IEEE Berkshire Section Newsletter

Update: December

The Computer and Control Chapter (C&C) Meeting: Thursday, December 6, 2012

TFlash – Lightning Protection Software
by
John Anderson and David Robbins

John spend a brief time on the historical background of lightning research, the old researchers of the past, the characteristics of lightning, and what happens when lightning strikes power lines. He introduced TFlash as result of this lightning research and many man-hours spent studying lightning effects.

The TFlash lightning protection software reduces large data sets to practical applications for high voltage transmission line designs. A short explanation of how TFlash combines static and time step models to produce statistical predictions of high voltage transmission line performance were examined in two parts. One part explained how the complex statistical simulations to predict lightning leader progression were reduced to a practical application in TFlash. A second part showed the reduction of many years of lightning strikes by the National Lightning Detection Network into useful statistics that are applied in TFlash. Finally the applicable experimental test data on lightning effects to grounding electrodes and TFlash model results were compared.

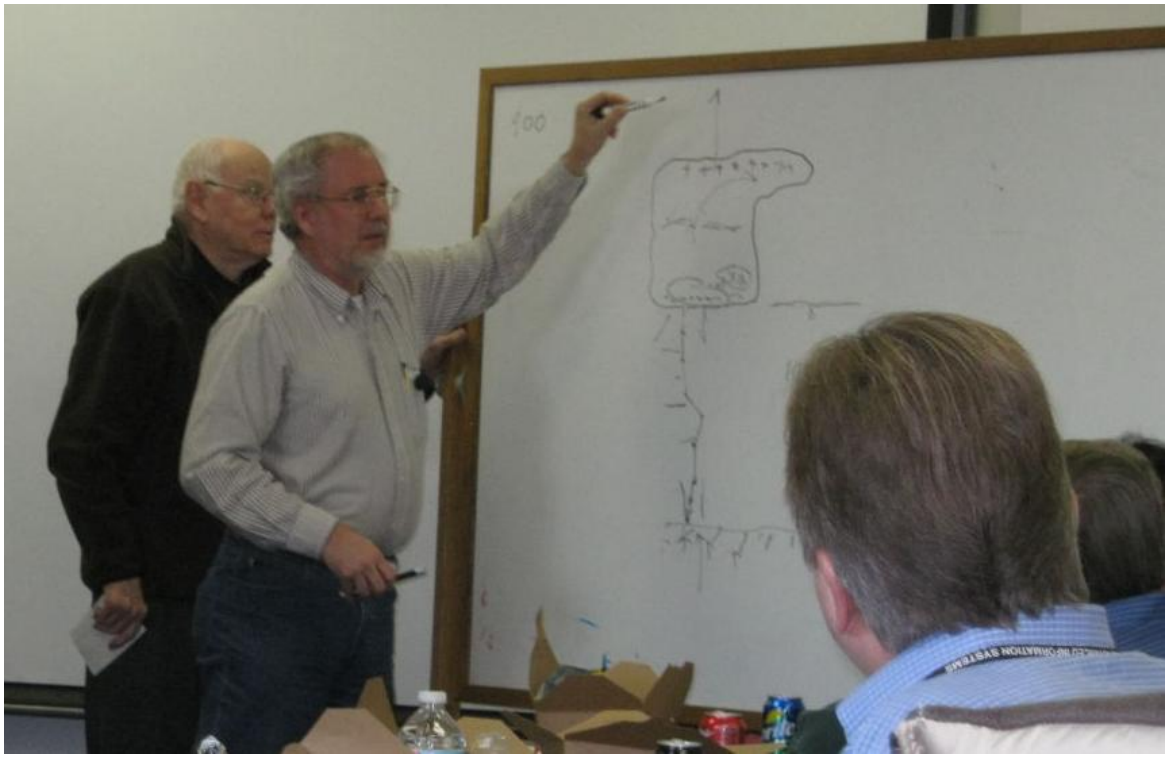
Meeting contact: Rich Kolodziejczyk, C&C Chapter Chair
Guest Attendance: 7
IEEE Member Attendance: 15

