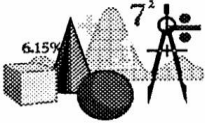




SPARKS

Daytona Section Newsletter
April 2020



SECTION MEETING

Our April Section Meeting has been canceled due to the coronavirus

**Our next meeting will be September 24th
Have a safe summer**



2019 Outstanding Section Membership
Recruitment Performance
Daytona Section

CHAIR'S REPORT



Because of the Coronavirus 2019, Florida Governor Ron DeSantis issued a statewide stay-at-home order beginning Friday, April 3, 2020, and ending no earlier than Sunday, May 3, 2020. Accordingly, the dinners and meetings at the Halifax River Yacht Club for April has been cancelled.

The next time we will be getting together face to face as a group for an IEEE Daytona Section meeting will be in September. This is nearly six months away, so mark your calendars to arrive before 6:00 PM on September 24, 2020, for dinner and a show at the Halifax River Yacht Club.

On a much brighter note, my thanks to IEEE Daytona members Ron Gedney, Hugh Ward, Al Jusko, and Dave DeFanti who are working very hard installing the IEEE Daytona Section Small Radio Telescope (SRT) at the Burns Science and Technology Charter School in Oak Hill, Florida. This is a great location for the SRT. The IEEE Daytona Section will have access to the SRT and its data provided by the Burns School. I am pleased the SRT has found a home. If you are interested in helping with this installation or other phases of this project, please contact Charlie Husbands, the SRT Project Coordinator, whose contact information can be found in this newsletter.

Please keep reading your messages from IEEE for any changes that may occur. My hope for all of you is good health and good fortune.

Rich

LIFE MEMBER GROUP

SRT REPORT

As many of you know, the Daytona Section owns a Small Radio Telescope (SRT).

The history of the SRT can be found at:

<http://ewh.ieee.org/r3/daytona/SRTProgramPage1.html>

The SRT has found a new home at the Burns SciTech Charter school, and interested members of the Section have been re-assembling it and checking the wiring and electronics in a storage area at Burns.



Hugh Ward, Dave DeFanti and Al Jusko assembling the SRT

Once the Electronics are checked out, the SRT will be moved to a permanent installation where it can view a good portion of the sky. The Plan is to connect it to the school's internet system and develop software appropriate for several grade levels.

If anyone is interested in astronomy and would like to help with the SRT we still have lots of work to do. Just call or e-mail Section Secretary Ron Gedney or Newsletter Editor Al Jusko. Contact information is in the Section Officers page.

ANOTHER TALE FROM THE OLD PROFESSOR

STORY OF THE BLACK BOX

The first to build electronic circuits were hobbyists, mostly radio amateurs in the very early days of the 1900's. In the first two decades of the twentieth century, electronic circuits were most often built on a wooden base. *(I will use the term "electronic" in this story but that term was coined about 1930 by a journalist. Electronic circuits in the early 20th century were overwhelmingly radio)* For the hobbyist, the best source of a suitable base was the local hardware store in the form of a bread cutting board. This is the genesis of the term "breadboard" for an early prototype of a product, a term still being used today. Bread cutting boards were made of hard wood and had a flat surface which made them ideal for mounting the electronic components which were made to be mounted on a flat surface in those days. The early commercial "breadboard" radios were constructed on a mahogany board with a shiny lacquer finish in an attempt to make the radio blend in with living room furniture. Broadcasting didn't start until 1920 so radio receivers made before the advent of broadcasting were amateur radio receivers.



A 1924 Atwater Kent
Breadboard radio

There was no attempt to make the amateur receivers blend in with any style of furniture except what might be found in an attic or basement.

Some more expensive radios had wooden cabinets that contained not only the vacuum tubes and the other circuitry but the A, B, and C batteries for the radio. A cabinet radio rather than a breadboard didn't make the living room look like Frankenstein's laboratory. But a look inside a cabinet radio revealed a wood floor with the components attached. In other words, a breadboard with a cabinet.

Because wood offers no shielding to radio waves, the disadvantages of using wood began to be understood. Early radios would squeal and howl if one moved their hand close to the front panel because of feedback from one's body to the antenna wire. This led to the use of metal cabinets. Considering raw material costs, wood and metal were probably similar. But the cost of finishing was higher for wood. First, not all wood can be used for a finished product. Boards with big knots or cracks had to be avoided. Also, the boards tended to be furniture grade hardwood which was expensive. Finishing a wood cabinet involved sanding, staining and several coats of hand-rubbed lacquer.



