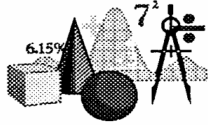




IEEE

SPARKS

IEEE Daytona Section Newsletter
March 2010



FROM THE HIGH CHAIR

The section has a large percentage of our membership that have not renewed. I have asked Al Jusko to email this issue of Sparks to you, but you will soon be dropped from our rolls. In these difficult economic times, IEEE membership may seem like a luxury to you. All of our senior members would say "IT IS NOT A LUXURY". Why?

- **CONTACTS:** grow your professional network via meetings and conferences
- **STAY CURRENT:** stay on top of your specific technology via Spectrum, society presentations and transactions, eBooks, and the IEEE digital library
- **CAREER DEVELOPMENT TOOLS:** use the IEEE job site, attend career development webinars, and use the career navigator
- **PERSONAL TOOLS:** utilize financial tools, participate in IEEE insurance programs, and use the travel services

If you have not renewed, please reconsider.

The next Computer Society meeting is on March 9 at Embry Riddle Aeronautical University (ERAU) at 12:45 PM in the Lehman Building, Room 170. The speaker will be Dr. David Gluch discussing "Model Based Software Engineering: AADL in Action".

On March 25 at 12:45PM at ERAU, Lehman Bldg, Room 170, there will be a colloquium on Thermonuclear Fusion led by Dr. Emmanuel Witrant of the University Joseph Fourier, Grenoble, France.

On March 25, Charlie Husbands will discuss our

progress on the Small Radio Telescope program at our section meeting. Please attend.

The Daytona Section supported Engineers Week this year at ERAU. On February 16, Homer Hickam inspired young engineering students as he related background stories about his life and the movie made from his book "Rocket Boys". He had an overflow audience of over 400 people, took lots of questions and signed autographs later. Ron Gedney and George Till helped judge the poster competition on February 18. Ron and Charlie Husbands participated in a panel discussion of what it means to be an engineer. Dr. Tim Wilson coordinated the ERAU activities and did a great job.

The banquet was also well attended and the President of our student chapter, Jason Davis, won the outstanding student Bachelor of Science award for the Department of Electrical, Computer and Systems Engineering. Jonathon Marolf won the outstanding student Master of Software Engineering award. Congratulations to Jason and Jonathon.

Thanks to all that made Engineer's Week a great success for ERAU and the Daytona IEEE Section.

Ron Gedney made a great presentation about the future of automotive electronics at our last section meeting. The talk was very informative as it pertained to current events and the importance of software in our automobiles. Another benefit of being a member of the Daytona IEEE Section.

Roger Grubic
MARCH PROGRAM

SMALL RADIO TELESCOPE PROGRAM REVIEW

In 2007 Dr. Hugh Ward and Dr. Jane Owen prepared a proposal to the IEEE Life Members Committee to fund a Small Radio Telescope (SRT) for educational purposes. It was proposed to use the SRT to teach Radio Astrometry, Electronics and Data Processing in the local schools, and for College and University Research projects. Grant funds were received from the IEEE Life Members Fund, hardware was ordered and assembly began in late 2008. The first phase of the program, Assembly and Testing, took place between September 2008 and February 2009. The second phase of the program, the Installation and Testing of the SRT, at the planetarium of the Museum of Arts and Sciences in Daytona Beach Florida occurred between February and May of 2009. Due to flooding in the Planetarium at the Museum in May 2009 a third phase of the program, to install a wireless data link from the Planetarium to the Museum's Auditorium was undertaken. This link allowed the SRT to be operated and displayed in either the Planetarium or the Auditorium. The development phase of this program was completed in December 2009.

At the present time there are two additional phases in the SRT development program underway. One is the implementation of the hardware and software necessary to permit the SRT to be operated remotely over the internet. In addition an educational program is underway, under the direction of Dr. Ward. This program involves the design of processing software and lesson plans that will permit the SRT to be used within the museum and our local school system for age appropriate education. The current status of these programs will be reviewed and on how we envision the SRT being used in near future will be discussed.

