

WATT'S NEW
NEWSLETTER OF THE BALTIMORE SECTION OF THE IEEE

October 2014

The web site for the Baltimore section of the IEEE is:

<http://ewh.ieee.org/r2/baltimore>

The web site for the Baltimore section newsletters is:

<http://www.ewh.ieee.org/r2/baltimore/WattsNew/IndexWattsNew.html>

The web site for the Scanner is:

<http://www.ieee.org/escanner>

The web site for the full interactive digital version of the Scanner with multimedia content is:

<http://ewh.ieee.org/r2/capitalarea/eSCANNER/digital.html>

The Scanner is published six times per year in January, March, May, July, September, and November, and the email notice will be sent six times per year.

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1. IEEE Baltimore Section Executive Committee – 2015 Elections

The IEEE Baltimore Section Executive Committee (ExComm) is seeking nominations for officers for 2015. The ExComm is responsible for managing and coordinating section activities and events, including conferences, continuing education courses, membership growth, & student outreach, just to name a few. For members seeking leadership and growth opportunities consider nominating yourself or someone else to head one of our society chapters or Affinity Groups. Comprising of 13 Society chapters and two Affinity Groups (Graduates of Last Decade or GOLD, and Women In Engineering, ie. WIE), the Baltimore Section encompasses many different members and many different disciplines. Members, who seek to hold a leadership position within the Baltimore section, can expect a great opportunity to learn and grow new skills that will be very rewarding in career paths and general life goals.

The upcoming IEEE November elections will be comprised of the following officer positions: Secretary, Treasurer, Vice-Chair, and Chair. The Baltimore Section will be gathering nominations throughout the summer for voting during the fall. If you are interested in filling any of these Chapter or Affinity group leadership positions or know of someone who might be interested, then please contact Dave at dkisak@ieee.org. The nominations process will need to be completed by mid-September in order to distribute candidate information and give our members enough time to complete the voting by November. Thank you for your support.

2. IEEE Baltimore PES Seminar – Protective Relaying Principles and Philosophy

Protective Relaying Principles and Philosophy

Please join the IEEE PES Baltimore Chapter for a 6-session evening course covering the philosophy and principles of protective relaying for electric power systems. **Eighteen (18) PDHs will be offered for this course.**

Topics shall include protective relaying philosophy, single line diagrams and zones of protection, circuit breakers and other interrupting devices, instrument transformers and types of relays, DC and AC relay schematics, fault analysis and symmetrical components, distribution line protection and reclosing, transmission line protection and reclosing, transformer and bus protection, capacitor protection, generator & motor protection, breaker failure protection, and relay testing and commissioning considerations.

Dinner will be provided as part of the registration fee. The cost of this 6-session course sequence is \$100 for Student IEEE Members, \$200 for all other IEEE Members, and \$300 for Non-Members. Please RSVP by September 29, 2014.

Please contact baltimorepes@ieee.org with any questions or concerns.

Session Overview:

Session 1 – Thursday, 10/2/14

Protective relaying philosophy; single line diagrams; zones of protection; the role of circuit breakers and other interrupting devices; substation battery systems.

Session 2 – Thursday, 10/9/14

Current and potential transformer operating principles and considerations; electromechanical, static, and microprocessor relays; AC and DC relay schematics.

Session 3 – Thursday, 10/16/14

Fault analysis and symmetrical components as tools of the relay engineer; distribution line protection – fuses, sectionalizers, reclosers, overcurrent relaying, and reclosing.

Session 4 – Thursday, 10/23/14

Transmission line protection – distance, overcurrent, differential, pilot schemes, reclosing.

Session 5 – Thursday, 10/30/14

Transformer protection – fuses, differential, and overcurrent; Bus protection – overcurrent and differential; capacitor protection – voltage differential and neutral overcurrent.

Session 6 – Thursday, 11/6/14

Generator protection – differential, loss of field, neutral overcurrent; motor protection – fuses, overcurrent, differential; breaker failure protection; relay testing and commissioning considerations.