A 1926 Atwater Kent with a brown wrinkle finish

Sheet metal, on the other hand, could be finished with a

coat or two of spray paint. But a smooth paint would allow all the scratches and machining marks required to fabricate the panel and, after painting, fingerprints, to show. To minimize

this, a textured paint was used; typically, brown for home radios and black for commercial products. The black was referred to as “black wrinkle” paint. One problem with wrinkle paint is that it is not possible to print any nomenclature on the rough surface. Therefore, nomenclature was either nonexistent or on the dials, switches or an escutcheon. (you might have to look that one up) Notice the 1926 Atwater Kent radio shown has no lettering to indicate what the dials or switches do.

Aircraft radio equipment remotely controlled from the cockpit was always finished in black wrinkle paint. This continued until recently when the trend is to not paint aviation electronics at all but to use anodizing to prevent corrosion. (*Actually, there is a trend to not paint anything on an aircraft, exterior or interior, to save weight. A 747 carries 550 pounds of exterior paint; as an example.*) This led to the term of “black box” for aviation electronics. Large aircraft have a room full of “black boxes”.

There are two boxes in an aircraft that are not black but orange as required by Federal regulations. These are the cockpit voice recorder and the flight data recorder. This is so they are easy to spot and distinguished from the assemblage of black boxes after an aircraft accident. These two boxes are crucial for understanding the causes of an aircraft crash.



One of the two “black boxes” in an Aircraft: the all-important flight data recorder

After an aircraft mishap it is usually reported

that investigators were looking for the “black boxes”. It took years, but I think, the news media and people, in general, have finally realized that the all-important boxes are the only ones that are not black; but orange. But, I still hear that investigators are looking for the “black boxes”.

Dr. Al Helfrick a.k.a The Old Professor

PE CORNER

WHAT QUALIFIES FOR CONTINUING EDUCATION HOURS (PART 2)

Continuing with the discussion of different ways to earn Continuing Education Hours (CEHs), here are some others that are, arguably, applicable to a smaller group of engineers. I will continue my editorial commentary on Sections 61G15-22.003 and .004 of the Florida Board of Professional Engineer's rules that address this.

Authoring published technical engineering papers, articles, or books; or accepted licensee examination items for NCEES. Each published peer-reviewed paper or book in the licensee's area of professional practice is equal to 10 continuing education hours. Each published paper or article in the licensee's area of professional practice is equal to 5 continuing education hours.

Authoring accepted licensee examination items for NCEES is equal to 2 continuing education hours. If you've been thinking about publishing a paper, might be time to dust it off and get it reviewed.

Patents. Each patent developed using engineering principles is equal to 10 continuing education hours.

Active participation in professional or technical societies. Civic or trade organizations do not qualify under this provision. Credit for this activity requires that the licensee serve as an officer of the organization or actively participate on a committee in the organization. Continuing Education credits are not earned until the end of each year of completed service. Active participation in professional and technical societies as described in subsection 61G15-22.003(6), F.A.C. Each hour of participation is equal to 1 continuing education hour, with a maximum credit of 4 continuing education hours per renewal period. Get involved! You could earn up to 4 hours for your participation.

Section 61G15-22.005 discusses non-qualifying activities. Activities that do not qualify as Continuing Education Hours include but are not limited to the following: (1) Self-generated courses, that being courses generated and presented by the licensee to himself or herself for continuing education credit. (2) Personal self-improvement courses. (3) Equipment demonstrations or trade show displays. (4) Enrollment without attendance. (5) Repetitive attendance or teaching of the same course. (6) Tours of buildings, structures, schools, museums and such unless there is a clear objective to maintain and strengthen competency in a technical field. (7) Regular employment. (8) Personal, estate or financial planning. (9) Courses the content of which is below the level of knowledge and skill that reflects the responsibility of engineer in charge.

Finally, I would note that if you have questions regarding qualifying or non-qualifying activities, there are very knowledgeable folks at the Board's offices ready to help.

Art Nordlinger, PE, Senior Member

DAYTONA SECTION SHIRTS



We are pleased to offer Daytona Section polo shirts for our Section members. The shirts are embroidered with the IEEE Logo and DAYTONA SECTION on the left and your name and grade, if desired, on the right. The shirt is a high quality 5 oz, 65/35 poly/cotton pique in Royal Blue with white embroidery. Available in S - 2XL in men's as well as ladies' sizes. Price is \$30, including tax, for S-XL size's, 2XL size is \$3 additional.

For more information or to order shirts contact: Allan Jusko 386-671-3706 or a.jusko@ieee.org.

FUTURE MEETING DATES:

Future dates for the 2020 fall session are: Sep 24, Oct 22, Nov 19.

EDITORS NOTES

Visit our Daytona Section website: <https://ewh.ieee.org/r3/daytona/>

ENGINEERING HUMOR

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Technical Support Hotline



“Your operating system was installed on April 25th, which makes your computer a Taurus. As a Pisces, you’re bound to have conflicts.”

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