OUR SPEAKER

Charles R. Husbands holds a Masters Degree in Electrical Engineering and a Masters Degree in Engineering Management. He has been a practicing engineer for over 40 years and is a Senior Life Member of the IEEE. In 1996 he retired from the MITRE Corporation where he directed a research group in fiber optic technology. In retirement he formed Blackhorse Communications a private consulting company

specializing in optical and microwave communications. He has published and lectured extensively on optical networks and communication systems and holds a number of patents in this area. He is currently the Project Manager for the Daytona Section's Small Radio Telescope Program.

BRAIN TEASER CHALLENGE SOLUTION FEBRUARY 2010 BUTCH SHADWELL

Measurements can be difficult. "... using a multimeter rated at 1000 ohms per volt, set on the 10 volt range, what voltage would I read from the dial if I measured the voltage at the middle node of a voltage divider composed of two 10,000 ohm resistors in series, across a solid 5 volt DC supply? Later I bought a VTVM or vacuum tube volt meter, with a fixed input resistance of 11 megohms."

Many students I meet, and some MS and PhDs as well, sometimes forget that whenever you measure something you have to take some energy from it. Measurement requires interaction with the phenomenon of interest. Before the advent of solid state electronics, portable meters had to function without the benefit of high input impedance amplification. The vacuum tube volt meters discussed last month required connection to the mains and so were considered a bench based measuring technology. There were several correct answers sent in this month. Adding the meter to the circuit changed the resistor divider from $\frac{1}{2}$ to $\frac{1}{3}$ of the 5 volt supply, and that is what would have been seen on the dial. With the VTVM the error would have been less than 1%, assuming the meter had that degree of accuracy in the display (which of course they did not). With these analog meters you rarely got more than two significant digits from the reading. Some of you may remember tapping the meter face trying to get it to settle at the right value.

BRAIN TEASER CHALLENGE MARCH 2010 BUTCH SHADWELL

Fred Jones was in his last term as an EE undergrad at Whatsamatter U. For his senior

project he decided to build a codec that would send 8 bit PCM audio at 2.5 kilobytes per second. It seemed to work pretty well on most male voices, but there was weird distortion with music and some women. Fred may have fallen asleep in his DSP class. What do you think could be his problem? Fred often preferred to be called Stanley Smith for some odd reason, but I am not sure why I am telling you his alternate identification. I have to stop with the clues.

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-223-4510 (fax), 904-223-4465 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328.

(<http://www.shadtechserv.com>) The names of correct respondents may be mentioned in the solution column.

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 final meeting date for the spring session is April 29th.

Vice Chair - Dr. Thomas Yang

386-226-7098 yang482@erau.edu

Treasurer - Tracy Wichmann

386-673-2753 tracy@alum.mit.edu

Secretary/SPARKS Editor - Allan Jusko

386-671-3706 a.jusko@ieee.org

Membership Development – Dr. Ilteris Demirkiran

386-226-6988 demir4a4@erau.edu

Media – Dr. Hugh Ward

386-738-3412 hcward@cfl.rr.com

PACE Representative's –

Dr. William Barott

386-226-8973 barottw@erau.edu

Jeanette Barott

386-226-7405 barottj@erau.edu

Awards - Dr. Thomas Yang

386-226-7098 yang482@erau.edu

Life Member Chair – Ron Gedney

386-478-1204 r.gedney@ieee.org

Computer Society Chair – Dr. Tim Wilson

386-226-6994 wilsonti@erau.edu

Student Activities - Dr. Jianhua Liu

386-226-7713 liu620@erau.edu

ERAU Student Chapter Chair- Jason Davis

321-287-8697 davisc9c@erau.edu

Webmaster – Charlie Husbands

386-760-7163 chusbands@ieee.org

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

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2010 SECTION OFFICERS

Chair – Roger Grubic

386-441-8958 roger_grubic@ieee.org

