.



Why OSU? Dr. Grischkowsky came to OSU because his work is his passion, and OSU opened the door for him. His work is truly multidisciplinary, overlapping with electrical engineering, physics, and even chemistry. Bringing cutting edge research techniques to OSU has permitted Oklahoma to become a world leader in research in ultrafast optoelectronics. The ultrafast optoelectronics group has grown to three faculty members, which includes Alan Cheville and Weili Zhang. Unlike most research universities, they have a big group of undergraduates associated with their lab. Alan Cheville is particularly involved with some of the incoming freshmen and research scholars coming in. They try to have about ten undergraduates and build and grow them up into graduate students. They want the students to obtain their masters and PhDs. According to Dr. Grischkowsky, the department has been a fertile place for this area.

"My fascination [in] this area is that it gives you the ability to study things that will cause problems in the future. It allows you to look beyond the generation that we're in to future capabilities."
- D. Grischkowsky

They have had a certain amount of success in opening up the terahertz frequency range, which falls between the well established fields of optics and electronics. Dr. Grischkowsky says the main goals of the research are to open up this frequency band for new technologies. Science is continually developing ways to see things more clearly, increase resolution and measure things with greater and greater accuracy. The research on ultrafast optoelectroncs allows them to measure the heartbeat of nature with finer precision.

Dr. Grischkowsky loves his work. To him it is extraordinarily satisfying to have designed an experiment, or bring in new technical innovations. He says, "You nurse it from babyhood, and you develop it to find out that it works. It overlaps with music and art, because it can be enormously creative."

When asked what his advice is to other students in engineering, he replied that individuals have to hang in there, not to worry about the managers who give you trouble and not to give up.

Photonics is Everywhere

Photonics is the technology of light or photons, as electronics is the technology of electrons. Photonics is an interdisciplinary union of optics and electronics and makes use of the techniques found in the traditional disciplines of chemistry, physics and electrical engineering. This combination of several different branches of science and engineering helps people transfer the science of optics into the realm of traditional electronics.

Light particles, or photons, are “lighter and faster” than electrons, and devices which use photons for communication or computing can operate at higher speeds than their electronic counterparts. Thus the great interest for using light for some of the roles have been traditionally filled by electronics. A well-known example is the optical fiber, which forms the backbone of the internet; optical pulses carry data at much higher densities than could be accomplished by electrical signals traveling along wire. Today, photonics is used in such areas as telecommunications, computer chip fabrication and semi-conductor lasers, which are used in producing CD and DVD players.

Oklahoma State University has developed the strongest photonics program in the state. The degree program is the only one of its kind in Oklahoma and one of the few comparable programs nationwide. The degree program centers around the OSU Center for Laser and Photonics Research (CLPR). By getting a degree in photonics, students get a balance of basic and applied research through multidisciplinary collaborations with the departments of physics, chemistry and electrical and computer engineering. Such interdisciplinary collaborations enhance the generation of new knowledge in fields of science and technology and aid in the transfer of this knowledge into technological applications.

The graduate program in photonics enables students to pursue either the Master of Science (M.S.) or Doctor of Philosophy (Ph.D.) degree in photonics with a specialization in chemistry, electrical engineering, physics or biophotonics. It also permits students to choose from a broad array of research topics.

There are many benefits in studying photonics. According to Dr. Jerzy Krasinski, the technology sector has been laying off engineers in large numbers. However, people working in photonics are finding jobs without problems, because many engineers need these specialists. Dr. Krasinski said that offers for jobs in this field are generous, and salary is on the higher side of engineering.

In an interview with graduate student, John Kernal, he explained that this is a great program if one wants to work in industry, because there is freedom in the classes students

*Please see **PHOTONICS**, page 9*

VITALS

Name: Katrina McClatchey

Date of Birth: February 1, 1979

Family: mother, Saroeun McClatchey; sisters, Kim Smith, Nikki Bruner, Tanya Klekot, Nira Frederiksen, Calina Carter; brother, Erik McClatchey; fiance, John Ockman, Jr.

Present Position: first-year law student

Education: BS -- Electrical Engineering, Minor in Mathematics

Hero: Kati's mother

Leisure Activities: Spending time with family and her fiance.

Memberships: OSU -- IEEE, Eta Kappa Nu, Tau Beta Pi, Alpha Phi Omega. OU -- Intellectual Property Society.

