

**Update:** December, 2013

## **STEM Fair at Berkshire Community College: Friday, November 22, 2013**

George Haus, Education Chair and Jim McVeigh, Chairman and Justin Bell, IEEE new member attended 2013 Science Technology Engineering Math (STEM) Fair.

"We had students from 11 schools attending in two sessions. The materials received from Paola Bringas, Administrative Assistant, Women in Engineering were well received by the girls that visited our table. There was very little left when the fair concluded. Boys also were attracted to the display and were quick to note that they were also were interested in going into engineering, with our compliments and encouragement.

I did save enough (14 sets) to give to the science teachers who participate in our IEEE Berkshire Science Writing Contest. Your "Fold-Out" display was well received and the students were impressed that electrical engineers do become major participants in a wide range of the 'science' fields.

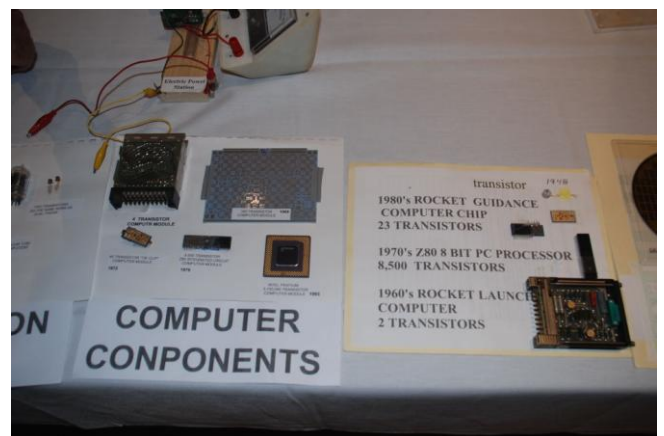
The students also had a good time experimenting with the display, see below".

STEM Fair Contact: George Haus, Education Chair



George Haus interacting with the students

# IEEE Berkshire Section Newsletter



**Berkshire Consultants Network Dinner Meeting**  
**Thursday, November 7, 2013**

**Tips on What it Takes to Succeed**  
**By**  
**Paul R. Hutchinson – Hutchinson Consulting**

Do we use sales to achieve your goals at work and in your everyday life? Sure we do! Will understanding some basic sales concepts help us achieve our goals? You Bet. How can we learn to become more successful in selling and building our business or life in general?

This talk focused on what a sale is and how to become more successful when we need to sell. Key points included:

- Understanding successful selling and solving problems
- Goal Setting - Becoming clear on what the steps are in selling
- How to learn by observing other people selling
- Building your sales skills and how you can apply them to your business
- Listening comes first
- Building trust and credibility

Meeting contact: Rich Kolodziejczyk, Consultants Network Chair

**Guest Attendance: 9**

**IEEE Member Attendance: 13**



# **IEEE Berkshire Section Newsletter**



Kolodziejczyk, Consultants Network Chair, starts the meeting by introducing the speaker Paul Hutchinson



Paul begins his presentation by introducing the key points of sales

# **IEEE Berkshire Section Newsletter**



Paul explores the sales abilities with audience



Rich Kolodziejczyk, Consultants Network Chair, presents Paul with a gift from the Berkshire Section



## **Computer and Control Chapter (C&C) Meeting:** **Thursday, October 24, 2013**

### **MATLAB and Simulink Update**

by

**Kurt Wachtel**

Advanced Engineer - Systems at GDAIS

MATLAB is a high-level technical language and development environment for analyzing data and developing algorithms and applications provided by MathWorks. It is easy to learn and use, MATLAB integrates computation, data analysis, visualization, and an intuitive programming language.

Simulink is an interactive environment for designing and simulating dynamic systems in engineering and the sciences. An intuitive block-diagram interface lets you model, simulate, and analyze multi-domain control, signal processing, communications, biological, and other systems.

During the meeting, the speaker described how to use MATLAB and Simulink for technical computing. He briefly discussed how the tools have evolved and how more recent versions differ from earlier versions. He discussed how MATLAB and companion toolboxes could be used for various engineering tasks such as loop shaping for feedback control design, simulating electrical transients, and smoothing sampled data.

