

ENGINEERS CLUB OF THE WEST VALLEY

MAY 2011 NEWSLETTER

www.engineersaz.com

The Engineers Club is a social organization which meets regularly for lunch with a speaker on a technical topic. Spouses are invited and many attend regularly. Short field trips are occasionally scheduled. Membership is open to anyone who has worked in or had close ties to the engineering or scientific fields. Meetings are held at 11:30am on the first Friday of each month, October through June, at Briarwood Country Club, 135th and Meeker in Sun City West, Arizona.

Visitors are always welcome -- Reservations are required -- Just call (623)544-0942 to let us know you are coming.

MAY 6 PROGRAM

Lightning Phenomena & Protection

George G. Karady, PhD
Power System Chair Professor
Arizona State University



Lightning strikes again! But what do we really know about it? Our speaker will review the physics of lightning generation and present statistical data on lightning occurrence, types of lightning-caused damage, and the distribution of lightning current. He will describe lightning protection for buildings and electrical transmission lines, and the impact of lightning on the operation of the electrical grid. He will discuss the danger of lightning strikes and how to avoid them, as well as the "miraculous lightning prevention techniques" that have periodically been promoted through history.

Dr Karady received his MSEE and Doctor of Engineering degree in electrical engineering from Technical University of Budapest and is currently the Power System Chair Professor at Arizona State University, where he teaches electrical power and performs research in Power Electronics, High Voltage Techniques and Electric Power Systems. Previously, he served as Chief Consulting Electrical Engineer at EBASCO Services. Earlier, he was Electrical Task Supervisor for the Tokamak Fusion Test reactor project at Princeton and worked for the Hydro Quebec Institute of Research and at the Technology University of Budapest.

Professor Karady is a registered professional engineer in New York, New Jersey and Quebec. Active in many professional organizations including IEEE. He is the author of more than 200 technical papers.

JUNE 3 PROGRAM

Biologically-Coupled Robotics: From Ball Catching to Stroke Recovery Therapy

Dr. Michael McBeath, Arizona State University



Dr.. Michael McBeath along with other colleagues at ASU have studied how humans, as well as dogs, can take in an image of a moving target and perform split-second computations to estimate the speed and direction of that object at any instant. These computations are what allow a person or even a dog to move so as to catch a baseball, for instance. Michael will provide some insight from the results of these studies and how this information may be applied to recovery therapy.

Michael received his PhD in Psychology with a minor in Electrical Engineering from Stanford University in California. He was Assistant Professor, Department of Psychology at Kent State University in Ohio from 1992 to 1998 prior to taking a position with the Department of Psychology at ASU which he has held for the past 14 years.

He has received many Honors and Awards including Who's Who in Science and Engineering in 1994

NOTES FROM...

President Don Block



Advances in Automatic Meter Reading

One of the early approaches to read utility meters was by use of a drive-by system where specialized equipment was installed in a van. It would drive down the street and upon command from the van the meters would "chirp" their data using low power unlicensed radio. Minnegasco (The gas utility in the Minneapolis area) was the key investor in this early technology in the mid 1980's using EF Johnson radios located in the gas meters. This was seen as a great improvement over manual meter readers hopping over fences, getting chased and bitten by dogs, etc.

Later developments incorporated radios in the hand held computers normally carried by the meter readers. By the late 1980's companies were looking at ways to locate fixed collectors to obtain the information previously transmitted to the handheld or drive-by system and other technologies using the power line for communication were developed.

Today, systems not only can collect information from customer meters but many two way systems are available that can communicate directly with the customer's location. In fact, in many cases, it is some of the ancillary capabilities that far outweigh the basic meter reading function. As early as 1993 I studied the use of these evolving customer communication systems to aid in reducing energy theft which was a major expense to utilities (both gas and electric). One major eastern utility estimated that its verified thefts would be about \$3.4M/year. They said they had caught a "professional tamperer" who they convinced to work with them. He pointed out 600 locations that he could remember where he had been hired to tamper with the meter. At the same time a combination west coast utility estimated that theft of service could be as high as \$50M, of which they only recover about \$0.5M or 1.0%.

Many electric utilities that have installed customer communication systems have found a real benefit in isolating the location of an outage, and after repairs are undertaken, ensuring that power has been restored to all affected customers.