Awards: OSU -- Valedictorian scholarship, CEAT scholarship HKN scholarship, Wentz scholarship, Sprint scholarship; graduated Cum Laude, Freshmen Research Scholar; OU -- Nathalie Pierrepont Comfort Scholar ship

No Boundaries

Many studies have shown that having parents with little or no educational experience makes it statistically more challenging to succeed in college. One of last year's graduates in electrical and computer engineering has proven what happens when statistics come face to face with a determined individual. Katrina McClatchey, better known as Kati, graduated with honors from OSU, and has gone on to new challenges at the University of Oklahoma College of Law.

Kati, the youngest of seven children, had an American father who never made it past middle school, and her Chinese mother who never attended school. Life was difficult at times for Kati and her family, especially after her father passed away when she was seven years old. However, determination runs in Kati's family, Kati and all six of her siblings went on to attend college.

Kati started her college career here at Oklahoma State University by entering the engineering program in 1997. Kati attributes much of her success in college to the Freshman Research Scholars program. This scholarship program gives students plenty of hands-on research experience; Kati's mentors in the program were Dr. Dan Grischkowsky and Dr. Alan Cheville. Kati mentioned that Grischkowsky and Cheville were "incredibly supportive," and that she "learned so much from them, it was very beneficial." She received her degree in Electrical Engineering, with a minor in Math, in May of 2001.

Kati chose this program because of her love of math and science, and she also had three older sisters that attended OSU's Electrical Engineering program. According to Kati, her older sisters were extremely encouraging and supportive. With her natural talents and great determination, there were many options open to Kati on graduation. Her decision was to attend law school.

"By being a patent attorney, I can use my engineering education to help others realize their goals and dreams...The whole concept is very exciting to me."

- K. McClatchey

We asked Kati several questions about her time as a student at OSU and why she chose the career path she did.

Why law school? The reason Kati decided to become a patent attorney is so she can help

*See **KATI**, page 9*

The Next Generation

Student Activities and Organizations

Eta Kappa Nu

Eta Kappa Nu is the only international honor society for Electrical and Computer Engineers. Each fall, they invite the best and brightest of junior and senior classes to excellency and an opportunity for scholarship in the membership, as well as to helping others in the ECEN program to attain these goals. This is accomplished by offering tutoring to students in Circuits, Networks and Methods I and II. Look for signs specifying tutoring times soon.

They also recognize an outstanding professor at their annual induction banquet. This year's winner was Dr. Keith Teague. Three Naeter Scholarships are awarded each semester based on scholarship and service to the department. It is made possible by a scholarship dedicated to Albrecht Naeter, who served as Department Head from 1928 to 1959. Last fall's winners were Scott F. Wise, Amit Sharma and Bryan McLaughlin.

Institute of Electrical and Electronics Engineers

Look us up on our web site at
http://ekids.okstate.edu

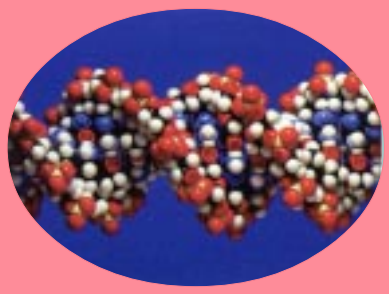
The OSU Institute of Electrical and Electronics Engineers (IEEE) student chapter has had a remarkable semester last fall. Membership for the year of 2001-2002 is at a record high of 115 members! OSU-IEEE is active and undertaking various college and community events. On Nov. 9, fifteen OSU members attended Mrs. Judy Nelson's class at Stillwater Middle School to promote engineering principles to fifth grade students. This event was the reincarnation of the *Engineering Kids* program for what OSU-IEEE and Seagate Technologies have teamed up to undertake. Several hands-on projects were performed with the students including disassembling a computer, constructing a simple motor, and making a battery from potatoes.

OSU-IEEE president Bryan McLaughlin said, "We wish to build a program that excites all fifth grade students in the surrounding area with engineering. We would like to see all disciplines of engineering students involved." OSU representatives are attending classrooms every Friday at nearby elementary schools.

In addition to this remarkable program, OSU-IEEE has also reached out to freshmen students at OSU. Freshmen students were offered the opportunity to participate in a hands-on electrical and computer engineering project. The students constructed a flashing circuit from basic components. The goal of this project was to expose students with undecided majors about electrical and computer engineering.