Meeting contact: Rich Kolodziejczyk, C&C Chapter Chair

**Guest Attendance: 7**

**IEEE Member Attendance: 14**

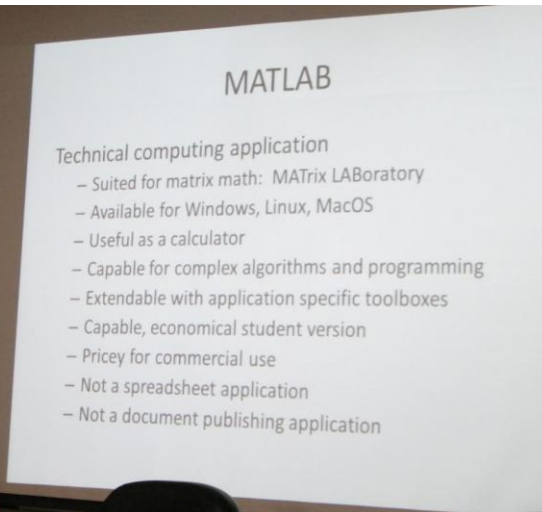
# **IEEE Berkshire Section Newsletter**



Rich Kolodziejczyk, C&C Chapter Chair, starts the meeting by introducing the speaker Kurt Wachtel



Kurt Wachtel begins his presentation on the MATABL & Simulink Update



## Kurt explains the MATLAB computing applications



## Kurt explains changes to the 2013 MATLAB desktop





```

1  % define simulation
2  A = [ 0 1; -0.5 -1 ]; % state dynamics
3  B = [ 0; 1 ]; % input coupling
4  sys = ss(A, B, eye(2), [0; 0]);
5
6  % compare results by plotting state time histories on same axis
7  figure(1)
8  subplot(2, 1, 1)
9  plot(td, d, t, y)
10 xlabel('time'), ylabel('signal')
11 title('Comparison of Time Histories')
12 legend('Position from ode45', 'Velocity from ode45', ...
13        'Position from lsim', 'Velocity from lsim');
14
15 % compare results by plotting state differences on same axis
16 figure(2)
17 subplot(2, 1, 2)
18 plot(t, d-y)
19 xlabel('time'), ylabel('difference')
20 title('Difference of Time Histories')
21 legend('Position difference', 'Velocity difference')

```



Rich Kolodziejczyk, Chairman of C&C, presents Kurt with a gift from the Berkshire Section

## Message from our Section Historian:

Our section History continues and now it is being updated. Six members want to be remembered and sent me the information by which they want to be remembered.

However, in this update, I would like to include a nice colored picture of a member submitting an article, please send me one.

If you had not yet decided to be remembered in this history update, then be assured there is still time to change your mind and be part of this update. If should you decide to be part of the historical update, then send me something about yourself that you consider unique or just something you would like to see in print. When you do, please include a colored photo of yourself.

Thank you and submit your inputs using Snail Mail only,

Edward J. Ptak, Section Historian  
16 Alba Ave.  
Pittsfield, MA 01201

**Computer and Control Chapter (C&C) Meeting:**  
**Thursday, August 22, 2013**

**HVDC Transmission Lines: Electrical Effects**

by

**Bernie Clairmont**

**Scientist and Senior Project Manager at EPRI**

High-voltage direct current (HVDC) is an established technology for long-distance bulk power transmission that is more efficient than high-voltage alternating current (HVAC) transmission. As electric power companies plan for their power flow needs and/or higher levels of grid stability, HVDC or hybrid lines (ac-dc sharing the same corridor) may be the most economical and reliable solutions. However, HVDC lines have special concerns that must be addressed and accounted for during their design and operation. Specifically, when HVDC lines produce corona, they can cause audible noise, electric field interference, ozone production, spark discharges, and human sensations, as do HVAC lines—but unique to HVDC lines is the ejection of electric charge into space (called “space charge”). This space charge results in increased electric fields, the formation of charged ions and charged aerosols, and increased human sensations. These charged particles result in dc ion currents to ground and into other objects such as people, distribution lines, other utility lines, or other electrical devices. Researchers at the EPRI high voltage laboratory in Lenox have been studying the underlying physics of these electrical effects, and an overview of the science was presented.

Mr. Clairmont during a luncheon meeting reviewed the Electric Power Research Institute, Inc. (EPRI) research and developments related to the generation, delivery, and use of electricity for the benefit of the public. EPRI as an independent, nonprofit organization, brings together its scientists and engineers as well as experts from academia and industry to help address challenges in electricity, including reliability, efficiency, health, safety, and the environment.

