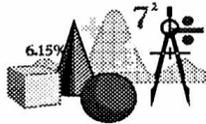




SPARKS

Daytona Section Newsletter
October 2014



MONTHLY SECTION MEETING

Thursday October 23rd at the Halifax River Yacht Club, 6:00 PM
331 South Beach Street, Daytona Beach, Florida 32114

PRESENTATION TOPIC – Global Warming - From the Beginning

CHAIRMAN'S REPORT

We started off the fall with a particularly good meeting. Not only was our attendance better than usual but Dr. Billy Barott also gave an excellent talk. (Maybe there is a connection). Prof. Barott, unbeknownst to yours truly, has been doing research on bi-static radar. The idea is not new. In fact I ran a program at Hughes Aircraft Company called "Splash Track" in which we were hoping that our attacking aircraft could locate enemy fighters without radiating any signal themselves (so as to stay covert). Billy's approach takes advantage of the newer modern signals that might be used as (what we called) host emitters. I particularly like digital TV transmitters which are abundant, have high average power and use a coded signal which lends itself to precision time measurement. The best part is Billy is getting Doppler which gets by the clutter problem which was a real pain in the old days. I like the way he analyzed the signal. In short, an excellent program well presented. Also a little thought reveals that the bi-static radar cross section of a stealth aircraft is much less stealthy.

I am also the secretary of the Florida Council of the IEEE and attend both as section chair and as secretary. I might pass along a heads up about SoutheastCon next year. It will be in Ft. Lauderdale. The Broward IEEE section is hard at work getting everything ready, and have already submitted a call for papers. The conference will be at a major hotel which was recently bought by Hilton and is being complexly remodeled. Paste this on your URL line to visit IEEE Region 3, the SoutheastCon host: <http://ewh.ieee.org/reg/3/>.

Our next meeting is October 23rd. Guess who the speaker is going to be - yes it's me. I have an interesting talk on global climate since the beginning - when the earth was formed. (See the photo of what the earth looked like 4.5 billion years ago.) I love Wikipedia. It is a manifestation of our era. Everything in my talk came from it so it is not as authoritative as Dr. Barott was last time. He is actually doing the work. I just pull the ideas together into an interesting flow. As a physicist I can understand what I see in Wikipedia and hopefully can explain the theories and concepts. You could



M57 Ring Nebula

probably do the same but I have done the work already. Please come and ask me questions.

Best Wishes,

Tracy

EDITORS NOTE

Dr. Billy Barott is shown doing his presentation at our September 25th Section meeting. I apologize for the picture quality; my old phone takes poor pictures.

It should be noted that Dr. Barott assured me his new look is in no way related to trying for a celebrity appearance on Duck Dynasty.

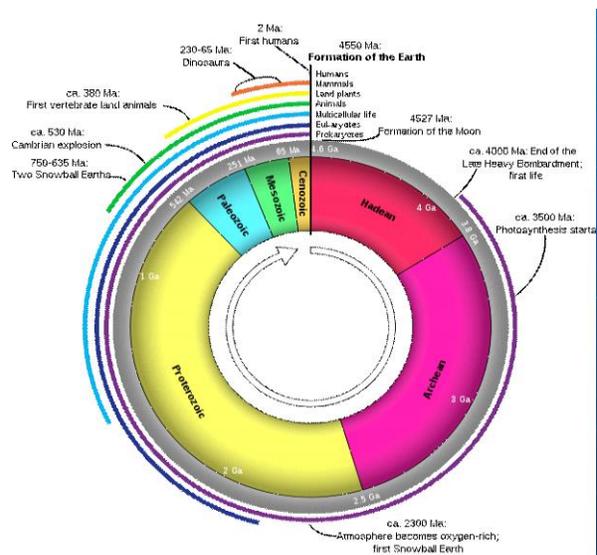


SEPTEMBER PROGRAM

GLOBAL WARMING - FROM THE BEGINNING

We worry a lot these days about global warming. When the earth was formed it was very hot, like lava from a volcano. There was very little oxygen in the atmosphere (mostly CO₂). Over a period of about 4.5 billion years it evolved until it now has a climate that supports life such as we enjoy.

Climate changes are a natural phenomenon, a consequence of the earth (and moon's) motion relative to the sun. If man did nothing climate would still change. There would be ice ages, temperature changing volcanic eruptions etc., as well as seasons.



