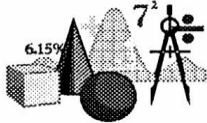




# SPARKS

Daytona Section Newsletter  
November/December 2015



## NOVEMBER/DECEMBER SECTION MEETING

Thursday December 3<sup>rd</sup> at the Halifax River Yacht Club, 6:00 PM  
331 South Beach Street, Daytona Beach, Florida 32114

### PRESENTATION TOPIC

Engineering Ethics and what the IEEE does for us

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### CHAIR'S REPORT



Season's Greetings! By the time you get this, our industry members are wrapping up their end-of-year budget requirements and arguing over who gets to take leave during which week of the upcoming month, while our student members are cramming for their final exams, taking dangerous shortcuts to finish their projects on schedule well enough to fool their faculty, and our academics are determining what research papers they can shove out during that blissful time of year on a University campus with no students. Our life members are gleefully planning visits with family and friends, possibly debating the dangers inherent in adding yet one more string of lights to their palm trees, and fighting off the urge to make synchronized sound accompaniment this year. Whatever else might be attached to the season it's certainly an active time for all.

'Tis also the season for IEEE renewals. Thanks to all of our new members in the Section, I received a fancy certificate suitable for framing from the IEEE this year. Let's help keep these new members in the IEEE, making sure to remind them of all of the benefits and advantages of IEEE membership, no matter what stage of one's life and career one is in. Between shipping benefits, free software, and of course the amazing IEEE-USA Career Development services (such as ResumeLab, where you can not only have your resumes looked at, but practice interview techniques and learn other skills to keep yourself sharp for pursuing your next dream), the IEEE really is a service worth its fee.

As the New Year approaches, it's much the habit to make resolutions and plans. Here's one I'd like to suggest: I want all of our active members who read this column (whether or not they attend the meetings or do anything else with the local Section) to take the time to make an IEEE e-mail account. In addition to the expanded free storage and other benefits of Google Business, this e-mail address is your ticket to identity continuity no matter where you work or what internet provider you choose to go with in the upcoming year. It helps all with whom you communicate to identify what your interests and technical background are, and it might, just possibly might, lead them to ask "What's IEEE?" I hope everybody has their own answer to this question; my

personal favorite is one a student gave a few months back, "It's where I can be weird and not feel weird, and where I can learn and grow in those areas that just aren't available in the classroom or at my internship."

*Jeanette*

## OCTOBER PROGRAM

### ENGINEERING ETHICS AND WHAT THE IEEE DOES FOR US

Walter Elden, PE (Ret.) is a Life Senior Member and has been a member of the IEEE Society on Social Implications of Technology and served on its Ethics Committee during the 1990s. He also served from 1996 to 1998 on the IEEE Member Conduct Committee, now called the IEEE Ethics and Member Conduct Committee(EMCC).

## ERAU NEWS



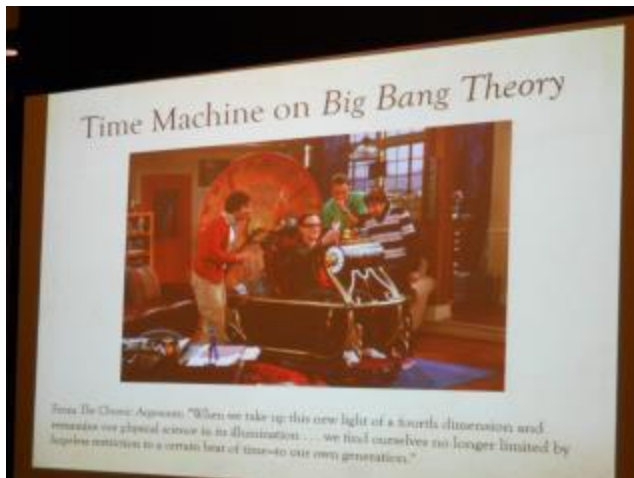
ERAU's student chapter of IEEE-WIE recently elected its first batch of officers.