Meeting contact: Rich Kolodziejczyk, C&C Chapter Chair

**Guest Attendance: 5**

**IEEE Member Attendance: 17**

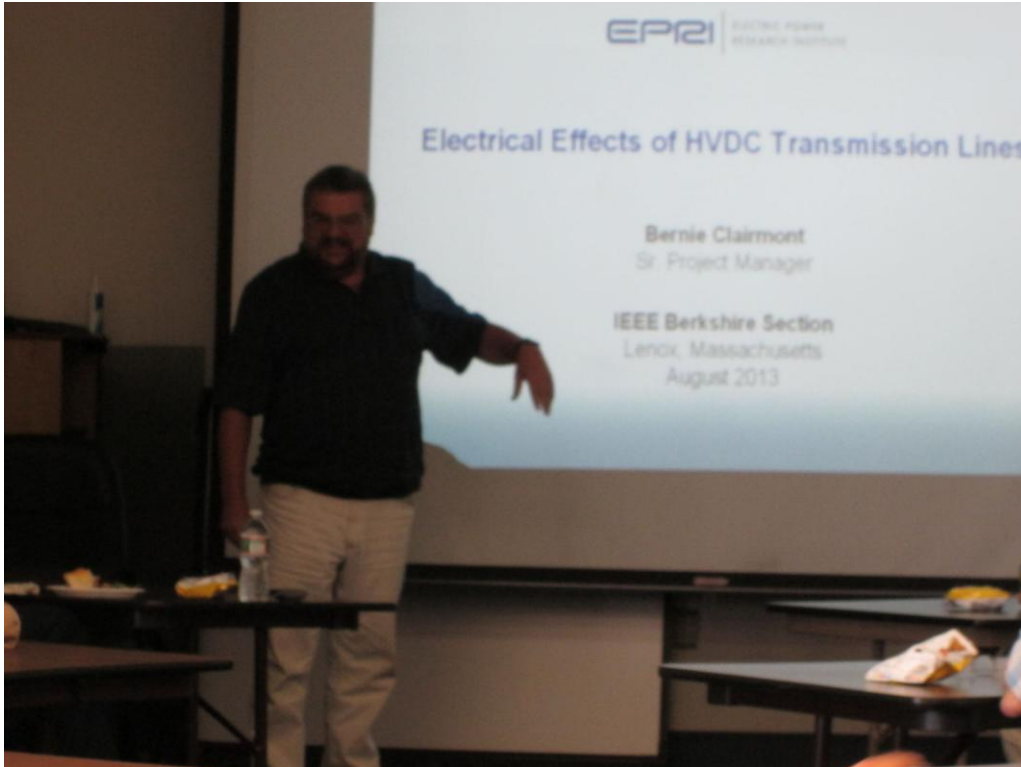


# IEEE Berkshire Section Newsletter

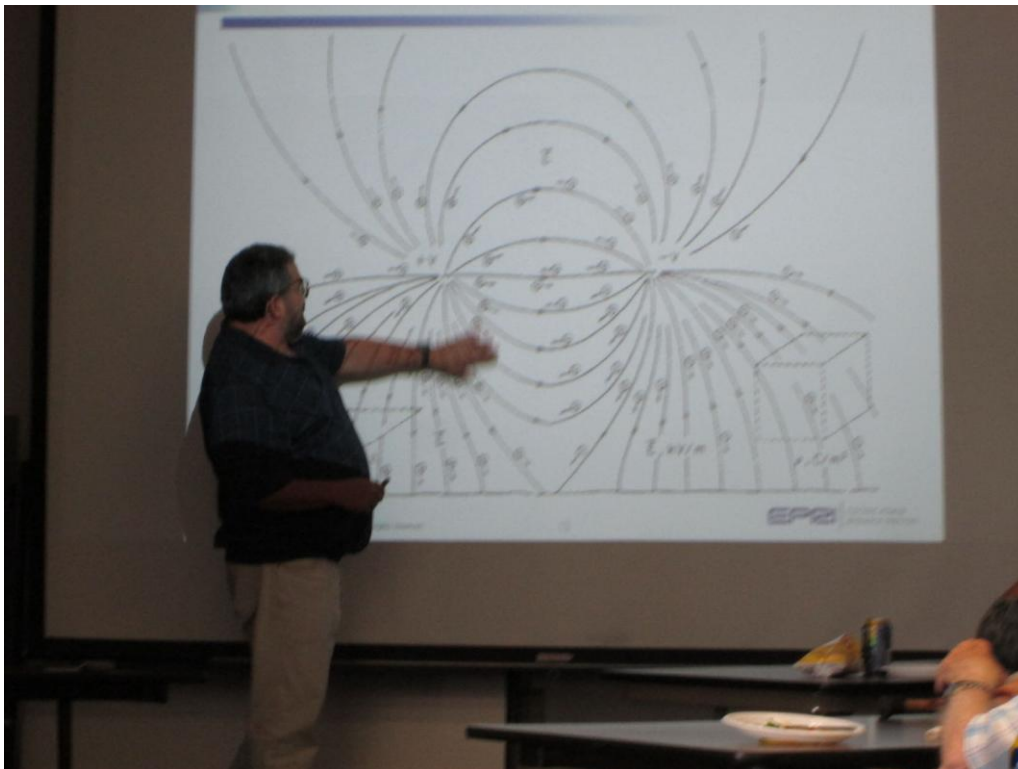


Rich Kolodziejczyk, C&C Chapter Chair, starts the meeting by introducing the speaker Bernie Clairmont

# IEEE Berkshire Section Newsletter



Bernie Clairmont begins his presentation on the HVDC – Electrical Effects



Bernie explains the electric fields from DC transmission line

## **Power Chapter Meeting: Thursday, June 21, 2013**

### **SOLAR ELECTRIC – TOUR of a Residential Installation**

by

**Roger Manzolini – Power Systems Engineer at General Dynamics**

Roger Manzolini hosted a tour at his home in Richmond of a residential solar electric power system in operation. Roger described the system in detail, shared his experiences and answered questions regarding the installation and operation of a system. He focused on providing knowledge and lessons learned to those interested in this technology and those considering investing in a solar electric power system at their home.

Meeting contact: David Rueger, Power Chapter Chair

**Guest Attendance: 2**

**IEEE Member Attendance: 4**



Roger Manzolini at his solar electric power system in operation, 40 panels, 8.6 KWatts – View 1



# **IEEE Berkshire Section Newsletter**



Roger's solar electric power system in operation – View 2