OUR SPEAKER

Tracy Wichmann received his Science Bachelor in Physics from MIT. His education also included the study of Servomechanisms at Ohio State's Electrical Engineering Department and Astrophysics and Statistics and System Engineering at UCLA. He is a consultant for computer programming. Over the

years he had held positions as Program Manager, Senior Research Scientist, Research Engineer in such fields as electronic warfare, space shuttle avionics, air traffic control with such companies as Hughes Aircraft, Teledyne Systems, Litton Industries, and the U.S. Air Force. He has published over 50 papers & publications and has a patent on a blood pressure measuring device. He held numerous positions in our section, the Florida Council, as well as SouthCon, and currently serves as our section's Chairman.

ANOTHER TALE FROM THE OLD PROFESSOR

“Mighty WADJ Radio”... Your spot for what's hot!

Many years ago, when I was in high school, my friend Ron received a "Wireless Broadcaster" kit for Christmas. What he received was a kit of parts which when assembled would make a low-powered transmitter that claimed could broadcast through the walls of a house to virtually any room in the house. We quickly wired the unit together and attached the 10 foot piece of wire supplied for the antenna. We connected a record turntable and used a spot on the AM radio dial where there was little activity and tested the transmitter by tuning in the wireless broadcaster on every radio in the house. Sure enough, the wireless broadcaster lived up to its promise of being capable of broadcasting throughout an entire house.

"Could it actually transmit outside of the house", we wondered. We took a portable radio and walked around the front and back yards and were quite satisfied that we could still hear Elvis singing from the record. How far could we go and still be heard with our broadcast station? We walked down the block and Elvis' voice quickly disappeared. Maybe the record ended. No, as we walked back to the house Elvis returned and we realized that the range of the broadcaster was only a couple hundred feet.

We discussed possible ways of increasing the range of the broadcaster. We read the instructions for the kit and there was no mention of increasing the range of the signal. The instructions did say, however, "do not use an antenna other than the one supplied with the kit".

Now, every boy knows that "do not" is a prefix for activities that enhance the enjoyment of life, so we decided to use a longer antenna. Ron had a length of telephone wire that was knocked down during a snow storm and was procured when the telephone company abandoned it, or at least wasn't watching it for a few hours. We strung the wire from Ron's bedroom window to a tree in his back yard about 75 feet away. Again we tested the range of the broadcaster and this time we were able to hear the signal on the next block. In fact the record ended before we lost the signal.

We connected a microphone in addition to the record player so we could broadcast both talk and music. I went home to see if I could hear the broadcast station while Ron called several of our friends who lived nearby to tell them of the town's newest broadcast station. The friends immediately became avid listeners. Ron announced the telephone number for requests and dedications and we started receiving calls. But we needed call letters. Looking at "White's Radio Log" a publication that listed all the radio stations in the United States, WADJ was the first that was not assigned to a station. And WADJ can be pronounced; mighty WADJ was on the air!

But I could barely hear the station at my house several blocks away. It was clear, we needed more power. A few days later we increased the screen grid voltage of the transmitter and greatly increased the power. Now, I could hear WADJ from my house but it was still weak. We had increased the power to a point where the vacuum tube in the broadcaster glowed a bright red and self-destructed. WADJ was off the air.

We were not defeated. We immediately set about modifying a war surplus transmitter to operate in the broadcast band. We figured that this new transmitter would operate at a power of 50 watts. Soon the transmitter was done and, indeed, the range was increased to several miles which was sufficient to cover the entire town.

It is necessary for me to relate to you another part of this story to place it in its proper perspective. You see, Ron's father was the pastor of the Lutheran Church and our clandestine radio station was operating from the basement of the parsonage. We broadcast only on Sunday afternoons because this is when the good parson was visiting the sick and shut-ins of the congregation and it would be better if he didn't know what was going on in the basement.

Our staff had grown. We now had several disc jockeys from our high school and we all had on-the-air names too. Ron was Righteous Ron as he was the pastor's kid. My friend Rick was Big Rick the Drill Master. Another was The Duke and I was Big Al the Kiddies Pal as I did a parody on a children's show.

We would play records, take requests and do everything any self-respecting radio station would do. We had a sign-on and played the National Anthem, and we even had sponsors and newscasts.

