

IEEE Berkshire Section Newsletter

Update: December 2024

In Memoriam

IT IS WITH PROFOUND SADNESS that we announce the passing of James Francis McVeigh, Chairman of IEEE Berkshire Section at age 77.

He died of natural causes in his home on Nov. 7, 2024. He resided in Cheshire, MA where he had lived since retiring in 1988. Jim grew up in Flatbush, Brooklyn, New York. He graduated from Manhattan College in 1968. He worked as an electrical engineer for General Electric in Pittsfield for many years. He then worked for Lockheed Martin and General Dynamics, also in Pittsfield.

In his retirement he was involved with the IEEE, for which he was Chairman of the Berkshire Section.

IEEE Berkshire Section Newsletter

2024 Berkshire Section Election: November

Dear Member:

The nominating committee has proposed the following slate of officers for the 2025 IEEE Berkshire Section.

Officers:

Section Chair	James McVeigh
Section Vice Chair	Rich Kolodziejczyk
Treasurer	Roger Manzolini
Secretary	Dave Rueger

NOMINATING COMMITTEE consisted of: GEORGE HAUS and GEORGE GELA

Starting this year, the 2024 Berkshire Section Election will be electronic using the vTools Voting.

Voting will start from 15 November 2024 12:00 AM and close at 01 December 2024 11:59 PM. Upon receipt of voting ballot from IEEE, please sign in to vote in the elections. **Please select one candidate for each position or specify a write-in candidate.**

Thank you for voting – your vote counts!

Richard Kolodziejczyk, Vice-Chair
IEEE Berkshire Section

The Power Chapter WEBINAR: October 31

Multiphysics Modeling of Electrical Motors

**By
Vignesh Gurusamy, Application Engineer, COMSOL**

To reduce global warming and the associated effects, the transportation and energy sectors are adopting measures to make different applications potentially fossil free. This has led to a surge in demand for electric machines and the related design and development efforts. The designs of these electrical machines need to meet various specifications including efficiency and power-density requirements. A multi physics-based simulation and modeling approach plays a critical role in accomplishing the design needs and significantly reducing the lead time to market. This webinar drewled more attention from energy audience to focus on the grid-interactive efficiency buildings and participate in the SBCS subcommittee and associated task forces. The presentation work also provided cutting-edge research outcome for the community.

The COMSOL Multiphysics® software and its add-on modules provide the capability needed to model the multi physics phenomena involved in electrical motors, including electromagnetics, thermal, structural mechanics, and fluid flow. The most common motor types, synchronous permanent magnet, and asynchronous motors, as well as more recently researched alternatives such as synchronous reluctance or axial flux motors, can be modeled and optimized in COMSOL Multiphysics®.

Meeting contact: Rich Kolodziejczyk, P.E.

Guest Attendance: 0

IEEE Member Attendance: 1

The Power Chapter WEBINAR: August 21

**Kinetic Theory of Plasma Discharges and its
Simulation Capabilities**

**By
Jacob Johnson, Scientist II
Electro Magnetic Applications, Inc.**

The ability to simulate discharges has long been of interest, particularly to the circuit breaker and switch gear industries. Over the years, the breakdown of air has been heavily studied along with commonly used gases such as sulfur hexafluoride (SF₆). However, as alternatives to SF₆ were searched for, the need for a tool to simulate a discharge in an arbitrary gas became apparent.

Ansys Charge Plus has long been able to simulate the breakdown of air. Recently, the capabilities of the tool have been expanded to be able to simulate the breakdown of any gas. Join us as we explore how the kinetic theory of plasmas was utilized for this development and what the new capabilities of the tool are.

Meeting contact: Rich Kolodziejczyk, P.E.

Guest Attendance: 0

IEEE Member Attendance: 3

Berkshire Consultants Network Presented: August 13

Discover WinCC Unified PC - The Future of HMI/SCADA

By

Kyle Harrison

Siemens Industry Inc

Free, live webinar to get a comprehensive overview of WinCC Unified PC.

Discover WinCC Unified PC - The Future of HMI/SCADA: Get an overview of WinCC Unified PC and its cutting-edge features. Learn why it's the ideal choice for your company and explore its future direction.

Decide on WinCC Unified PC for Your Business: Understand the benefits of WinCC Unified PC for your operations. Discover how it can enhance your visualization processes and improve efficiency.

Develop Skills with WinCC Unified PC: Get practical tips on using WinCC Unified PC. Understand its future roadmap and how to maximize its potential for your business. Take advantage of learning opportunities at Unified Academy and get support within the WinCC Unified Community.

Direction: The Future of WinCC Unified PC: Explore the future direction of WinCC Unified PC. Learn about upcoming features and advancements that will keep your business at the forefront of HMI/SCADA technology.

Meeting contact: Rich Kolodziejczyk, P.E.

Guest Attendance: 0

IEEE Member Attendance: 1

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Life Member Affinity Group Presented Annual Dinner

Meeting: May 10

2024 IEEE Berkshire Section STEM Research Challenge

Presentations by Research Challenge Winners

The following winners are students from the Berkshire County high schools' grades 11 and 12 (there were no grades 9 and 10 entries). We recognized the winning papers with our usual awards to students for their topic research and interesting discoveries.

