

ENGINEERS CLUB OF THE WEST VALLEY

FEBRUARY 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.

FEBRUARY 4 PROGRAM

Having Fun With Science & Technology—from detection of explosives to experiences on the Bonneville Salt Flats—applying tech to solve problems
M Bonner Denton, University of Arizona



Bonner Denton is a Professor of both Chemistry and Geosciences, with an established reputation for inventing chemical instrumentation. He and his University team are developing new ion detection technology for sniffing out hidden explosives. Denton is also known for building and driving sports cars to new speed records.

He will present a talk describing how science, technology, and quality engineering can achieve vastly improved performance for both detecting explosives and going fast.

At the age of 14, he built his first car, a chopped and channeled 29A Model Ford, Chrysler hemi-powered with eight two-barrel carburetors. With a picture of the Kenz and Leslie Streamliner (at 255 mph, America's fastest car at that time) on the wall, he and his friends said in 1958 that someday they would race at Bonneville. Denton drag raced a 1954 Chevy-powered Austin Healy when he was 16-19 years old and a Chevy-powered Bocar (AHRA National Champion in 1964 and 1965 in unlimited modified sportscar) when he was 18-21 years old. Today he pilots the World's Fastest Sports Car and holds the Blown Gas Modified Sports Car records for motor classes AA (298.983 MPH) and A (264.007 MPH), and is still learning!

Dr Denton received his Ph.D. from the University of Illinois and has authored over 190 peer-reviewed manuscripts. He has served as President of The Society of Applied Spectroscopy and Chair of the Analytical Division of the American Chemical Society.

MARCH 4 PROGRAM

Creating a Seamless Brain-Computer Interface for control of Artificial Limbs
Dr Stephen Helms Tillery, Assistant Professor Arizona State University



People are fond of saying that the brain is a big mystery. Certainly there are things we don't understand, but there also are a lot of things we do understand: enough that we can harness that knowledge to help create interfaces for controlling external systems. What remains in that regard is basic engineering: what kinds of electrodes will work best, how should they be implanted, where will they be implanted etc. Our group is working on these questions both in a primate laboratory and in humans, and anticipate rapid developments over the next five years.

On the other hand, while we know a lot about how sensory information is processed in the central nervous system, we know less about how to take advantage of that processing to provide, for example, tactile input from an artificial arm. Tactile input would be a key element in moving from an operable but klutzy prosthetic system to a seamlessly integrated system in which an artificial device is perceived as a part of one's body. We are also working on both scientific and engineering issues related to this problem, and I will present some of that work as well.

NOTES FROM...

President Don Block



The Human Genome

I was looking over my latest issue of the MIT Technology Review and came across an interesting article on "The Human Genome, a Decade Later". It caused me to remember the talk we had at one of our meetings from T-GEN, and how they relate to today.

The results of the \$3 billion Human Genome Project took 13 years to complete with the results announced at a White House press conference in June 2000 and published in detail in February 2001. "Originally hyped to be a scientific accomplishment of major proportions we have seen very few visible results to date" the New York Times stated in a front page article on June 13, 2010. They also stated that it had yet to deliver on its promise to find the root causes of many common diseases.

The price of sequencing DNA has dropped from hundreds of millions of dollars per person to mere thousands and has been dropping by a factor of 10 each year. The number of single-gene aberrations known to cause disease has jumped from around 100 to nearly 3,000. There is a growing list of common diseases traced to multiple genetic variants that includes everything from types of blindness, to diabetes and cancer. Studies have linked over 200 genes to cancer – nearly three times the number that had been known before.

Many features of the human genome now seem to suggest that it is more of a moving target than originally thought. Recent studies have emphasized the extraordinary power of DNA regions that do not hold the code for a protein itself, but control the on/off switches that direct the extent to which that protein is actually produced. This has led to a whole new field named epigenetics that is showing how two organisms with identical genetic sequences can have different characteristics because of heritable non-DNA factors.

Much research has been done but much is still to be done. Scientists are still finding fundamental surprises in the way we inherit diseases. Still despite the unknowns, researchers are beginning to use genome data to unravel one of medicine's greatest mysteries – how and why a cell turns cancerous. The gap between the promise of the Human Genome Project and the realization of that promise in the clinic will surely narrow as researchers discern the complex and subtle details of the genome landscape and the conditions that shape it.

WOULD A FLY WITHOUT WINGS BE CALLED A WALK?

APR 1

Soil Remediation

Dr. Paul Johnson
ASU

MAY 6

**Lightning Phenomena
& Protection**

Dr George Karady
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	Jim & Pat Ardis	362-1013
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 12-31-2010

General Fund Balance:	\$5,803.47
Scholarship Fund Balance:	\$2,036.05

LUNCHEON MENUS

February 4: Grilled Chicken Veloute (White Roux) with Saffron Rice, Chef's Vegetable and Rainbow Sherbet with Rolled Cookie. (Entrée Option: Fruit Plate)

March 4: Pork Cutlet Grilled Golden, Buttermilk Mashed Potatoes, Chef's Vegetable and Fudge Nut Brownie with Whipped Cream. (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 January meeting was Sally Morrow who received \$107. The total funds collected to date in support of the Scholarship Fund is 442.50

WELCOME NEW MEMBERS

Bill Carr, Roger Miller and John Rian
Club Membership is 163

Scholarship Student Report

by Dr. Geraldine Montag

Tyler Stannard is the recipient of the Engineers Club \$3,000 scholarship award. He is currently enrolled in Glendale Community College and will attend Arizona State University this fall.

Tyler's chosen field of engineering is Materials Science and Engineering. Because one crucial part of every engineering design project is material selection and as technology increases and more advanced designs progress, many revolutionary projects must wait for suitable materials to be designed. He avows that Materials Science will help him to propel various projects from the drawing board to reality by creating more advanced materials with special qualities. He plans to develop a specialization in radiation shielding.

Tyler's interest in engineering stems from his mechanically inclined father. In Tyler's words, "I always tagged along to help him with the jobs, and thus became fascinated by the physical properties that all of the devices were built upon."

Even after enrolling in 17 credits last fall semester that included four very difficult engineering subjects (Materials, Statics, Dynamics, and Circuits) and working 40 hours a week at Fry's and tutoring math students on the side, Tyler managed to maintain a 4.0 GPA!

Tyler is most grateful for the scholarship. Without the funding provided by the Club members, he stated that he would really be struggling to pay the bills to continue his education.



Gerry and Tyler with his Dad, Christopher Stannard



Gary Miller, Vice President of EcoEmissions Systems receives a certificate of appreciation from Daryl Lund for his presentation on the technology employed to reduce the emissions of large diesel engines.