Our newscasts featured news from the discarded New York Times the pastor had placed in the basement to be recycled. Our news was several days old but this is handy if you happened to miss the news that day. One of our "sponsors" was the Hupmobile, an automobile out of production for 40 years at the time.

But the most popular broadcast from WADJ was the live sports, particularly the Ping-Pong matches that took place right tied at 11 each Big Rick was promising to pummel "that self-proclaimed righteous" Ron in the WADJ studios! The most exciting was when Big Rick challenged Righteous Ron to a grudge match. The game was very close. Just before the half time show with the score the second half.

The second half was certainly exciting. Klip klop, klip de klop, klip.... Another point for Big Rick. Klip de klop, klippa, klippa, klippa... klop! The return from Big Rick was high and the ball rattled around in the rafters of the basement ceiling and finally fell into Righteous Ron's court. This started a heated argument and the game had to be called because of violence.

The radio station ran for over a year broadcasting practically every Sunday. But as we got older and smarter we became aware of what the FCC could do to us for our transgressions and we sadly dismantled the station one rainy Sunday and mighty WADJ was off the air forever.

Al Helffrich, Ph.D

DAYTONA SECTION NEWS

IEEE Career Development and Senior Member Application Event

The Daytona Section is announcing a Career Development and Senior Member Application Event on Friday October 17, 2014 at 5:00 PM at Embry Riddle Aeronautical University.

The event is open to anybody, including the public, who is, has been, or will be interested in applying for an internship, job, promotion, tenure, or award. The program will include: A Resume Development Workshop, Interview Practice, as well as a IEEE Senior Member Application Event.

The event will be held in rooms 162 and 164, Lehman Building, ERAU-Daytona Main Campus at 600 S. Clyde Morris Blvd., Daytona Beach, (in between the two stoplights off Clyde Morris). It is Fall Break, so parking restrictions do not apply (except, of course, for handicapped spaces and "named" reserved spaces).

It is free to IEEE Members and to students of local colleges and high schools (with valid student ID). There is a \$5 charge for others.

For further information contact Jeanette Barott; E-mail: jeanette.barott@ieee.org; Phone: (386) 226-7405. RSVP is not necessary but would be appreciated for an approximate headcount. But if you do not RSVP, don't use it as an excuse to not attend!

At the event, a presentation Titled **Learning to Fly** will be given by Sean Holden (Computer Science) and Alex Spradlin (Software Engineering) on behalf of the Artificial Intelligence Club at 7:00 PM.

This talk will describe Genetic Algorithms, a popular machine learning technique. Genetic algorithms treat solutions to problems as strings of genetic material. The genetic algorithm process begins by randomly generating an initial population of potential solutions, followed by iterative breeding of progressively more successful, or fit, solutions. The idea is that the most successful solutions in one generation will pass their successful qualities to future generations. Sharing of genetic material (solutions) and mutations allow for improvements in solutions to occur. The process is affected by the degree to which the fitness of solutions may be assessed, the complexity of representing of the solution, the number of members in the population, and the mechanisms by which genetic material is passed on from one generation to the next.

A BOIDS application is used to illustrate the genetic algorithm concepts. BOIDS is a well-known application which simulates flocking behavior in birds, and schooling behavior in fish. Similar applications are used in movies to create virtual crowds and armies that move realistically.



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 \$28, including tax, for S-XL size's, 2XL size is \$4 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

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 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

Orlando Section website

www.ieee.org/orlando

FUTURE MEETING DATES:

The remaining meeting date for the 2014 session is: Dec 4th

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OCTOBER 2014 MEETING

Thursday October 23rd 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

5:30 PM Cocktails
6:00 PM Dinner
7:00 PM Program

TOPIC – Global Warming - From The
Beginning

SPEAKER- Tracy Wichmann, Section Chair

October 23rd Oktoberfest Dinner Menu

Grilled Bratwurst with sweet sauerkraut and boiled potatoes

Beer braised brisket with creamed spinach and roasted potatoes

Mustard braised pork loin with sauteed Brussels sprouts and salt potatoes

All entrees served with rolls and butter, house salad, coffee and tea

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 with your dinner selections or for program information.

Selection's must be in by Wednesday the 22nd at noon so the club has time to order and prepare

Allan Jusko Secretary/Editor 386-671-3706 a.jusko@ieee.org

**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**