As wireless communication systems improve their use in utility customer communication systems will allow even more capabilities and improvements in customer service. Newer AMR systems have imbedded Wi-Fi capability operating in the 2.4GHz unlicensed spectrum. Look at your electric meter. If it isn't already an AMR meter it will be shortly. APS has been upgrading the whole area.

OCTOBER 7

Little Green Bugs
Fueling the Future

Dr. Gary Dirks, ASU

NOVEMBER 4

Engineering Design
in Malawi

Dr. Jan D. Snyder, ASU

2011 OFFICERS

President	Don Block	546-0557
Vice President		
Secretary	Jodie Lawrosky	238-5256
Treasurer	Bob Latvalla	546-7801

COMMITTEE CHAIRPERSONS

Programs	Daryl Lund	271-7337
Membership	Bob Kessler	910-7054
Reservations	Dave Whitehouse	544-0942
Luncheons	Tom Watkins	584-5811
Scholarship	Bill Blackman	214-6550
Scholarship	Don Johnson	975-1657
Scholarship	Don Porter	556-1754
Scholarship	Gerry Montag (Advisor)	546-7963
Member at Large	Les Sherry	975-9081
Newsletter	Bill Harrison	546-4943
Event Support	Ralph Palmer	815-8143
Web Site	David Campbell	518-4871
Publicity	Maurice Hoyt	533-4213
Field Trips	Fred Scheske	556-2892
Past President	Hal Clemett	546-4941

BOARD EMAIL ADDRESS: board@engineersaz.com

TREASURER'S REPORT 3-31-2011

General Fund Balance:	\$6,584.86
Scholarship Fund Balance:	\$3,278.53

LUNCHEON MENUS

May 6: Yankee Pot Roast with Natural Gravy, Broiled Red Potatoes, Chef's Vegetable and Spumoni Ice Cream.
 (Entrée Option: Fruit Plate)

June 3: Beef Stroganoff over Egg Noodles with fresh vegetables and Rainbow Sherbet with a rolled cookie.
 (Entrée Option: Fruit Plate)

RESERVATION POLICY

The cost of the monthly luncheon is \$17.00 per person.
 The reservation deadline is 6PM Monday before the meeting.
 Late reservations cannot be guaranteed the regular meal.
 Call Dave Whitehouse if you cannot keep your reservation.
The full luncheon cost is due for "no-shows" and cancellations after 6PM on the Wednesday before the meeting.

RESERVATIONS Dave Whitehouse (623)544-0942

RAFFLE RESULTS AND DONATIONS

The winner of the raffle at the April meeting was Ken Saelens who received \$103.

WELCOME NEW MEMBERS

Ralph Eide and Neil Mukherjee
Club Membership is 143

NOTICE

Dr. Jan Snyder will be giving a presentation to our club in November on his activities in Malawi, Africa. Jan will be in Africa during the summer months this year and he has set up the following website which describes the mission including pictures for those who may be interested.
 The web site is <www.sustainableltd.org> .

**Sun City West Fire Department Tour
 By Fred Scheske**

Nine members and spouses toured the fire station, with Jared Randall, Scott Dial and Holli Sundeen serving as guides. State-of-the-art Station 102, rebuilt in 2010, is now 75% larger than the original facility built in 1991. The station is manned 24/7 by three shifts of firemen, EMT's and paramedics. Each shift has three paramedics on duty. Eighty percent of all calls received are for medical needs, with five percent of calls related to fires. Each fire station is equipped with a library, fitness center, kitchen, dining area and bunk rooms.

All 9-1-1 calls are sent to Maricopa County Sheriff's Office where they are routed to the appropriate valley city for response. Calls are classified fire or medical need when sent out. While receiving information from the caller, the 9-1-1 operator is typing information which is being transmitted instantly to the city responder. Trucks are on their way as the caller is giving information to the operator. SCW FD has an average response time of four minutes! SCW FD recommends each residence has a key lock box installed to facilitate a responder's entry. The lock box may be purchased from the fire department.

Each fire truck or ambulance has at least one certified paramedic on board while all other personnel are certified EMTs. EMT's and paramedics must be recertified every two years. They study and prepare physically for the tests regularly. The equipment on board each truck allows firefighters to handle any situation encountered including medical needs, fires or auto wrecks.

We can be assured in an emergency that help is only minutes away.



Dr. Paul Johnson, Dean of the Fulton School of Engineering at ASU, receives a certificate of appreciation from Daryl Lund for his presentation on Groundwater and Soil Contamination Assessment and Remediation systems