In the photo, left to right - Treasurer Zachary Taylor (EE), Chair Rebecca DeMarco (HF), Secretary Maria Meyer (HF), Vice Chair Savannah Lu (CS).

## OCTOBER'S PRESENTATION



Dr. Ashley Lear gave an interesting and informative presentation on SCIENCE AND SCIENCE FICTION: INTERDISCIPLINARY METHODS AND THE HUMANITIES. Dr. Lear spoke of engaging students in science fiction through research in various technical fields.



One of the examples Dr. Lear used was the Big Bang Theory's episode on the Time Machine.

## SECTION NOTES

The IEEE is offering loyalty pins to reflect landmark years of membership for members. If you would be interested in receiving one of these pins, please contact the Section Chair, Jeanette Barott ([barottj@erau.edu](mailto:barottj@erau.edu)).

One of the official items which take place at the December meeting is the nomination and election of officers for the upcoming year. Any member wishing to be nominated for an office with the Daytona Section is encouraged to attend and place their name for nomination.

## ANOTHER TALE FROM THE OLD PROFESSOR

### An Engineering Trilogy; Part 2: Bill Lear

In part one of the Trilogy we discussed Madman Muntz and his invention of the four track audio tape cartridge. Unfortunately when it comes to tape cartridge tracks eight is the magic number not four.

Bill Lear, another American entrepreneur found the magic number and developed the eight track tape cartridge which became a big success.

Many young people of the early 20<sup>th</sup> century were fascinated by radio and that included Lear. He read everything he could lay his hands on about radio and electric circuits and was active in amateur radio until the First World War banned all amateur radio activity. After the War, Lear joined the Navy as an “Instructor of Wireless”.

Like Muntz, Lear never finished high school but was an autodidact. (You may need a dictionary here. That’s OK. That’s what they were made for.) Lear was one of a cadre of 20<sup>th</sup> Century American autodidacts such as Frank Lloyd Wright, Buckminster Fuller, Thomas Edison, and the Wright brothers, and others that contributed to the rise of American industry in the 20<sup>th</sup> century.

After discharge from the Navy, Lear returned to the radio industry and was making parts for radio receivers. Located in the same building as Lear, was the Galvin Manufacturing Company that made “battery eliminators” for radios. This allowed early radios made to operate from expensive and messy storage batteries, to operate from regular household electricity.

Paul Galvin the founder of the company that bore his name was looking for a product that would really excite the American consumer. He found that product from Lear, who with an associate had developed a working car radio.

A “car radio” which has been ubiquitous in cars for over 70 years was no easy task in the 1920’s. Lear received about a third of the Galvin Company for his developments in radio which ultimately did produce radios for cars under the brand name; Motorola.

Lear also had a fascination for aviation and bought his first aircraft in 1931 at the age of 29. He found a need for radio navigation to provide guidance when visibility wasn’t the best and started a company to design and manufacture electronics for aviation. Lear’s aviation electronics products included direction finders, other radio navigation instruments, and eventually sophisticated military aircraft systems.

Like Muntz, who wasn’t satisfied just selling cars but wanted to produce his own car, Lear wasn’t satisfied with just accessories for aircraft. **He** wanted to produce his own aircraft. This led to the first “business jet”; the Learjet 23.



NASA's Learjet 25

Financial difficulties from activities not associated with Learjet eventually forced Lear to sell his interest in the company.

After Lear was out of the aviation business he had a plan for a steam powered car. Lear's ambition wasn't so much to reduce the carbon footprint of automobiles and save the planet but to win the Indianapolis 500 race. There are certain limitations placed on race cars for any type of race. The Indy race limited the engine's displacement. A well-known formula for a piston-type engine power is,  $\text{Power} = \text{PLAN}$ , where P is the operating pressure, L is the length of the stroke, A is the area of the cylinder and N is the number of cylinders. But "LAN" is the displacement of the engine leaving P as the only variable in the equation that could be increased without bound for the Indy race. Internal combustion engines tend to have a variable pressure as the fuel ignites and burns but a steam engine can provide a near constant pressure. It's the mean pressure that "P" represents. Poor Bill; after investing millions of dollars in his steam car a huge miscalculation resulted in a woefully inadequate condenser and the car failed.

