

# ENGINEERS CLUB OF THE WEST VALLEY

APRIL 2013 NEWSLETTER

[www.engineersaz.com](http://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.

## APRIL 5 PROGRAM

### Neural Control of the Human Hand

Marco Santello, PhD  
Arizona State University



Dr. Santello is Professor and Harrington Endowed Chair in the School of Biological and Health Systems Engineering at Arizona State University. He conducts research on neural control of the hand using complementary approaches, ranging from intramuscular electromyography and transcranial magnetic stimulation to hand kinematics and dynamics. This research has applications to rehabilitation of hand function, neuroprosthetics, and biologically-inspired robotics.

How the central nervous system controls movement has intrigued scientists, engineers, and artists for centuries. The hand sensorimotor system is a fascinating model for studying neural control of movement due to its complex mechanical architecture, intricate networks of sensory receptors, and large number of muscles. The hand also plays a crucial role in activities of daily living but its functionality can be impaired by a wide range of musculoskeletal and neurological disorders. Therefore, understanding hand control mechanisms is important also because of its potential to improve medical intervention to restore hand function. In the laboratory, we have been studying how the brain controls the hand at different scales, ranging from single cells (motor units of hand muscles) to system level (kinematics and kinetics).

Marco will present a review of his work in the context of basic science of motor control (mechanisms) as well as clinical applications including brain-machine interfaces, prosthetics, and robotics.

## MAY 3 PROGRAM

### The Phoenix Valley Light Rail System

Benjamin Limmer, Mgr  
Phoenix Valley Metro



Benjamin Limmer is the Corridor & Facility Development Manager for the Phoenix Valley Metro. He leads the team responsible for developing Valley Metro's capital program including light rail extensions, bus improvement projects, transit centers, park-and-rides and other facilities. Ben received his Bachelor's degree in Public Administration from the University of Northern Iowa and a Master's in Urban Planning, Design and Development from Cleveland State University in Cleveland Ohio.

Ben will present an update on the analysis of future routes and modes of the 37 mile plan that involves Mesa, Tempe, Phoenix and Glendale.

## CLUB SURVEY RESULTS

Les Sherry

Well, it's time to get off the pot and start providing an update on the findings of our survey questionnaire. As you are aware the survey was given to 58 members last year. It provided such a wealth of information concerning member's willingness to support the club, their likes, dislikes and suggestions for improving the club that the board decided to allow all members the opportunity to participate. After spending a long couple of hours developing, testing, compiling and analyzing the questionnaire, I am very pleased with the reception it has received. I will be providing highlights and interesting details in future newsletters. We have 164 members including the 2012/13 rolls. Of those, 119 have so far been given the opportunity to take the survey and 100 have opted to participate. If you want your voice heard, you really should participate. Stay tuned!

**If Fed Ex and UPS were to merge, would they call it Fed UP?**

## RAFFLE RESULTS AND DONATIONS

The winner of the March raffle was Nancy McGeehee who received \$135 and an equal amount was also added to the Scholarship Fund.



Mark Zamoyski receives a certificate of appreciation from Daryl Lund for his presentation on Origins of Multicellular Life

## 2013 OFFICERS

|                |               |              |
|----------------|---------------|--------------|
| President      | Don Block     | 623-546-0557 |
| Vice President | Dave Campbell | 623-518-4871 |
| Secretary      | Lee Roach     | 623-810-7413 |
| Treasurer      | Bob Latvalla  | 623-546-7801 |

