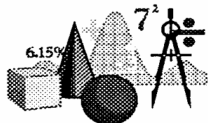




IEEE

SPARKS

IEEE Daytona Section Newsletter
April 2011



FROM THE HIGH CHAIR

The IEEE Region 3 SouthEastCon (SECon) 2011 took place in Nashville, Tennessee March 17-20. From our section, two student teams representing Embry-Riddle and Bethune-Cookman University participated in the Robotics competition during SECon. Also, we have a paper on our section's Small Radio Telescope project presented by our publicity chair, Jeanette Barott. Here is her report on the conference:

"Region 3 meeting during the Southeast Con 2011 in Nashville, TN was focused on preparing the Region 3 suggestions for the Sections Congress to be held in San Francisco in August. The final recommendations to go forward are: improved communications with members, increased K-12 outreach, members without borders (moving away from absolute geographical divisions), and improving member career development services.

"The FL Council met and, among other things, discussed support for SECon 2012 in Orlando and approved the MOU providing the matching funds for the Electrical Safety Workshop in Daytona Beach in January 2012 and designating that 10% of the 33.3% of the profits they will receive be directed to the Daytona Section for the purpose of continuing support of the SRT.

"During the technical sessions, Chris Wright (an ERAU undergraduate student) presented on his research with Drs. Barott and Butka. Jeanette Barott presented on the educational components of the SRT project.

"ERAU and Bethune-Cookman University both participated in a thrilling student hardware competition, in which BC-U placed first in the open division.

"Attendees from the Daytona Section included five ERAU students, three ERAU faculty/staff, two BC-U faculty, and eight BC-U students."

Congratulations to B-CU for placing number one in the open division on their first time participation of the robotics competition!

At our section meeting on Mar. 24, Tracy Wichmann gave an interesting talk on the history of navigation. It is fascinating to know how early navigators used the stars, the winds, the currents, and visual references to find destinations. Also, ancient boat designs actually reveal navigation methods. We also learned that Chinese may have discovered America before Columbus. During our April meeting on April 28, both student teams from ERAU and B-CU will talk about their robotics competition experiences at SECon 2011. I strongly encourage you to attend and see what our students have accomplished!

As a reminder, if you plan to submit a paper to the Electrical Safety Workshop 2012 held at Daytona Beach next year, the deadline for paper submission is May 1, 2011. Detailed information can be found at: <http://ewh.ieee.org/cmte/ias-esw/index.html>.

This is the last Sparks newsletter for the Spring. I hope you all a great summer!

Thomas Yang, Ph.D.

APRIL PROGRAM

STUDENT REPORT ON THE ROBOTICS COMPETITION

The ERAU Student section will be presenting their efforts to design and build an autonomous search and rescue robot that was entered into this year's Southeastcon Hardware Competition. A presentation will also be made by the Bethune-Cookman University Robotics Team.

OUR SPEAKERS

Students from the ERAU and Bethune-Cookman University Robotics Teams.

BRAIN TEASER CHALLENGE FROM THE PAST (November 2005) BUTCH SHADWELL

You may not know that I have been writing these columns for over fifteen years now. For the last three years I have been doing two sets of them. One that is copyrighted to the IEEE Circuits and Devices Magazine and the one that I have done since 1990 that is distributed to newsletters around the world for free use.

I started writing these things because I met so many EEs who had lost track of much of their fundamental training in science and math. So I thought I would try to find an amusing way to get them to think about those things again. I hope I have succeeded in some small way, at least to amuse some folks. Even though I have always designed the technical problems to be ones that I could answer with little or no research, it still takes a significant amount of time and effort to come up with this stuff. (15 years of it!) The hardest challenge has always been to design the technical problem just hard enough to spur the interest of readers. If it is too hard, no one seems to want work that hard, or to take a chance on getting the wrong answer. If it is too easy, most think "why bother".