Session Format:

5:30 – Social/Dinner served

6:00 – Class begins

9:00 – Class ends

3. IES Baltimore Lighting Technology Conference

When:

September 17, 2014

8am -5pm

Where:

Port Discovery Atrium

35 Market Place

Baltimore, MD 21202

Abstract:

The Baltimore Section of The Illumination Engineering Society (IES) is hosting a conference for anyone who is interested in indoor and outdoor lighting and lighting controls. The conference will showcase products from around the lighting industry as well as the opportunity to attend enlightening seminars held by top professionals in the industry and gain continuing education credits in the process. With admission or

advanced registration, attendees will receive a *free* lunch in a box (while supplies last) Check out the conference [flier](#) and we look forward to seeing you there!

For those who think ahead, the event is *free* with [advanced registration](#). Advanced registration ends **September 15th**, so register today and look forward to an illuminating experience at the IES Baltimore Conference!

4. IEEE-Computer Society Seminar

When:

October 14, 2014
5:30 pm – 7:00 pm

Where:

National Electronics Museum Inc.
1745 West Nursery Road
Linthicum, Maryland

Title:

Rayleigh Scattering and the Limit that It Imposes on Opto-electronic Oscillators and Frequency Transport in Optical Fibers

Speaker:

Curtis R. Menyuk¹ with Olukayode Okusaga² and James P. Cahill^{1,2}

1. Computer Science and Electrical Engineering Department, University of Maryland Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250, USA

2. Sensors and Electron Devices Directorate, Army Research Laboratory, 2800 Powder Mill Road, Adelphi, MD 20783, USA

Abstract:

Light scatters from fluctuations in the electrical permittivity in optical fibers. Fluctuations that are driven by changes in pressure lead to Brillouin scattering and fluctuations that are driven by changes in entropy lead to Rayleigh scattering. Optical fibers exhibit two types of Rayleigh scattering: elastic Rayleigh scattering that is due to the frozen-in density/entropy fluctuations and inelastic Rayleigh scattering that is either thermally driven or is induced by the light's transverse intensity gradient. We have demonstrated that inelastic Rayleigh scattering limits the obtainable Q in opto-electronic oscillators and induces a noise spectrum that grows linearly or even quadratically with fiber length over a bandwidth up to 100 kHz. We have also demonstrated that this noise spectrum can be significantly reduced by appropriately modulating the input signal's frequency. Finally, we discuss implications for duplex transport in the commercial optical fiber network.

About the Speakers:

Curtis R. Menyuk was born March 26, 1954. He received the B.S. and M.S. degrees from MIT in 1976 and the Ph.D. from UCLA in 1981. He has worked as a research associate at the University of Maryland, College Park and at Science Applications International Corporation in McLean, VA. In 1986 he became an Associate Professor in the Department of Electrical Engineering at the University of Maryland Baltimore County, and he was the founding member of this department. In 1993, he was promoted to Professor. He was on partial leave from UMBC from Fall, 1996 until Fall, 2002. From 1996 – 2001, he worked part-time for the Department of Defense, co-directing the Optical Networking program at the DoD Laboratory for Telecommunications Sciences in Adelphi, MD from 1999 – 2001. In 2001 - 2002, he was Chief Scientist at PhotonEx Corporation. In 2008 – 2009, he was a JILA Visiting Fellow at the University of Colorado. For the last 25 years, his primary research area has been theoretical and computational studies of lasers, nonlinear optics, and fiber optic communications. He has authored or co-authored more than 250 archival journal publications as well as numerous other publications and presentations, and he is a co-inventor of 5 patents. He has also edited three books. The equations and algorithms that he and his research group at UMBC have developed to model optical fiber systems are used extensively in the telecommunications and photonics industry. He is a member of the Society for Industrial and Applied Mathematics and of SPIE. He is a fellow of the American Physical Society, the Optical Society of America, and the IEEE. He is a former UMBC Presidential Research Professor, and he is the winner of the 2013 IEEE Photonics Society William Striefer Award.

There will be a half hour of social discussion, in which drinks and snacks will be served. The presentation will follow. If you have any questions about this event please contact: Curtis at menyuk@umbc.edu. We hope to see you there!