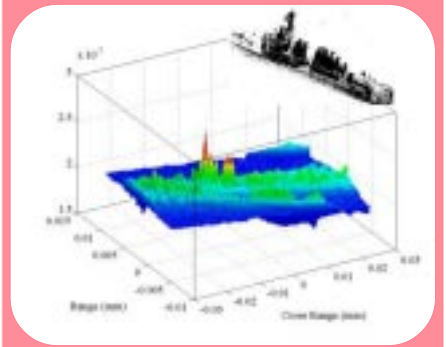
OSU-IEEE is seeking corporate sponsorship for this and other events. OSU-IEEE Public Relations director Chris Quible said, "Companies that sponsor us allow us to make these events possible. We are very grateful to them and so are the elementary students."

- By Bryan McLaughlin
IEEE President



Genetic "survival of the fittest" idea, used to optimize neural-fuzzy networks.

Lena image and its 3-scale wavelet transform.



THz synthetic aperture impulse radar image of a 1:2400 scale Arleigh Burke class destroyer.

Research & Scholarship (Fall 2001)

Papers Appeared in Print

R. Mendis & **D. Grischkowsky**, "THz Interconnect with Low Loss and Low Group Velocity Dispersion," IEEE Microwave and Wireless Components Lett., Vol. 11, pp. 444-446, Nov. 2001.

J. O'Hara & **D. Grischkowsky**, "Quasi-Optic THz Imaging," Optics Letters, Vol. 26, pp. 1918-1920, Dec. 1, 2001.

M.T. Reiten, K. McClatchey, **D. Grischkowsky & R.A. Cheville**, "Incidence Angle Selection & Spatial Reshaping of THz Pulses in Optical Tunneling," Optics Letters, Vol. 26, pp. 1900-1902, Dec. 1, 2001.

Tae-In Jeon, **D. Grischkowsky**, A.K. Mukherjee & Reghu Menon, "Electrical & optical characterization of conducting poly-3-methylthiophene film by THz time-domain spectroscopy," Appl. Phys. Lett., Vol. 79, pp. 4142-4144, Dec. 17, 2001.

K. McClatchey, M.T. Reiten, **R.A. Cheville**, Time resolvedsynthetic aperture terahertz impulse ranging, Appl. Phys. Lett., vol. 79, no. 27, pp. 4485-4487, 2001.

G. Fan & X.G. Xia, "A Joint Multicontext and Multiscale Approach to Bayesian Image Segmentation," IEEE Trans. on Geoscience & Remote Sensing, Vol. 39, No. 12, pp. 2680-2688, Dec. 2001.

G. Fan & W.K. Cham, "Post-processing of Low Bit-rate Wavelet-based Image Coding Using Multiscale Edge Characterization," IEEE Trans. on Circuits & Systems for Video Technology, Vol. 11, No. 12, pp. 1263-1272, Dec. 2001.

C. Radzewicz, P. Wasylczyk & **J.S. Krasinski**, "Generation & Diagnostics of Femtosecond Light Pulses," Optoelectronics Review, 9, 308, 2001.

S.J. JA, **J.C. West**, H. Qiao and J.H. Duncan, "Mechanisms of Scattering from Spilling-Breaker Water Waves," Radio Science, Vol. 36, No. 5, pp. 981-998, Sept. 2001.

P. Meesad and **G.G. Yen**, "An effective neural-fuzzy paradigm for machinery condition health monitoring," IEEE Transactions on Systems, Man and Cybernetics, Part B: Cybernetics, Vol. 31, No. 4, Sept. 2001, pp. 523-536.

P. Meesad and **G.G. Yen**, "Constructing a fuzzy rule-based system using the ILFN network and genetic algorithm," International Journal of Neural Systems, Vol. 11, No. 5, Oct. 2001, pp. 427-443.

Research Contracts Awarded:

C.G. Hutchens, $24,000, Haliburton Energy Services, "Quartz Resonator Based Pressure Measurement System for Downhole High Temperature Applications."

C.G. Hutchens, $355,732, U.S. Navy SPAWAR Systems Center, "Assignment Agreement with the U.S. Navy."

J.S. Krasinski, $165,000, Office of Naval Research, "Innovative Nanotechnology in Wide Gap Photonic and Electronic Materials and Devices."

J.S. Krasinski, $108,693, Office of Naval Research, "Innovative Nanotechnology in Wide Gap Photonic and Electronic Materials and Devices."

M.T. Hagan, $5,000, Halliburton Energy Services, "Dynamic Sensor Calibration with Neural Networks."