So why this little rant? Just to give you folks a little insight as to from whence this comes, and to fill a little space. So for la question du mois, if I were to design a circuit that did a perfect mathematical square of a bipolar sine wave input signal, what would the output look like? Many years ago I built

a very neat version of such a circuit. We'll discuss it in the next answer column.

The solution will be posted in the next edition of SPARKS

BRAIN TEASER SOLUTION FROM THE PAST

Last time, after cousin Frida got her PhD, she took one of her new designs to a job interview. "She brought in an ionization smoke detector. This detector uses an Am241 radioactive source. Who can tell me the dominant mode of decay for this radioisotope?"

In most ionization smoke detectors there is a tiny amount of americium dioxide present within a bonding compound on a metal substrate. This is dangerous stuff, so don't experiment at home. Americium, element 95 on the periodic table, is an artificial element. Man-made within nuclear reactors, americium is not naturally found on earth (although huge amounts are created and thrown into inter-stellar space during supernovae).

Am241 decays with a half life of 432 years into another artificial element, neptunium, Np237. For each americium atom, the nucleus spits out an alpha particle (helium nucleus) traveling at a significant fraction of the speed of light.

An atomic bomb can be constructed from smoke detectors. Americium 241 is a fissile material, the critical mass being around 80 kg. Billions of smoke detectors would have to be scavenged to get enough. Another problem is the heat generated in the sub-critical mass of americium by its radioactivity - about 10kW! But I bet you already knew that.

CALENDER OF EVENTS

August 18-22 – Sections Congress in San Francisco

Jan. 30th to Feb. 3rd of 2012- the IEEE Industry Application Society (IAS) will hold its annual Electrical Safety Workshop in Daytona Beach

Southeast Con- Orlando 2012, Jacksonville 2013

CONFERENCE NOTICE

The **12th annual IEEE Wireless and Microwave Technology (WAMI) Conference** will be held on April 18 & 19, 2011 at the Hilton Clearwater Beach Resort in Clearwater, Florida. The conference will address up-to-date multidisciplinary research needs and interdisciplinary aspects of wireless and RF technology. The program includes oral presentations, poster presentations, workshops and tutorials. Prospective authors are invited to submit original and high-quality work for presentation at the WAMI conference and for publication in its Conference Record. The technical program will cover wireless communication systems and RF technologies. More information can be found at www.wamicon.org

EDITORS NOTES

The **SPARKS** newsletter is also available on our website. The website address is shown in the Section information box to the right.

Our neighboring Sections in Melbourne and Orlando also sponsor activities and meetings that also may be of interest to our members. We encourage you to visit their websites.

Region 3 website
<http://www.ewh.ieee.org/reg/3/>

Melbourne Section website
www.ieeemelbourne.org

Orlando Section website
www.ieee.org/orlando

FUTURE MEETING DATES

The meeting dates for the fall session are: September 22, October 27, and November 29.

APRIL MEETING DINNER NOTE

Our dinner selection for April is an Italian Buffet with Salad Bar featuring your choice of assorted pasta's, sauces and meats.

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The website address for the Daytona Section is:
<http://www.ieee.org/go/daytona>

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APRIL 2011 MEETING

Thursday April 28th at the Halifax River Yacht Club
331 South Beach Street, Daytona Beach, Florida 32114
Just south of the Fire Station at the corner of Beach and Orange

AGENDA

6:30 PM Cocktails
7:00 PM Dinner
8:00 PM Program

OUR SPEAKERS – ERAU and B-CU Student
Robotics Teams

TOPIC– Student Report on the Robotics
Competition

April Dinner Menu

Italian Buffet with Salad Bar. Includes rolls and butter, Coffee or Tea

Dinner Buffet \$14.00. Students \$7.00 each

**Please contact Allan Jusko with your dinner selections or for program information.
Dinner selections must be in by Wednesday noon so the club has time to order and prepare**

Allan Jusko

SPARKS Editor

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IMPORTANT: If you make dinner reservations and are unable to attend, call at least 12 hours prior to the meeting to cancel. The Daytona Section is charged for all dinners ordered.
