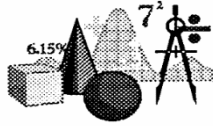




SPARKS

Daytona Section Newsletter
April 2022



<https://r3.ieee.org/daytona/>

SECTION MEETING

April 28, 2022

6:00 PM – 8:30 PM

Embry-Riddle Aeronautical University
Lehman Bldg, Rooms LB335, LB367
1 Aerospace Blvd, Daytona Beach, FL

CHAIR'S REPORT



It's official! Ron Gedney pressed through each and every requirement to satisfy the creation of the IEEE Daytona Section Women in Engineering (WIE) Affinity Group. The Daytona Executive Committee (ExCom) would like to vote on the first Chair, Vice Chair, Treasurer, and Secretary positions.

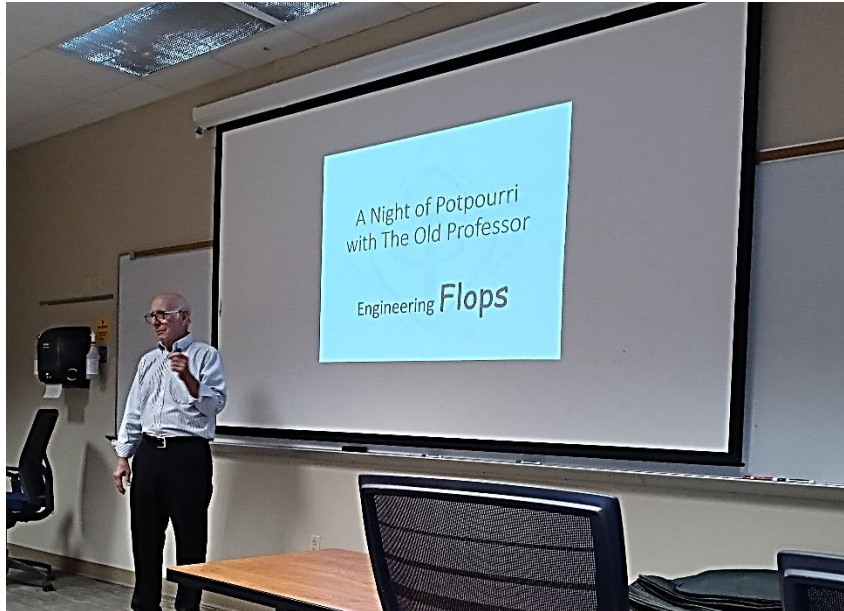


We need names of volunteers put forward to officially launch! Men and women can both have their names put forward, though I am personally hoping to see women in all the leadership positions. I believe we have approximately two-dozen women with an active status in our section. After the initial leadership is installed, future positions will be handled via the IEEE voting portal. If multiple names are put forth for any position a vote will be held. Current positions should be held until December 31, 2023, unless the WIE decide otherwise.

I look forward to seeing each of you at the April meeting.

Dr. W. Shawn Wilkerson

MARCH PRESENTATION



As usual, Dr. Al Helfrick (aka: The Old Professor) gave another entertaining presentation. The March presentation was titled “Engineering **Flops**”. It covered a range of failures and questionable products from electronic devices to aeronautical contraptions. Combining a mixture of engineering detail and humor, The Old Professor’s presentations are always enjoyable and informative.

APRIL PROGRAM

STUDENT PRESENTATIONS

Our annual student recognition meeting is happening on April 28, 2022. As is our custom, we will be honoring our Sections Special Award winners from the Tomoka Science and Engineering Fair which was held the end of January at Stetson University. Afterwards, we will be having presentations and demonstrations from Bethune-Cookman University and the Embry Riddle Aeronautical University robotics teams. The presentation will be preceded with an Italian Buffet.

We will need to have RSVPs from everyone wanting to eat at the venue so we can reserve the correct number of meals. Without a RSVP we may not be able to guarantee your meal.

Refer to the last page of the newsletter for detailed time, location and important reservation information.

ANOTHER TALE FROM THE OLD PROFESSOR

April Showers

♪♪ March winds and April showers ♪ make way for sweet May flowers ♪♪.....



So goes the lyrics by B. G. DeSylva from the 1921 hit song April Showers. Every year April gets two long-lasting showers; the Lyrids from about 15 APR to 29 APR, and Eta Aquariids from 15 APR to late May. In spite of the length of these April showers they don't help May flowers at all. They are meteor showers.

Some amateur radio operators, including your humble correspondent, take advantage of the trails of ionized air created by the meteors as they burn up in our atmosphere. The ion trails scatter short wavelengths, 10m to 1m, corresponding to radio signals in the 30MHz to 300 MHz or VHF range. VHF radio signals usually propagate only to the radio horizon with the exception of "sporadic" ionospheric propagation. This is called "sporadic E" propagation as the ionospheric layer most responsible for VHF propagation is the E layer. Meteor scatter extends VHF propagation to as much as hundreds of miles beyond the radio horizon.