K.A. Teague, $40,000, Raytheon Company, "Spatial/Temporal DSP Research and Implementation on an Embedded Multi-Processor System."

J.M Chung, $100,000, Oklahoma Center for the Advancement of Science and Technology, "Hybrid Wireless and Wired Networking Systems."

J.C. West, $102, 193, Office of Naval Research, "Breaking wave Scattering Calculations."

Professional Service:

Gary G. Yen was elected to serve as an ***Associate Editor*** in the Adapative and Intelligent Control area for IFAC *Automatica* and as an ***Associate Editor*** for the *IEEE Transactions on Control Systems Technology*.

On the Shoulders of Giants

Father of the PC

Winner of the 2002 Lohmann Award

What if everyone had a personal computer? That's the question Ed Roberts, the recently acknowledged "Father of the Personal Computer," asked himself after graduating from OSU with a bachelor's degree in electrical engineering in 1968. At that time, the idea of owning a personal computer seemed more like science fiction than reality.

But Roberts based his revolutionary idea on his experience at OSU, where engineering students had open access to the university's mainframe computer to complete their homework assignments.

"OSU's open policy was really a bold idea at the time," says Roberts, who is now a doctor of internal medicine in Cochran, Ga. OSU was one of the few universities that gave undergraduates direct access to the school's mainframe computer instead of making them submit programs to white-coated operators who were the only ones authorized to touch the precious machines."

As an OSU student, Roberts had access to the IBM 1620 located on the first floor of Engineering South. "We just signed up and used it as much as we wanted," he says. "There was never any problem as far as I know with the computer being damaged or abused. Everyone took care of it like it was their own."

"...that's the trick to being successful - doing something you enjoy."

- E. Roberts

Roberts attended OSU as part of the Air Force's Airman Education Commission Program. The Miami, Fla., native chose OSU because his brother-in-law had completed an electrical engineering degree several years earlier and recommended OSU. Roberts originally planned to study medicine, but got "sidetracked" with the Air Force and raising a family, and by the time the Air Force sent him to OSU, he was past the age limit for medical school.

After graduating from OSU, Roberts was assigned to Albuquerque, N.M., as a research officer working on "special weapons," which at the time were top-secret laser weapons. While serving as a commissioned officer in Albuquerque, Roberts started his own company called Micro Instrumentation Telemetry Systems. MITS produced the first desktop calculators and introduced the Altair 8800, the first inexpensive general-purpose microcomputer. It used Intel's new 8080 microprocessor, which, unlike the logic chops that animated calculators or electronic watches, could be programmed to do a significant number of tasks.

When Popular Mechanics featured the Altair on its January 1975 cover, phone calls poured in from people wanting to sell him software. "We decided that the first person to show up with operating software would be the one we hired," says Roberts, who consequently hired Bill Gates and Paul Allen to write a basic programming language that could run on the small machine.

"People laughed at us when we said we were building desktop computers," Roberts says. Yet before Roberts sold the company in 1977

to Pertec, MITS sold approximately 50,000 Altairs. Dr. Bill Hughes, who had been head of OSU's electrical engineering department, stayed in contact and even introduced him to others in the field. "He really kept up with his students and continued to be an asset and a source to students even after they graduated," Roberts says.

During the sale of MITS, Roberts served as vice president of Pertec and headed a research division that developed the idea for the laptop computer. Pertec didn't foresee any potential for the product, Roberts says, "so I figured it was time for me to go somewhere else." Roberts had signed a five-year, non-compete clause when selling MITS, so he decided to switch gears and began producing cattle, hogs, corn and soybeans in southern Georgia. "I had always had a big garden," says Roberts, "but the allure of being a full-time farmer took about 10 seconds to wear off."

Because age limits no longer affected eligibility for medical school, Roberts then turned his attention to his lifelong dream of becoming a physician and earned a medical degree in 1986 from Mercer University in Macon, 35 miles northwest of Cochran. He is now one of five physicians serving the small community.

Like millions of people around the world, Roberts uses computers daily at his home, his office and even in each of his examination rooms. "We expected personal computers to become fairly ubiquitous," Roberts says. "I was considered a wide-eyed optimist, but I didn't realize how big it would become."

Roberts says he gets no particular gratification from the fact that his idea for the personal computer has become such a huge success. "It's been such a gradual evolution that a lot of the excitement has gone out of it," he says, "and for years and years, no one realized what we had done. Now people have been researching it and they see where the first personal computer really came from." Roberts envisions the next revolutionary leap of technology will involve the Internet and computers. "I think there will be applications that we can't even anticipate now," he says.