Roger's solar electric power system in operation – Back View

# IEEE Berkshire Section Newsletter



View of the microinverters converting 30 V<sub>DC</sub> to 240 V<sub>AC</sub> Single Phase, 60 Hz Power, one for each panel



Roger explains details of the power distribution and smiles pointing to the power meter running in reverse, After all, it was a sunny day.

## **Power Chapter Meeting: Thursday, June 6, 2013**

### **SOLAR ELECTRIC – Reliable and Pollution-Free Residential Electricity**

by

**Roger Manzolini – Power Systems Engineer at General Dynamics**

Solar electric systems harness energy from the sun each day year round. They are becoming an affordable renewable energy option for the residential consumer that does not pollute. Roger presented and shared his experience on what he has learned from the design and installation of a PV solar system at his home in Richmond, MA. The focus of the presentation was on understanding the system, system cost and credits, Solar Renewable Energy Credits (SRECs), and the expected payback period and other risks and benefits of a solar system.

Meeting contact: David Rueger, Power Chapter Chair

**Guest Attendance: 16**

**IEEE Member Attendance: 11**



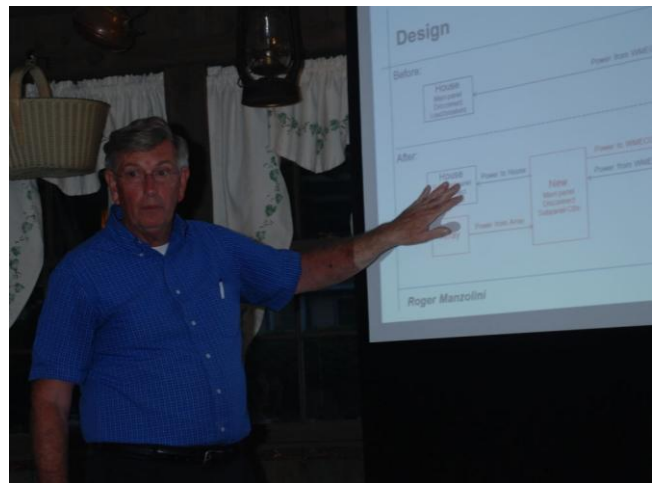
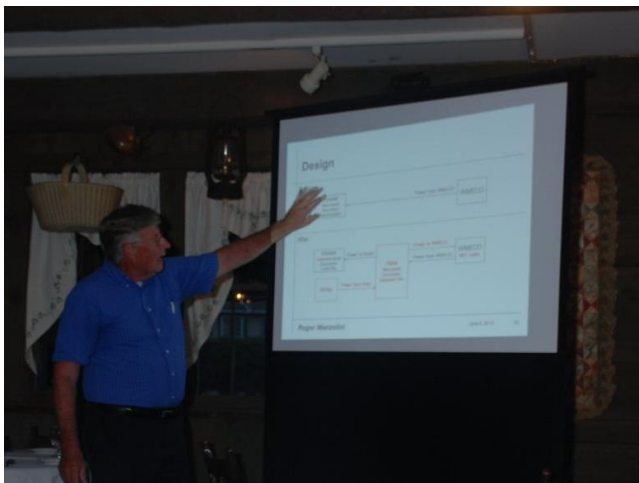
David Rueger, Power Chapter Chair, starts the meeting by introducing the speaker