Rich Kolodziejczyk, C&C Chapter Chair, starts the meeting by introducing the speakers: John Anderson and David Robbins

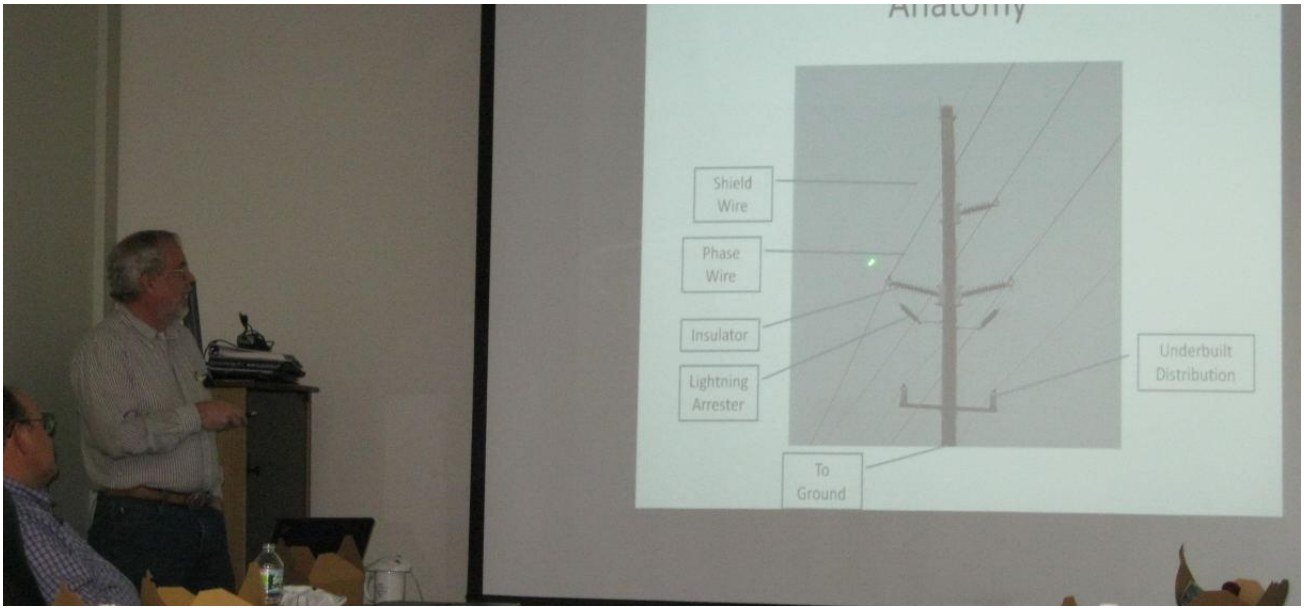
John Anderson starts by explaining historical background of lightning research in Pittsfield.

John continues while guests listen attentively and enjoy box lunch from Samel's Deli.

John explains charge buildup in a thundercloud and a dart leader formation/propagation.



Next, Dave Robbins explains how the formation of sprites above the cloud begins.



Dave Robbins continues with the TFlash lightning protection software and its practical applications for high voltage transmission line designs.

Success indeed, a lightning discharge to a power line overhead ground wire, the TFlash predicted that.

The Power Chapter Dinner Meeting: Friday, October 26th, 2012

SMART GRID: TRENDS IN INTEGRATED POWER SYSTEM PROTECTION AND CONTROL

by

John J. Kumm, P.E.

POWER Engineers, Inc., Clarkston, WA

The concept of Smart Grid has been in the broad media for several years. The vision is that informed consumers, networked appliances, and wise regulators will combine forces with millions of specialized meters to move mountains and fill valleys in our energy-use demand profile. Upstream from the media spotlight, toiling in relative obscurity, utility engineers are part-way through a power system controls conversion powered by technical advances in computing and communication. This conversion is improving utility operators' system visibility. As our work continues, increasingly integrated devices, substations, and controls will lead to more efficient and fault tolerant electric power networks.