Roberts, who invented a basic relay computer for the heart-lung machine, still tinkers with computers in his machine shop. Most of his work relates to medical applications and involves software rather than hardware. "I've always loved computers," he says. "For me, working with them has been an avocation, rather than a vocation. That's the trick to being successful – doing something you enjoy."

- By Janet Varnum
OSU Magazine editor

PHOTONICS, *from page 4*

can choose from. Kernal said, "You basically pick what area you want to work in when you graduate, and you take classes to tailor to that area." When asked why Kernal chose to study photonics, he replied, "What attracted me to it when I first saw the degree sheet is that you take classes from those three subject areas [chemistry, physics and electrical engineering]; you learn the same thing, but from different viewpoints. So I think you have a really, really good understanding of what you're learning."

KATI, *from page 5*

out other engineers in the area of intellectual property, and at the same time use her engineering background. She decided that being a patent attorney would be a good match for her skills and life goals. She felt capable of learning a technology, and then writing explanations in general terms of how it worked and what it could be used for (which are main components of patent applications). "I wanted to encounter new and different things throughout my career, as well as work with people of all walks of life and see what amazing things they can come up with. By being a patent attorney, I can use my engineering education to help others realize their goals and dreams… You help them realize the scope of their ideas, and you try to get them as much credit as possible. That can mean a lot to people[…]it gives them a chance to share their knowledge and ideas with others. They get to have the joy of seeing their inventions put to use and benefiting others. The whole concept is very exciting to me."

continued on page 11

Notes & Notices

New Faculty

Charles F. Bunting

Dr. Bunting was born in Virginia Beach, VA in 1962. He was employed at the Naval Aviation Depot in Norfolk, VA as an apprentice, an electronics mechanic and an electronics measurement equipment mechanic from 1981-1989. He received his A.A.S. in Electronics Technology from Tidewater Community College in 1985, the B.S. degree in Engineering Technology with highest honors from Old Dominion University in 1989. He received the M.S. degree in Electrical Engineering from Virginia Polytechnic Institute and State University (Virginia Tech) in 1992. From 1991-1994, he held a Bradley fellowship, and in 1994 he was awarded the Ph.D. in Electrical Engineering from Virginia Tech. From 1994 to 2001, Dr. Bunting was an assistant/associate professor at Old Dominion University in the Department of Engineering Technology where he worked closely with NASA Langley Research Center on electromagnetic field penetration in aircraft structures and reverberation chamber simulation using finite element techniques. In the Fall or 2001 he joined the faculty of Oklahoma State University as an associate professor. His chief interests are fundamental variational principles and computational electromagnetics, statistical electromagnetics, electromagnetic characterization and application of reverberation chambers, and the analysis of optical and microwave structures using numerical methods including finite element techniques. Dr. Bunting is a member of Tau Alpha Pi, Phi Kappa Phi and Alpha Chi. (http://ece.okstate.edu/cbunting/).

Charles F. Bunting
Associate Professor
Electromagnetics

Guoliang Fan

Dr. Fan was born in Xi'an, China. He received his B.S. degree in Automation Engineering from Xi'an University of Technology, Xi'an, China, in 1993, the M.S. degree in Computer Engineering from Xidian University, Xi'an, China, in 1996, and the Ph.D. degree in Electrical Engineering from the University of Delaware, Newark, Delaware, in 2001. From 1996 to 1998, he served as a teaching assistant in the Department of Electronic Engineering at the Chinese University of Hong Kong. He was awarded the First Prize of 1997 IEEE Hong Kong Section Postgraduate Student Paper Contest, and he is also the recipient of the First Prize of 1997 IEEE Region 10 (Asia-Pacific) Postgraduate Student Paper Contest. Dr. Fan is currently an Assistant Professor in the School of Electrical and Computer Engineering at Oklahoma State University, and the Director of Visual Communication and Image Processing Laboratory (VCIPL). His research interests are signal/image/video processing and Multimedia. Dr. Fan is a member of the IEEE and Tau Beta Pi.