5. IEEE Baltimore Electron Devices – Colloquium on Power Devices

When:

Wednesday, October 8, 2014
10:00 am – 5:00 pm

Where:

American Institute of Physics Building
1 Physics Ellipse Dr.
College Park, MD 20740

Abstract:

SiC and GaN power semiconductor devices provide distinct energy savings over their Si counterparts and have wide “green energy” applications. Join the Baltimore Chapter of IEEE Electron Devices and Solid-State Circuits for a one day Colloquium on Power Devices to be held on Wednesday, October 8th at the American Institute of Physics Building in College Park, Maryland. [Registration for the event, parking, and lunch at the event are free.](#) For more event information as well as a full list of speakers, please click of the following link:

<http://www.ewh.ieee.org/r2/baltimore/WattsNew/Colloquium-power-devices-08-10-2014.pdf>

To register please contact any of the following organizing committee members:

Dr. Naresh C. Das (naresh.c.das2.civ@mail.mil), Dr. Victor Veliadis (victor.veliadis@ngc.com), Dr. Pankaj Shah (pankaj.b.shah@ieee.org)

6. IEEE Baltimore Section IEEE Day Recognition/Awards Dinner Ceremony

The Baltimore Section will be celebrating IEEE day on October 7 at The Engineers Club in Baltimore. We invite local section members and nonmembers to enjoy hors d'œuvres, a program of speakers that will discuss section activities and then we will be recognizing Section member that have reach the milestone of 10, 25 and 50 years of membership. The event will also give members an opportunity to network with Baltimore Section volunteers and other IEEE members.

The first 50 members that have reached the milestone of 10, 25 and 50 years of membership that register on line will be recognized during the meeting with both a pin and a certificate. The cost of the event is \$5 for IEEE members that have reached one of the indicated milestones, \$5 for IEEE members, \$10 for IEEE members and \$15 for non-members.

You must use vTools to register and for payments through credit card and you must register before September 29th.

<https://meetings.vtools.ieee.org/m/28831>

Location:

The Engineers Club
11 West Mount Vernon Place
Baltimore, MD 21201

Agenda:

5:30 : Arrival and sign in
5:30 - 7:00 :: Networking and hors d'œuvres
7:00 - 8:00 :: Overview, recognition of members
8:00 - 9:00 :: Dessert and social

We hope to see you there!

7. IEEE Signal Processing in Medicine and Biology Symposium (SPMB14)

When:

Saturday, December 13, 2014

Where:

Temple University, Philadelphia, PA

Abstract:

As advances in signal processing become ever more present, the significance of this field becomes more apparent in other engineering fields. This regional symposium, which expects 125 researchers to attend, will address how these advances will help the development of smarter technology in the field of prosthetics and bioengineering. At the event attendees can be assured of two plenary talks, two oral sessions and two poster sessions.

The conference is encouraging all to develop demonstrations or exhibits at the one day event. Presenters may choose to submit **either** of the following:

- An original 4 to 6 page paper for peer review. If the paper is accepted, then it will be submitted to IEEE Xplore and presented at the symposium.
- A one-page abstract describing recent or ongoing work. If the abstract is accepted, then it will be presented at the symposium in a poster session.

Important Dates:

Submission date: September 1, 2014

Notification date (if accepted): October 15, 2014

Early Registration: Nov. 15, 2014

For a list of all the topics presented at the symposium, please review the following charter from the symposium:

[IEEE_SPMB_2014](#)

Please visit the website for more information regarding all the day's events, directions, dates at the following web address:

<http://www.ieeespmb.org/2014>

8. IEEE Baltimore Section – Watts New - Editor

Dear IEEE Offices & Members,

If your chapter of IEEE Baltimore Section would like to contribute to the newsletter in the future months with articles, events or discussion topics to the newsletter, then please send [me](#) an e-mail. I look forward to working with all of you in the future and I appreciate the opportunity!

Ryan Klein
IEEE Baltimore Section Newsletter Editor