*Factoids: Richard Moser who was hired by Lear to design the steam engine worked with Harvey Crane; the founder of Crane Cams, in Daytona Beach. Lear's son, Bill, Jr. lived the latter part of his life in Port Orange and died in Daytona Beach at the age of 81.*

Bill Lear was a notoriously driven person. Lear suffered from stomach ulcers early in life but survived the condition. One of Lear's associates also developed ulcers at the same time which he did not survive and died at an early age. Although Lear had a reputation for being a difficult person to work with he had an odd sense of humor. His third daughter was named "Shanda". Pronounce her first and last names out loud and look up to see if there is one overhead.

Bill never stopped innovating and only his death in 1978 at age 75 prevented his revolutionary aircraft; a highly-efficient turboprop pusher using composite materials for weight reduction from being produced.

Our next engineer in the trilogy, like Bill Lear, was fascinated by radio in the early 20<sup>th</sup> century and transitioned from radio and home entertainment to a broad range of ventures, including an automobile and, in 1929, an aircraft; the "Moonbeam".

*Al Helfrick*

## 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 \$29, including tax, for S-XL size's, 2XL size is \$3 additional.

For more information or to order shirts contact:

Allan Jusko

3706 Longford Circle, Ormond Beach, FL 32174

386-671-3706 or [a.jusko@ieee.org](mailto:a.jusko@ieee.org)

Indicate shirt size and name and grade if desired. Shirts must be paid for before ordering, typical turn-around time is 2 weeks. Arrangements can be made to pick up shirts or have them shipped to you.

## DAYTONA SECTION COFFEE MUGS



The Daytona Section has available coffee mugs with the IEEE Daytona Section Logo and are available for \$7.00. Purchase one or more to show you support and pride in our Section.

Contact Roger Grubic at 386-441-8958 or [roger\\_grubic@ieee.org](mailto:roger_grubic@ieee.org) for more information.

## EDITORS NOTES

The **SPARKS** newsletter is also available on our website <http://www.ieee.org/go/daytona>

### Region 3 website

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

### Melbourne Section website

[www.ieeemelbourne.org](http://www.ieeemelbourne.org)

### Orlando Section website

[www.ieee.org/orlando](http://www.ieee.org/orlando)

## FUTURE MEETING DATES:

The meeting dates for the 2016 spring session are: Jan 28, Feb 25, Mar 24, Apr 28, Sep 22, Oct 27, Dec 1

### 2015 SECTION OFFICERS

**Chair – Jeanette Barott**

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**Treasurer - Charlie Husbands**

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**Secretary – Roger Grubic**

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# NOVEMBER/DECEMBER 2015 MEETING

**Thursday** December 3<sup>rd</sup> 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

**TOPIC** – Engineering Ethics and  
what the IEEE does for us

**SPEAKER** - Walter Elden, PE (Ret.)

## AGENDA

5:30 PM Greetings & Cocktails

6:00 PM Dinner

7:00 PM Presentation

## Dinner Menu

**Honey Glazed Ham** with whipped potatoes and roasted root vegetables

**Chicken a la King** shredded chicken breast combined with mirepoix vegetables, peas and parsley all coated with a sherry wine cream sauce, served in a Vol au Vent puff Pastry shell with a side of fresh steamed broccoli

**Broiled Tilapia** with orange segments, toasted cashews and parsley ginger pesto, served with rice pilaf

**Unless noted, dinner entrées are \$20.00 each. Students \$10.00 each**

**\*A Veggie plate is available on request for \$10\***

**Please contact Allan Jusko by Wednesday the 2nd at noon  
to give us a count for dinner or for further information**

**If you make reservations and are unable to attend, call at least 12 hrs prior to the event to cancel.**

**The Section is charged for all dinners ordered, please let us know if your plans change**

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