

The Downlink



Albuquerque Section

IEEE Albuquerque Section Newsletter

Newsletter Editor

Simon Barriga, Ph.D.
sbarriga@ieee.org

Welcome!

Thanks to the IEEE members who contributed to the content of this edition. Please send your comments and articles to the address above. Have a great holiday season!

GOLD Continues Its Presence in Albuquerque

What is GOLD? That is a question we get constantly. GOLD stands for Graduates of the Last Decade and is an affinity group that promotes continuing membership in IEEE after graduation and organizes regular meetings as well as community and technical-related activities. At the monthly meetings, members get to know each other, learn about other members' interests and activities, organize activities, and enjoy excellent food courtesy of the IEEE Albuquerque Section. The group has organized a tour of the Aquarium's life support systems, participated as volunteers at two annual Solar Fiestas, and is initiating its participation at Habitat for Humanity construction sites. If you would like to know more about GOLD and participate in our group's activities, contact Gilberto Zamora, GOLD's chair, at gzamorac@hotmail.com.

Winner of the IEEE Award at the Intel Science Fair Makes National Headlines

For those of us who were judges at the Intel Science Fair held recently in Albuquerque, George Hotz, the winner of the IEEE President's Award, struck us as an intelligent, engaging, and hardworking character. We knew he would achieve some fame in the future. We just didn't know it was going to be so soon!

On Aug. 21, Hotz announced on his blog that he, along with four collaborators, had unlocked the iPhone, allowing it to be used with any SIM card. He later posted the 10-step method on his blog. Although other purported unlocks appeared earlier, Hotz claims his to be the first to allow full functionality of the iPhone with almost any GSM wireless carrier without any external hardware, although the process requires

experience with soldering and software. Hotz estimates that he spent more than 500 hours working on the unlock. He said his primary aim was to enable other users to easily unlock their own iPhones.

According to his blog, Hotz traded his unlocked iPhone to Terry Daidone, the founder of Certicell, for "a sweet Nissan 350Z" and three 8GB iPhones.

Hotz has received considerable attention in mainstream media, including interviews on the Today Show, FOX, CNN, NBC, CBS, G4, ABC, CNBC, and articles in several magazines, newspapers, and websites, including Forbes, BBC and CNN. The Forbes article said Hotz hopes to go into neuroscience: "hacking the brain," he called it.

Once again, congratulations, George!

IEEE Tour to the Reeves Power Station

IEEE members are invited to a tour of the Reeves Power Station on Monday, Oct. 22, at 8 a.m. Thanks to Nikin Patel for the coordination of the tour. If you want to register or need more information about the tour, please contact Nikin at Nikin.Patel@avistarinc.com.

The Reeves Generating Station tour will cover all aspects of power generation. Main topics of interest at the visit are boilers, boilers air flow, steam flow, turbines, cooling, and generators. The tour will take the visitors through the station and show how natural gas is taken into the boiler to create steam. This steam is used to turn turbines which are coupled to generators. The generators then create the electricity that can be distributed to the consumers. There will also be a tour of the water cooling towers. The tour will take between 45 minutes to an hour and a half, depending on the amount of questions asked during the visit.

GOLD at the Solar Fiesta

The Albuquerque Section of IEEE GOLD (Graduates of the Last Decade) participated in the 2007 Solar Fiesta on Sept. 15 and 16. The Solar Fiesta is the annual event organized by the New Mexico Solar Energy Association (www.nmsea.org) to showcase the different technologies to use solar energy in commercial as well as residential settings. This year's Fiesta was held at Highland High School. GOLD's members Sunny Wilson, Marlene Brown, David Peters, Steven Glover, and Chethan Parameswariah participated as volunteers helping before and during the event at the different booths and exhibitions. In one of the exhibits, members helped explain basic solar energy demonstrations to the Fiesta attendees. This is the second year GOLD collaborated with the New Mexico Solar Energy Association at the Fiesta as one of the group's community-related events. Expect to see GOLD's members at these and other events that promote the use of renewable energy in New Mexico. If you want to participate in GOLD, please check out our announcements in the Albuquerque Section webpage or contact Gilberto Zamora at gzamorac@hotmail.com.

IEEE Fellow Sajjad Durrani was in Albuquerque on Sept. 27-28 to receive the UNM School of Engineering's Distinguished Engineering Alumnus Award.

Currently based in Maryland, Dr. Durrani is a consultant to the Department of State, the FCC, and the United Nations, among others. His

satellite communications the following day at UNM's Department of Electrical & Computer Engineering, from which he received his doctor of science degree in 1963. He traced development of commercial satcom systems over the last 45 years and described some of the existing and proposed systems for serving fixed and mobile users, their interaction



Electrical Engineer Earns UNM Distinguished Alum Award

impressive career includes management of research in satellite communications at NASA, and he has taught courses on satcom in 25 countries.

The UNM School of Engineering presented its award to Dr. Durrani during a dinner and engineering alumni reunion at the UNM Student Union Building on Sept. 27.

Dr. Durrani presented a talk about

with terrestrial systems, and the basic technologies involved. He also talked about market and regulatory issues as well as major trends and potential capabilities.