This presentation provided a briefly look back over three decades of advances made in power system protection and control implementation, advances enabled by cost reduction and performance increases in computing and communications. Also examined were how these changes could impact the basic architecture of the power system, permitting a transition from central station generation and bulk transmission to a more robust and efficient decentralized network of locally-controlled sub-grids.

Meeting contact: David Rueger, Berkshire Section Chair and Power Chapter Chair
Guest Attendance: 8
IEEE Member Attendance: 18

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

The Speaker: John J. Kumm, P.E. from POWER Engineers, Inc., Clarkston, WA

David Rueger presents a book of Berkshire Section History to the speaker

Berkshire Consultants Network Workshop: October 13, 2012

Sales Skills for Engineers and Scientists
By
Paul Hutchinson, Hutchinson Consulting

This workshop gave an insight and understanding it takes to become focused and effective at selling. The speaker explained the rules of the game and explored specific tactics to refocus and sharpen ones skills. The workshop gave a basic understanding of what sales is and how to create a sales process that supports a successful business.

This workshop introduced the process of selling and explained the difference between Marketing and Sales. It discussed and explained sales as a series of steps from the first sales call or introduction to the closing of the sale. The workshop concluded with Paul answering attendees' individual questions and addressing their unique circumstances and sales challenges. Attendees received exercises and reference handouts to build their sales skills and improve their ability to sell.

There were two breakouts during the workshop. Each provided the attendees with an exercise designed to bring clarity to their selling process. One breakout focused on creating the sales process for engineers, and the other focused on building a professional referral network.

Meeting contact: Rich Kolodziejczyk, Berkshire Consultants Network Chair

Guest Attendance: 3
IEEE Member Attendance: 6

Power Chapter Luncheon Meeting: August 2, 2012

Electric Power Research Institute (EPRI) Lenox Laboratory Tour
by
Bernie Clairmont

The tour began with an introductory presentation of the laboratory and its research, highlighting historical facts from the early days under General Electric and continuing thru to the present day with state-of-the-art research being conducted by EPRI. Like GE, the Lenox lab has roots going back to the days of William Stanley, Thomas Edison, and Frank Peek, the first manager of the GE high voltage lab. The lightning impulse generator that was built at that lab was moved to the EPRI lab in 1990, and is still regularly used for EPRI research.

Today, work at the EPRI lab focuses on high voltage transmission, HVDC, electromagnetic fields, corona effects, high voltage insulator aging and performance, line ratings, live working, manhole explosions, stray voltage, electrical safety, software development, and more.

The Electric Power Research Institute, Inc. (EPRI) conducts research and development related to the generation, delivery, and use of electricity for the benefit of the public. An independent, nonprofit organization, EPRI 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: David Rueger, Berkshire Section Chair and Power Chapter Chair
Guest Attendance: 9
IEEE Member Attendance: 13

Bernie Clairmont starts his presentation by explaining the mission of EPRI in Lenox

Bernie showing the aerial view of EPRI

Bernie continues while quests pay attention

Berkshire Consultants Network Dinner Meeting: July 26, 2012

Income from Credit Spreads
by
Roger Manzolini

Roger presented a quick overview of “covered calls.” Then he explained “credit spreads” and showed how they can be used to generate monthly income.

From Wikipedia: A **credit spread**, or **net credit spread**, involves a purchase of one option and a sale of another option in the same class and expiration but with different strike prices. Investors receive a net credit for entering the position and want the spreads to *narrow* or expire for profit. In contrast, investors would have to pay to enter a debit spread.

One uses a credit spread as a conservative strategy designed to earn modest income for the trader while also having losses strictly limited. It involves simultaneously buying and selling (writing) options on the same security/index in the same month, but at different strike prices (this is also a vertical spread). If the trader is BEARISH (expects prices to fall), he would use a bearish call spread. It's named this way because he is buying and selling a call and taking a bearish position.