Grades 9/10 prizes: (1st - \$800, 2nd - \$400, 3rd - \$200)

(No entries for this grade level)

Grades 11/12 prizes: (1st - \$800, 2nd - \$400, 3rd - \$200)

1st Emilie Coziol-Desy - Grade 11, Miss Hall's School

"The Manifestation of NAFLD in Lean Individuals: A Personal Journey into its Biological Framework"

2nd Hanna Heaton Wellenstein — Grade 12, Miss Hall's School

"Pores and Cons: Isotretinoin's Efficacy, Side Effects, and Gender Biases"

3rd Valerie Molino - Grade 11, Lee Middle and Highschool

"Indoor Plants Are Wildly Beneficial To One's Body and Mind"

3rd Ariel Caine - Grade 12, Monument Mountain Regional High School

"Next-Generation Gene Sequencing Technology for Medical and Anthropological Usage"

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2024 IEEE Berkshire Section STEM Research Challenge Winners

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1st Emilie Coziol-Desy - Grade 11, Miss Hall's School



2nd Hanna Heaton Wellenstein — Grade 12, Miss Hall's School

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3rd Valerie Molino - Grade 11, Lee Middle and Highschool

From Award Chairman: There were no entries this year for the 2024 Member Child Award and no winners.

Meeting contact: James F. McVeigh

Guest Attendance: 11

IEEE Member Attendance: 5

Berkshire Consultants Network Presented: April 30

The latest enabling technologies for electronic warfare (EW)

By
Star Labs Software

Military & Aerospace Electronics presented a webinar panel discussion on the latest enabling technologies for electronic warfare (EW). The panel discussion consisted of a prime EW systems integrator on the most important EW technologies needed from suppliers; a high-performance embedded computing expert from the Curtiss-Wright Corp. Defense Solutions Division on the latest embedded computing technologies for EW, and a trusted computing expert from Star Labs Software on some of the latest cyber security innovations for EW.

Highlights included EW enabling technologies that prime EW systems integrated need most from their suppliers; high-performance embedded computing technologies for EW, and cyber warfare and cyber security technologies for EW. Also included was a short discussion on the future potential of quantum computing and quantum communications technologies that could influence EW systems design.

Meeting contact: Rich Kolodziejczyk, P.E.

Guest Attendance: 0

IEEE Member Attendance: 2

The Computer and Control Chapter (C&C): March 20

Blockchain

By

Amber E Orr, PE in the State of Washington, USA

Blockchain is a distributed ledger technology that enables secure, transparent, and immutable recording of transactions across a network of computers. At its core, a blockchain consists of a chain of blocks, where each block contains a list of transactions. It requires network consensus to ensure validity. Once consensus is met, a block can be added to the ledger as an immutable record of *transaction*.

This rather simple concept has already changed our transactional landscape a great deal since it emerged in popularity. Conceptually, blockchain technology has the potential to disrupt traditional systems, increase efficiency, transparency, and trust, and empower individuals and organizations across various domains.

But, how did we get here? How is the history of Blockchain tied to Engineering and Technology? Is Blockchain only significant in the Data sciences and Computer Sciences Industries?

Meeting contact: Rich Kolodziejczyk, P.E.

Guest Attendance: 0

IEEE Member Attendance: 2

The Computer and Control Chapter (C&C): March 6

Next Level of Autonomous Driving with Advanced Object Generation

By

Mihai Aldea and Andreas Ibl

As the automotive industry pushes towards higher levels of Autonomous Driving, radar technology is constantly evolving, with increased bandwidth and resolution as well as more complex modulation and signal processing. Test technology is evolving in parallel to allow the entire automotive radar ecosystem from chipset vendors and module suppliers to OEMs and service organizations verify the performance of radar sensors and the ADAS functions they enable. Join this webinar to get an up-to-date overview of radar technology, the market and the latest capabilities of automotive radar object simulation, including very short distances, MIMO and complex traffic scenarios.

In this webinar, we have learned more about:

- Automotive radar technology and market update
- Advanced automotive radar echo generation
- Electronically steerable antenna arrays
- Radar object simulation systems

Meeting contact: Rich Kolodziejczyk, P.E.

Guest Attendance: 0

IEEE Member Attendance: 2

Life Member Affinity Group Webinar: February 7

Creating Income for Life
By
Kyle Cunningham

In this talk, Kyle presented timely and relevant insights around six major risks in retirement, how to strategically move from accumulation mode to the distribution phase, and will cover the importance of establishing reliable, guaranteed income in retirement.

IEEE-USA's free webinars/events are designed to help you find your next job, maintain your career, negotiate an appropriate salary, understand ethical considerations in the workplace and learn about other career-building strategies and public policy developments that affect your profession.

Meeting contact: Rich Kolodziejczyk, P.E.

Guest Attendance: 0

IEEE Member Attendance: 2

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2024 Berkshire Section Officers:

On January 19, the EXCOM has voted new Berkshire Section Officers:

Section Chair	James McVeigh
Section Vice Chair	Rich Kolodziejczyk
Treasurer	Roger Manzolini
Secretary	Dave Rueger

The NOMINATING COMMITTEE consisted of Dave Rueger, George Haus and George Gela.