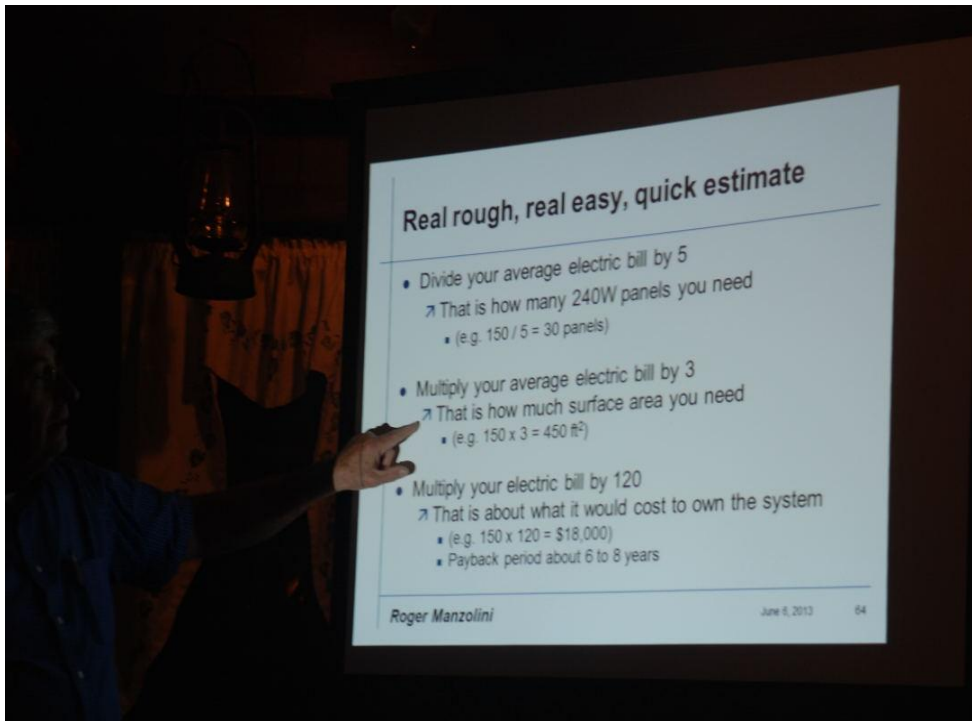
# IEEE Berkshire Section Newsletter



The Speaker: Roger Manzolini, Power Systems Engineer begins his presentation



Roger explains the Solar electric systems system design



Roger further explains real rough, real easy and quick estimate for the solar design



Cara Humphrey, Solar Consultant at Astrum Solar provides views of solar installation

## **Annual Dinner Meeting: Thursday, May 9, 2013**

### **What It Takes To Win the IEEE Science Writing Contest Presentations by Writing Contest Winners**

We recognized 2013 writing contest winners by giving the students a few minutes to talk about their papers: how they chose their topic, their research, and any interesting discoveries.

#### **Grades 9/10 prizes: (1st - \$300, 2nd - \$200, 3rd - \$100)**

- 1<sup>st</sup> - Anna Black** - Pittsfield High School  
    **“Legg-Calve- Perthes Disease”**
- 2<sup>nd</sup> - Joseph Grochmal** - Monument Mountain Regional High School  
    **“Terraforming: Creating New Worlds in Space”**
- 3<sup>rd</sup> - Patrick Gallagher** - Taconic High School  
    **“Intelligence in Cephalopods”**

#### **Grades 11/12 prizes: (1st - \$300, 2nd - \$200, 3rd - \$100)**

- 1<sup>st</sup> - Kevin C. Li** - Monument Mountain Regional High School  
    **“Nanomedicine: A precursor to the next Generation of Revolutionary Medicine”**
- 2<sup>nd</sup> - Julian Michaels** - Monument Mountain Regional High School  
    **“Subzero – A New Infinity”**
- 3<sup>rd</sup> - Emily Martin** - Monument Mountain Regional High School  
    **“The Revolution of Prosthetics”**