## COMMITTEE CHAIRPERSONS

|                 |                 |              |
|-----------------|-----------------|--------------|
| Programs        | Daryl Lund      | 608-250-0659 |
| Programs        | Bob Farrell     | 623-810-5095 |
| Membership      | Bob Kessler     | 623-910-7054 |
| Reservations    | Dave Whitehouse | 623-544-0942 |
| Luncheons       | Hal Clemett     | 623-546-4941 |
| Luncheons       | Tom Watkins     | 623-584-5811 |
| Scholarship     | Len Cohen       | 623-546-3741 |
| Scholarship     | Don Johnson     | 623-975-1657 |
| Scholarship     | Gerry Montag    | 623-546-7963 |
| Member at Large | Fred Scheske    | 623-556-2892 |
| Newsletter      | Bill Harrison   | 623-546-4943 |
| Event Support   | Dick Stout      | 623-815-0985 |
| Web Site        | Dave Campbell   | 623-518-4871 |
| Publicity       | Maurice Hoyt    | 623-533-4213 |
| Field Trips     | Keith Morrow    | 623-546-3080 |
| Past President  | Les Sherry      | 623-975-9081 |

**BOARD EMAIL ADDRESS: [board@engineersaz.com](mailto:board@engineersaz.com)**

## Gravity (PART 3)

(Extracted from: *The Science Behind Alien Encounters*)

by Robert E. Farrell

Recall from the last installment, Podkletnov's work led to the development of a "Gravity Impulse Generator." According to him, the apparatus consists of a quartz glass cylinder (1.5m long and 1m diameter) which can be evacuated, or filled with gas. The magnetic field associated with the outer coil is used to guide, or contain, the discharge. Protruding into the right end of the cylinder is a tube containing liquid gas (N or He) used to refrigerate a charged Yttrium barium copper oxide (YBCO) superconductor compound with a composite crystal structure ( $YBa_2Cu_3O_7$ ). This is a superconducting emitter (cathode) with a 2-Layer YBCO construction. Once the temperature of the YBCO emitter is cooled to superconducting conditions, the inner electric coil is used to produce a magnetic field within it. Through the opposite end of the cylinder, a target electrode (anode) is introduced. A high voltage pulse of the order of several million volts is applied for several milliseconds to the emitter which is a stationary superconducting target. A gravity impulse several microseconds long is ejected from the target end of the apparatus. These gravitational waves exit in a coherent, non-diverging beam. Podkletnov has measured the speed of the impulse to be about 64 times the speed of light. He indicates this wave is capable of exerting tremendous force on anything in the beam path yet **there is no opposing reaction on the apparatus**. It is possible to generate a gravitational field impulse strong enough to punch a hole in a metal plate placed near the outlet. If the discharge rate is too high the gravity pulse has even damaged their equipment.

(To be continued)

## TREASURER'S REPORT 3/18/2013

|                           |            |
|---------------------------|------------|
| General Fund Balance:     | \$5,015.18 |
| Scholarship Fund Balance: | \$3,006.10 |

## LUNCHEON MENUS

**April 5 Entrée #1: Yankee Pot Roast w/Natural Gravy.**  
**Entrée #2: Pan Fried Trout Almandine.**

Both will include Salad, Creamy Mashed Potatoes, Chef's Vegetable and Ice Cream with a Cookie for Dessert

**(Entrée Option: Fruit Plate or Grilled Vegetable Plate)**

**May 3 Entrée #1: Chicken Pot Pie. All-white chicken with peas and carrots in a creamy sauce and baked in a pie to a crisp golden brown.**

**Entrée #2: Baked Cod.**

Both include Salad, Saffron Rice, Peas and Carrots with Peppermint Ice Cream and a Cookie for Dessert.

**(Entrée Option: Fruit Plate or Grilled Vegetable Plate)**

## RESERVATION POLICY

**The cost of the monthly luncheon is \$18.00 per person.**

The reservation deadline is 5 PM 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 5PM on the Wednesday before the meeting.**

**RESERVATIONS Dave Whitehouse (623)544-0942**

## WELCOME NEW MEMBER

Marilyn Pettigrew

**Club Membership is 134**



*Engineers Club Board Members*

**The International Science and Engineering Fair** will be held at the Phoenix Convention Center this year. There will be 1,500 students from over 70 countries competing for millions of dollars in prizes. There is a need for qualified volunteers to be judges on May 14 -15.

Register at <https://apps2.societyforscience.org/isef/judging/>