Meeting contact: Rich Kolodziejczyk, PE, Consultants Network Chair
Guest Attendance: 5
IEEE Member Attendance: 12

Rich Kolodziejczyk, Consultants Network Chair, starts the meeting by introducing the speaker

Roger Manzolini starts his presentation by explaining the high tech prompt due the equipment malfunction

Roger continues with a ‘disclaimer’

Roger making and explaining the point

Roger continues while quests listen attentively

Annual Dinner Meeting: May 10, 2012

Winners of the IEEE Berkshire Section Science Writing Contest: 25th Year

Presentations by Writing Contest Winners

Grades 9/10 prizes: (1st - $100, 2nd - $50, 3rd - $25)

1st - **Mercy Paine -** Miss Hall's School
"Harvesting Garden Eels: Swimming with the Fishes"
2nd - **Ashley Glass -** Monument Mountain Regional High School
"Beta Cell Regeneration: Diabetes' Biggest Hope"
3rd - **Courtney McMahon -** Pittsfield High School
"The Neurological Explanation of "Brain Freezes""

Grades 11/12 prizes: (1st - $100, 2nd - $50, 3rd - $25)

1st - **Jenny Begley -** Monument Mountain Regional High School
"Bexarotene: A Potential Treatment for Alzheimer's Disease"
2nd - **Dylan Cole-Kink -** Monument Mountain Regional High School
"The Effects of Alcohol Abuse on the Adolescent and Adult Brain"
3rd - **Oscar Courchaine -** Lee Middle and High School
"Nuclear Fusion and the Future"

Carroll Kane received The **William Terry Distinguished Lifetime Service Award,** presented by Peter Eckstein, Region 1 Director.

Joseph Slocik and **Andy Miller** received recognition plaques for their service to the IEEE Berkshire Section presented by the Dave Rueger, Section Chairman.

From Award Chairman Bernard Clairmont:

Announced the list of winners of the Member Child Awards for 2012:
Member Child Awards $100: Jill Carter
Justin Clairmont

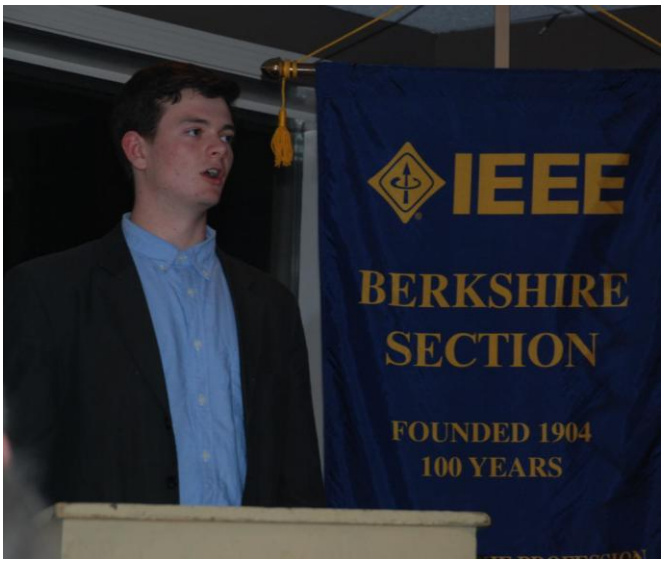
Meeting contact: George Haus, Education Chair
Guest Attendance: 43
IEEE Member Attendance: 18

Dave Rueger, Section Chair
Starts the meeting

George Haus, Education Chair
Introduces 2012 Writing Contest Winners

2012 Writing Contest Winners: (left to right)
Dylan Cole-Kink, Courtney McMahon, Ashley Glass, Oscar Courchaine, and Mercy Paine

Oscar Courchaine - 3rd Prize
Grade 11/12 - Lee Middle and High School



Dylan Cole-Kink - 2nd Prize
Grade 11/12 - Monument Mountain Regional High School

Ashley Glass - 2nd Prize
Grade 9/10 - Monument Mountain Regional High School

Courtney McMahon - 3rd Prize
Grade 9/10 - Pittsfield High School

Jenny Begley (absent) - 1st Prize
Grade 11/12 - Monument Mountain Regional High School