The ion trails only last for a few seconds at most and the radio signals scattered from the meteor trails are very short and are called "bursts" or "pings". Very long scattered signals are called a "burn". But burns only last one or two seconds. Early meteor scatter communicators transmitted very fast machine-generated Morse code at perhaps 100 words per minute which is beyond what can be copied by a human operator. The meteor scatter operators would tape record received signals using a tape speed of, say, 15 inches per second and play it back at 3.75 inches per second. This reduces the code speed by a factor of four to 25 words per minute where Morse code can be copied easily. Today there are computer programs that work with a computer's sound card and special digital transmission making the process very simple. Since meteor trails that would provide a signal between two stations don't occur continuously, a two-way exchange of call signs and signal reports which would qualify as a valid "contact", can take several minutes even up to a half hour. There are plenty of meteors every day, even outside of the showers, mostly in the morning and radio contacts are common. During a meteor shower, contacts are fast and easy and can be made often any time during the day.

Are these radio amateurs that study and use meteor trails to propagate radio signals meteorologists? Everyone knows that meteorologists don't study meteors other than to tell you when the night sky will be clear so you can observe meteors during a shower. But meteorologists do study meteors; hydrometeors!

I bet this is a term most people are not familiar with. According to the American Meteorological Society, AMS, hydrometeors are "any product of condensation or deposition of atmospheric water vapor, whether formed in the free atmosphere or at the

earth's surface". That includes rain, fog, drizzle, snow, ice pellets, and hail among others. Some hydrometeors don't make it to the ground like clouds and virga.

According to the Meteorological Society, even hydrometeors that have landed on the ground and are blown around by the wind are still hydrometeors. I can only imagine how my young son would have responded if, after an overnight snowfall, I gave him our snow shovel and told him to go outside and shovel the hydrometeors from the sidewalk. Particularly annoying was when the hydrometeor plow came by and left a big pile of hydrometeors at the end of our driveway. Here are some examples of hydrometeors.



Kids having a hydrometeorball fight.



The consequences of excessive hydrometeors.



A popular form of travel on hydrometeors



Large hydrometeors can cause extreme damage.

This morning the AMS certified meteorologist on the local cable news channel says there will be no hydrometeors making their way to the ground today so I am looking forward to spending some time outside this afternoon tending to some plants.

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

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 \$39, 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

2022 Section meetings, depending on the coronavirus situation at the time:

Fall semester meeting: Sept 29, Oct 27, Dec 1

DAYTONA SECTION SOCIAL MEDIA INFORMATION

Facebook: <https://www.facebook.com/daytonaieee/>

Twitter: @IEEEDaytona

LinkedIn: <https://www.linkedin.com/company/ieee-daytona-section>

ENGINEERING HUMOR



2022 SECTION OFFICERS

Chair – Dr. Shawn Wilkerson
386-322-7999 shawnwilkerson@ieee.org

Vice Chair – Dr. Jianhua Liu
386-226-7713 liu620@erau.edu

Treasurer – Dr. Eduardo Rojas
386-226-7701 rojase1@erau.edu

Secretary – Ron Gedney, LF
386-847-8094 rgedney@aol.com

Awards Chair – Rich Kent, LSM
206-369-1965 rtkentjr@msn.com

Computer Society Chapter Chair
Dr. Keith Garfield
386-226-7081 garfielk@erau.edu

Life Member Chair – Ron Gedney, LF
386-847-8094 r.gedney@ieee.org

Vice Chair – Martin Oksenhorn, LSM
386-283-4339 moksenho@yahoo.com

Student Activities Chair – Rebecca DeMarco
1-623-200-8867 demarcr1@erau.edu

Webmaster – Dr. Helen Hernandez, SM
386-872-0483 hhernandez@ieee.org

SPARKS Editor – Allan Jusko, LSM
386-671-3706 a.jusko@ieee.org

Embry Riddle Aeronautical University

Student Advisor – Dr. Keith Garfield
386-226-7081 garfielk@erau.edu

Student Chapter Chair – Kira McFadden
mcfaddek@my.erau.edu

WIE Chair – Kira McFadden
mcfaddek@my.erau.edu

Bethune-Cookman University

Student Advisor - Dr. Xiaohe Wu
386-481-2673 wux@cookman.edu

Student Chapter Chair – Manit Bhusal
manit.bhusal@students.cookman.edu

APRIL 2022 MEETING

Thursday April 28th

Lehman Building, Rooms LB335 & LB367
Embry-Riddle Aeronautical University
1 Aerospace Blvd, Daytona Beach, Florida
(For GPS directions use 600 S. Clyde Morris Blvd)

TOPIC– Student Presentations

SPEAKERS – Embry-Riddle
& Bethune-Cookman Students

AGENDA

6:00 PM Italian Buffet in LB335
7:00 PM Presentations in LB367

Buffet Cost: \$20 for each member or guest. **Free** for IEEE student members, student presenters and our Science Fair winners and their parents. No charge for just the presentations.

RSVP Required. Reservations for the Buffet can be made one of two ways.

Call Al Jusko at 386-671-3706 or email agjusko@aol.com give your name and the number of people in your party and indicate if you are attending for both food and presentation or just the presentation. Payment can be made at the door by cash or check made out to IEEE Daytona Section. We will confirm your reservation at the door. **All IEEE student members must show their IEEE student membership card to receive the free buffet.**

or go to the rally.co website: <https://rally.co/HkX8mKoX5>

(1) Input the following info in the *Your name...* field:

Name, number of people for food and presentation (i.e.: Name 2FP), or number of people for presentation only (i.e.: Name 1P).

(2) Check the box to the right of *Your name...* and

(3) Click *Save*.

IMPORTANT- All RSVP's for the buffet are required to be in by 8:00AM on Thursday April 21st to allow us to order the food service. Without a RSVP we may not be able to guarantee your meal.