#### **From Award Chairman Bernard Clairmont:**

Bernie announced the list of winners of the Member Child Awards for 2013  
Member Child Awards \$100:     Holly Rueger

Meeting contact: George Haus, Education Chair

**Guest Attendance: 31**

**IEEE Member Attendance: 15**



# **IEEE Berkshire Section Newsletter**

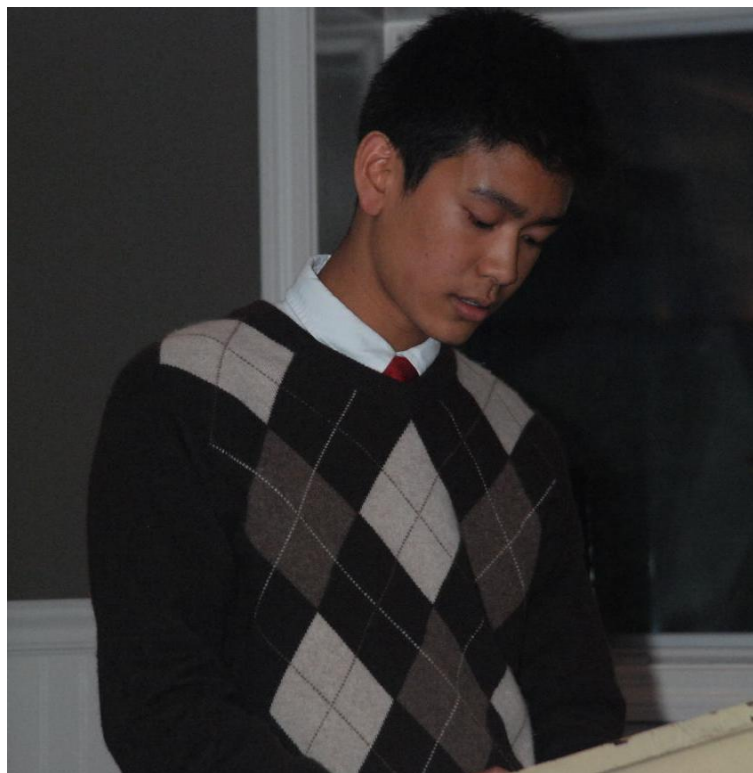


**George Haus, Education Chair  
Starts the meeting with introduction of 2013 Writing Contest Winners**



**2013 Writing Contest Winners**

# **IEEE Berkshire Section Newsletter**



**1<sup>st</sup> Prize Grade 11/12 - Kevin C. Li - Monument Mountain Regional High School**  
**"Nanomedicine: A precursor to the next Generation of Revolutionary Medicine"**

# **IEEE Berkshire Section Newsletter**



**2<sup>nd</sup> Prize Grade 11/12 - Julian Michaels - Monument Mountain Regional High School**  
**"Subzero – A New Infinity"**



# **IEEE Berkshire Section Newsletter**



**3<sup>rd</sup> Prize Grade 11/12 - Emily Martin - Monument Mountain Regional High School  
"The Revolution of Prosthetics"**

# **IEEE Berkshire Section Newsletter**



**1<sup>st</sup> Prize Grade 9/10 - Anna Black - Pittsfield High School  
"Legg-Calve- Perthes Disease"**

# **IEEE Berkshire Section Newsletter**



**2<sup>nd</sup> Prize Grade 9/10 - Joseph Grochmal - Monument Mountain Regional High School  
"Terraforming: Creating New Worlds in Space"**



# **IEEE Berkshire Section Newsletter**



**3<sup>rd</sup> Prize Grade 9/10 - Patrick Gallagher - Taconic High School  
"Intelligence in Cephalopods"**

**Berkshire Consultants Network Meeting:**  
**Thursday, April 18, 2013**

**Patents – A New Age**

By

**Al Reinhart, Esq.- IEEE Senior Life Member**

On September 16, 2011, the America Invents Act (AIA) was signed into law and on March 16, 2013, the last of its provisions took effect. AIA is the most significant patent legislation since the patent act of 1952. It changes the patent system in fundamental ways and will profoundly influence how and when inventions are patented.

This presentation provided a brief overview of intellectual property (patents, trademarks, copyright, and trade secrets), with a consideration of what the pre-AIA patent system was, and what the post AIA patent system is. It considered the major impact AIA is expected to have on protecting intellectual property and how inventors are likely to react. It concluded with an open discussion of what a reasonable intellectual property strategy might be.