Mercy Paine - 1st Prize
Grade 9/10 - Miss Hall's School

Peter Eckstein, Region 1 Director, introduces the Carroll Kane

Carroll Kane, the Recipient of The William Terry Distinguished Lifetime Service Award

Andy Miller **Joe Slocik**

Recipients of the IEEE Berkshire Section Recognition Award

The Computer and Control Chapter (C&C): April 26, 2012

Cyber Security

by

Jason Mativi, Network Administrator

Jason Mativi presented Cyber security as the collection of tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions and training that can be used to protect the cyber environment and user's assets.

He further emphasized that the organization and user's assets include connected computing devices, personnel, infrastructure, applications, services, telecommunications systems, and the totality of transmitted and/or stored information in the cyber environment. Furthermore, cyber security strives to ensure the attainment and maintenance of the security properties of the organization and user's assets against relevant security risks in the cyber environment.

He stressed that the general security objectives comprise measures taken to protect a computer or computer system (as on the Internet) against unauthorized access or attack. The following concepts were discussed: Passwords; Firewalls/Routing/NAT; Encryption; WiFi Security; "Good Practice" policies and prevention for people; Social Engineering; Safe Web Browsing-What to Look Out For; Local computer security policies and practices; Networks and VPNs.

Meeting contact: Rich Kolodziejczyk, PE, C&C Chair
Guest Attendance: 2
IEEE Member Attendance: 13

Rich Kolodziejczyk, C&C Chair introduces the speaker

Jason Mativi presenting

National Engineers Week Dinner Meeting, February 23, 2012

Engineering Contributions in Pittsfield: Past, Present and Future

By

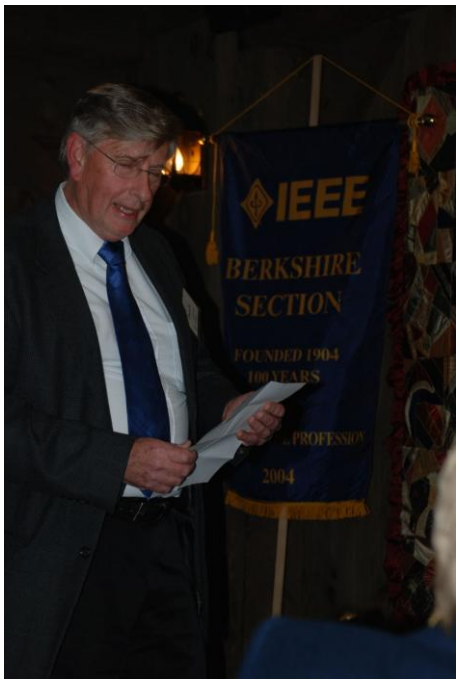
Mike Tweed-Kent

Vice President Mission Integration Systems
General Dynamics Advanced Information Systems (GDAIS)

Mike Tweed-Kent presented an overview of how General Dynamics' engineers and the Pittsfield team members, in particular, have played a key role in transforming the engineering and business climate in the Berkshires. Mike talked about how things were a decade ago, the likely scenarios that could have played out had no steps been taken, the steps GDAIS took to achieve a brighter future, and the broad-based team involvement. He highlighted key technical challenges that were overcome, the strategy followed to become a Tier 1 defense contractor, and what it takes to retain that position.

Mike also shared a video from the bridge of the Littoral Combat Ship that truly demonstrates how far we have come, and what a bright future is ahead of us.

Meeting contacts: Roger Manzolini & Rich Kolodziejczyk, PE
Guest Attendance: 15
IEEE Member Attendance: 22



Speaker introduction by Roger Manzolini

The speaker: Mike Tweed-Kent

Mike Tweed-Kent speaking

Mike Tweed-Kent explains…

Rich Kolodziejczyk presents a book of Berkshire Section History and a Recognition Plaque