Guoliang Fan
Assistant Professor
Signal & Image Processing

Rafael Fierro

Dr. Fierro obtained his MSc. degree in Control Engineering from the University of Bradford, England, and his Ph.D. in Electrical Engineering from the University of Texas at Arlington, in 1990 and 1997 respectively. He is currently and Assistant Professor at the School of Electrical and Computer Engineering, Oklahoma State University. He works in the areas of hybrid systems, embedded software, adaptive networks of distributed mobile sensors, and robotics. Before coming to OSU, he was a Postdoctoral Fellow at GRASP Laboratory, University of Pennsylvania, where he worked on projects related to vision-based multi-robot formation control, embedded software for automotive applications, and nonlinear networked control systems. He is a former Fulbright Scholar and a member of the IEEE.

Rafael Fierro
Assistant Professor
Robotics & Control

Yumin Zhang
Assistant Professor
VLSI

Yumin Zhang

Dr. Y. Zhang received his Ph.D. in 2000 from University of Minnesota. Dr. Zhang previoulsy served as a member of technical staff in "Institute of Semiconductors, Chinese Academy of Sciences", where his research interests included low-dimensional semiconductor heterostructure characterization and quantum electronic device simulation and testing. He also received an internship at the Honeywell Technology Center, designing and testing of free space optical interconnection by means of Vertical Cavity Surface Emitting Lasers (VCSELs) with photodetectors. His diverse academic background and research experience enable him to work on projects in the areas of semiconductor microelectronics and optoelectronics, mixed signal VLSI design, RF and microwave system, and mechanical, chemical and electromagnetic sensors.

Weili Zhang
Associate Professor
Photonics

Weili Zhang

Dr. W. Zhang has received the B.S. degree in laser science, and M.S. and Ph.D. degrees in optical engineering from Tianjin University, China, in 1987, 1990 and 1993, respectively. From 1993 to 1995, he was a Postdoctoral Research Associate in the Department of Physics, the Hong Kong University of Science & Technology, Hong Kong. From 1995 to 2000, he served at Tianjin University where he was a professor in the Department of Optoelectronic Information Engineering and Deputy Director. Since 2000, he has been with Oklahoma State University as a Visiting Associate Professor in the Department of Electrical and Computer Engineering. His research interests include ultrafast lasers and phenomena, THz optoelectronics, semiconductor physics, and time-resolved spectroscopy. He has received China's Hundred-to-Thousand Outstanding Scientist Award Program and the First Young Teacher Prize from the Ministry of Education, China. He is a member of the IEEE, American Physical Society, Optical Society of America and Chinese Optical Society.

KATI, *from page 9*

What was your biggest challenge? In engineering school, the biggest challenge for Kati was maintaining a balance: classes, studying, working, free time…life. "It's hard not getting too caught up in one thing or another." For Kati, trying to balance and making time for everything is essential, but more importantly, she makes sure that she is enjoying life.

What advice do you have to offer to other students? "In all your classes, stay focused and dedicate yourself to what you're doing, and take in as much as you can because it will be over before you know it. Try to get as much hands-on experience as you can, and do so in as many different areas and levels of difficulty as you can. I think this type of experience shows how everything comes together."

Midwest Symposium on Circuits and Systems

45th IEEE MWSCAS Conference

August 4-7, 2002 - Tulsa, Oklahoma

http://www.mwscas.org

The 2002 IEEE International Midwest Symposium on Circuits and Systems is the 45th symposium of the longest line of Circuits and Systems symposiums sponsored by IEEE. This year the symposium will be held at the Oklahoma State University campus in Tulsa, Oklahoma just blocks from downtown Tulsa. The conference hotel will be the Adams Mark Hotel of Tulsa.

MWSCAS will provide both tutorials (half-day or full-day sessions designed to introduce important topics to people with little or no background in those topics) and short courses (half-day or full-day sessions on new areas or advanced topics aimed at experts in the field).

Technical Program: The following list of topics will be covered: Analog Circuits & Signal Processing; Digital Circuits & Computer Arithmetic; Programmable Logic, VLSI, CAD & Layout; Communications Networking; Wireless Communications Systems; Neural Networks & Control Systems; Digital Signal Processing; Digital Signal Analysis; Power & Energy Systems & Power Electronics; RF, Microwave & Optical Circuits & Systems; Education.

The other activities of the symposium include a student paper contest, book exhibits by some of the book publishers, exhibits from industrial companies and a job fair.

General Chair: Michael A. Soderstrand
Co-Chair: Rao Yarlagadda
Technical Program Chair: Keith Teague

Papers Due June 1, 2002 ***(Note: Special Sessions and Tutorials due May 1, 2002)*** Paper submissions are now open.

Oklahoma State University
School of Electrical and Computer Engineering
212 Student Union
Stillwater, OK 74078