Meeting contacts: Rich Kolodziejczyk, PE

**Guest Attendance: 9**

**IEEE Member Attendance: 16**



Speaker introduction by Rich Kolodziejczyk

# IEEE Berkshire Section Newsletter



The speaker: Al Reinhart, Esq.



Al Reinhart speaking



## National Engineers Week Dinner Meeting: **February 21, 2013**

### **Show Me the Words: Another Side of Engineering Thinking**

By

**Ralph S. Nightingale**

**Senior Principal Engineer 1 – Systems, Retired  
General Dynamics Advanced Information Systems (GDAIS)**

Engineers, scientists, and mathematicians often focus on the quantitative side of their fields – mathematical equations, software code, circuits, etc. Ralph provided us with another side of engineering thinking, which is the role of qualitative thinking in technical fields. He stressed that words and pictures are also important, enhancing the understanding of technical problems being solved and effectively communicating the solutions to customers. He provided examples of how words and equations work together, and his example “Numbers Lie, Equations Fib” illustrated how words enhance understanding and provide important reality checks.

Meeting contacts: Rich Kolodziejczyk, PE

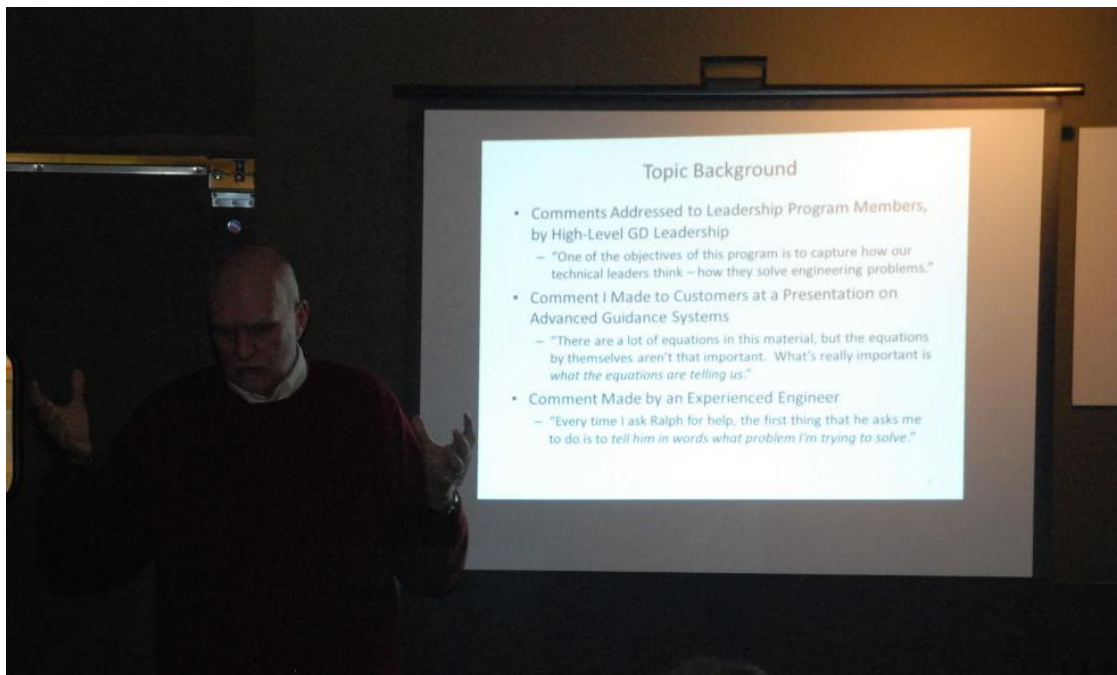
**Guest Attendance: 12**

**IEEE Member Attendance: 18**



Speaker introduction by Rich Kolodziejczyk

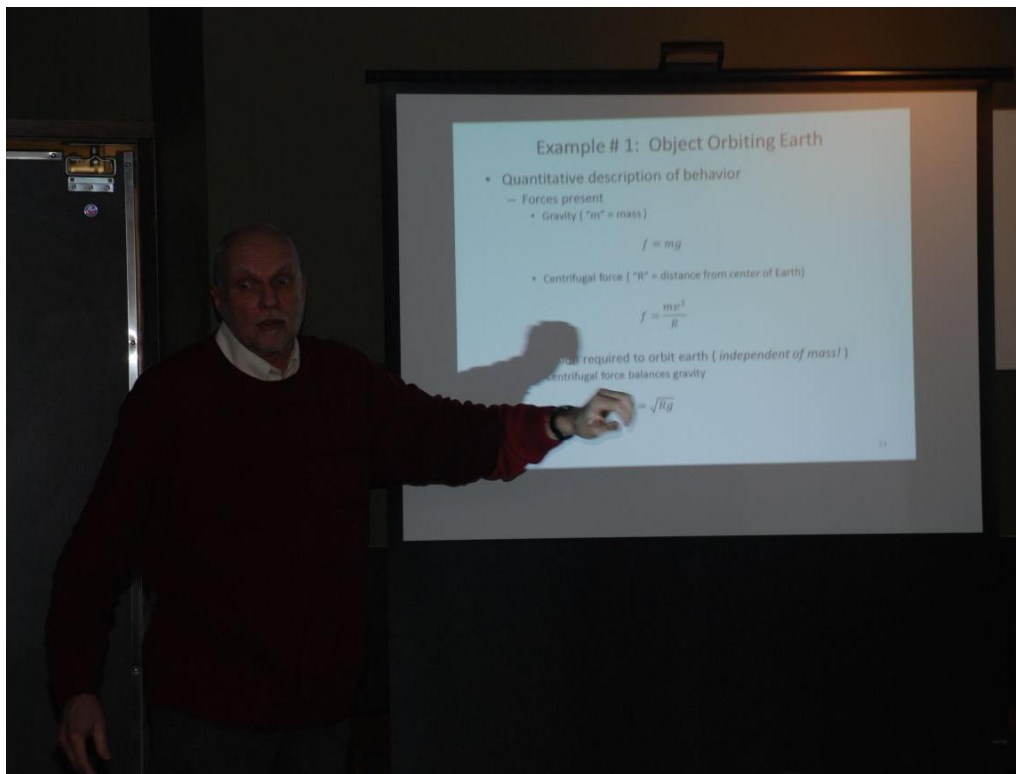
# IEEE Berkshire Section Newsletter



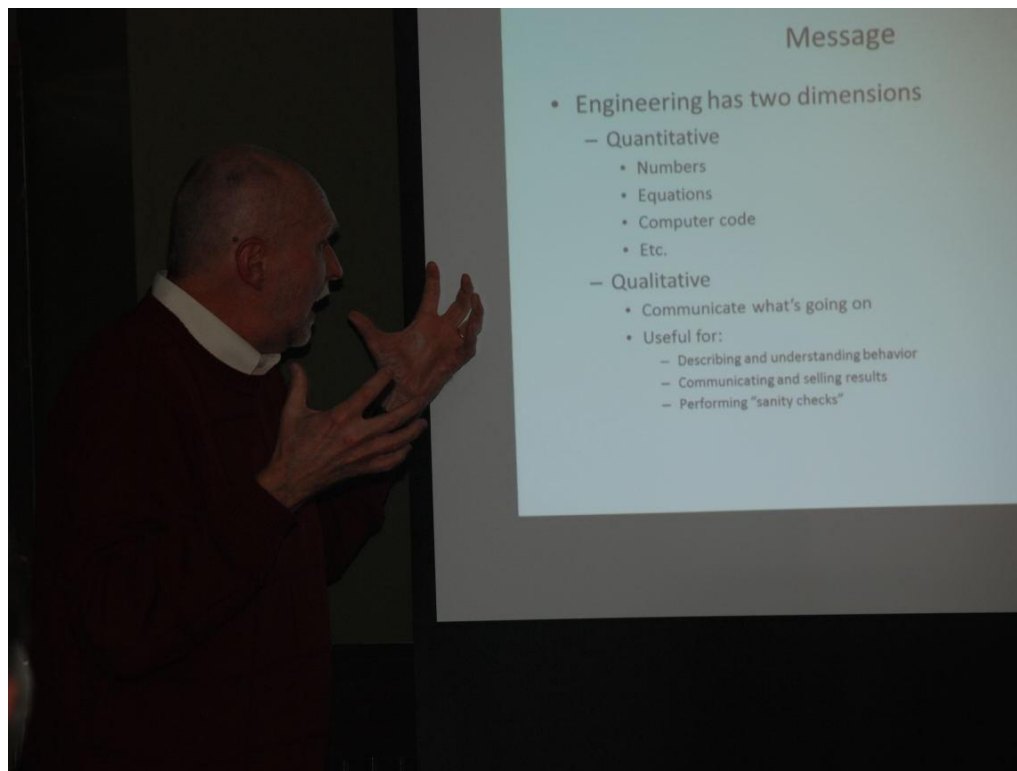
The speaker: Ralph S. Nightingale



Ralph speaking



Ralph explains...



Ralph outlines his message...