The talk was at 3 p.m. and was part of the ECE Department's graduate seminar series.

New Faculty Broaden Scope at UNM Electrical & Computer Engineering

Professor Rafael Fierro has joined ECE's Systems and Controls Group and has already formed UNM's new Multi-Agent Robotics, Hybrid and Embedded Systems Laboratory. MARHES is dedicated to research and education in hybrid and embedded systems and robotics. Dr. Fierro and his group are also developing robotic games with the goal of stimulating the interest of children and increasing their appreciation for science, math and engineering.

Dr. Fierro held a postdoctoral appointment at the University of Pennsylvania and a faculty position with Oklahoma State University's ECE Department prior to joining ECE at UNM. He received a Fulbright scholarship and a 2004 NSF CAREER award, and in 2006 was elected Professor of the Year by the student chapter of Eta Kappa Nu at OSU.

New Faculty at UNM (Cont.'d)

Professor Nasir Ghani is a senior member of IEEE, for which he has co-chaired various international conferences. He studied hybrid multi-domain cyber-infrastructures at Tennessee Tech, where he also established an undergraduate telecom research program and developed courses in networking. He also contributed to the design of a proposed optical backbone for Tennessee. Prior to his academic career, Dr. Ghani spent six years in industry, holding positions as a senior system architect at Sorrento Networks and as a senior research engineer at Nokia.

Professor Jamesina Simpson joins ECE's Applied Electromagnetics Group. She received the Best Dissertation Award from the EECS Department at Northwestern University for her 2007 doctoral dissertation. She has used the finite-difference time-domain solution of Maxwell's equations to develop novel ultrawideband waveguiding interconnects for ultrahigh-speed digital data buses, study geophysically induced ultralow-frequency and extremely

low-frequency electromagnetic phenomena in the Earth-ionosphere waveguide, and investigate optical interactions with living tissues. Dr. Simpson was awarded the NSF Graduate Research Fellowship while at Northwestern, as well from IEEE's Antennas & Propagation Society and IEEE's Microwave Theory and Techniques Society, among others.



Professor Jamesina Simpson



Professor Rafael Fierro



Professor Nasir Ghani



UNM Course Gives Overview of Electrical Energy

With a new course titled "Survey of Power Systems," senior and graduate-level students can now gain a wide perspective on the various aspects of electrical energy—from generation options (thermal, nuclear, solar, wind, etc.) and voltage translation (transformers) through energy transmission systems to distribution.

Economic aspects of the electrical utility industry are also discussed in this new course, which is being offered this semester at UNM's Electrical and Computer Engineering department.

To help bring a real world flavor to the course, outside speakers from Public Service Company of New Mexico, UNM, and Los Alamos National Laboratory are included, as well as several tours of electrical energy systems.

"Survey of Power Systems" was designed and is taught by Edward D. Graham, Jr., Ph.D., P.E. Before joining ECE at UNM, Dr. Graham was director of Operations and Engineering at Sandia National Laboratories and, most recently, president and CEO of SEMI-SEMATECH in Austin, Texas.



10983 Granada Lane • Chalfont Park, IA 50511
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IEEE

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18 Distinguished Public Talk: "Physics and Music"

Prof. George Gibson, University of Connecticut, Storrs, CT
5 p.m.
UNM Conference Center,
1634 University Blvd. NE

30 GOLD Meeting

7 p.m. to 8:30 p.m.
Contact: Gilberto Zamora
gzamorac@hotmail.com

31 IEEE Board Meeting

11:30 a.m. to 1 p.m.
Yanni's
3109 Central Ave. NE
Contact: Ray Byrne
rhbyrne@sandia.gov

8 Distinguished Public Talk: "The Odyssey of a Vindicated Whistle-blower"

Professor Adam Finkel, Princeton University, Princeton, NJ
5 p.m.
UNM Conference Center,
1634 University Blvd. NE

27 GOLD Meeting

7 p.m. to 8:30 p.m.
Contact: Gilberto Zamora
gzamorac@hotmail.com

28 IEEE Board Meeting

11:30 a.m. to 1 p.m.
Yanni's, 3109 Central Ave. NE
Contact: Ray Byrne
rhbyrne@sandia.gov

6 Distinguished Public Talk: "Life in the Age of Risk Management"

Prof. Kimberly Thompson, Harvard Medical School, Boston, MA
UNM Conference Center,
1634 University Blvd. NE



Dr. Rush Robinett gave a talk titled "Energy and Infrastructure Future" at the Aug. 29 Albuquerque Section meeting at Four Hills Country Club. Twenty-five members attended the talk. The talk included a brief overview of Sandia National Lab's core purpose as well as an overview of the Energy and Infrastructure Group (which Dr. Robinett heads). The overview included the following departments: Solar Technologies (6337), Wind Energy Technologies (6333), Energy Infrastructure & DER (6336), Fuels and Energy Transitions (6338), Solar Systems (6335), Geothermal Research (6331), and Energy Systems Analysis (6332). The remainder of the talk covered energy surety and microgrids.