

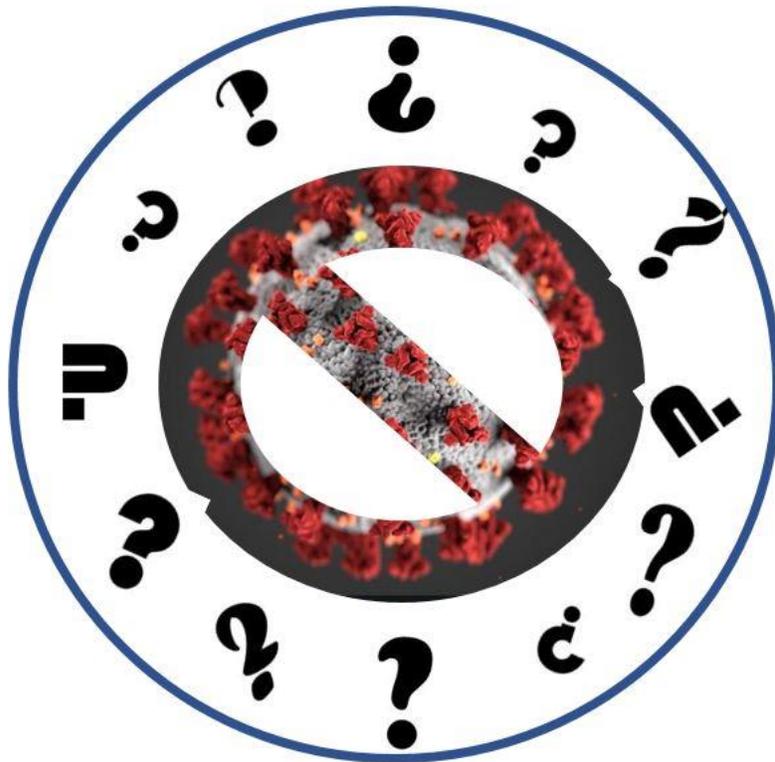


IEEE New York Monitor

Advancing Technology for Humanity

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Currently, the New York Section of IEEE comprises of the following
Active Chapters of the IEEE Societies:

- Computational Intelligence Society
- Computer Society
- Communications Society
- Technology Management Society
- Engineering in Medicine and Biology Society
- Instrumentation and Measurement Society
- Power and Energy Society
- Industrial Applications Society
- Solid State Circuits/Electron Devices Societies
- Systems, Man and Cybernetics Society
- Vehicular Technology Society
- Broadcast Technology Society

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The following Affinity Groups as defined by IEEE

- Consultants' Network (CN)
- Life Members Affinity Group (LMAG)
- Women in Engineering (WIE)
- Young Professionals (YP)

The IEEE rules require that to maintain status as **active** each of the Chapters or Affinity Groups must offer at least two presentations or technical visits per year. However, our activities are now on a temporary hold due the COVID-19 crisis. We'll surely jump into action once the NY health authorities allow us to do so. In the meantime, keep your eyes open for any notice and attend any virtual presentation or discussion. There are many offered by IEEE. Later, when we get back to some form of normalcy you can help the Societies of your interest maintain their active status by your participation.



Born in April

Giants of Science and Engineering:

“The noblest pleasure is the joy of understanding”

— Leonardo da Vinci

15 April 1452 – 2 May 1519

Italian sculptor, painter and science thinker.

Author of Mona Lisa (Louvre, Paris) and Last Supper (Milan)

“It is not the knowledge but the act of learning, not the possession but the act of getting there, which grants the greatest enjoyment”

— Carl Friedrich Gauss

30 April 1777 – 23 February 1855

German mathematician. Did extensive work on magnetism

“The more I think about language the more it amazes me that people ever understand each other”

— Kurt Gödel

28 April 1906 – 14 January 1978

Czechoslovak, Austrian and American mathematician.

Regarded as one of the most influential logicians since the days of Aristotle

“Information is the resolution of uncertainty”

— Claude Shannon

30 April 1916 – 24 February 2001

(American, considered the “Father” of modern information theory)



COVID19

The Corona Virus has upended most of our plans, both domestic and foreign. We are almost 5 months into it but the end is not yet in sight. There have been demonstrations in support of the front-end workers who have taken on the battle on our behalf. While we join the chorus let us not forget the engineers, many from our Engineering in Biology and Medicine Society (EMBS) that have toiled in the design of the ventilators (and their mass production), the test equipment perhaps even in the design of test swabs. Let us congratulate them for their behind-the scene thoughtful work and dedication.

Though we are restricted in our physical activities nothing prevents us from carrying on our online post and publication work. It appears that the current versions of IEEE Spectrum and IEEE Institute are available online, the print versions are to follow. We at the New York Section will also continue our work even if it will virtually piped into your home.



Inner workings at IEEE Spectrum

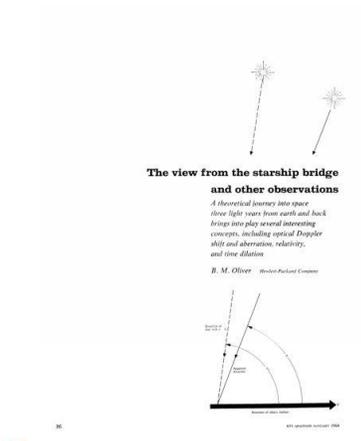
A few months ago the PES/IAS Chapters of the NY Section and the Life Members Affinity Group sponsored a joint meeting at which the Executive Editor of IEEE Spectrum Glenn Zorpette, IEEE Fellow gave a talk on the inner workings at the magazine. (We could not provide this report on Zorpette's talk earlier. The slideshow that Zorpette kindly gave us required a memory space that was beyond the present limit (50MB per item) acceptable by WordPress, the software we use for posting the Monitor. Finally, after some wrestling the file was compressed and fortunately you will be able to see it here without any distortion.)



Zorpette has been with Spectrum for more than two decades and knows all about the magazine. At our meeting he started his talk by tracing the origin of the magazine, the first article in the first issue and then went on to describing the far reaches in this planet where its reporters and editors go to for collecting information on

How Did IEEE Spectrum Get Started?

- IEEE Spectrum was created during the merger, in 1963, of the American Institute of Electrical Engineers and the Institute of Radio Engineers, which formed the IEEE
- The founders agreed they wanted a magazine, not a journal, that would publish articles of general interest rather than academic papers and that the magazine would print in color and use magazine-style design and art. This was a radical idea at the time for a learned association
- The reason most certainly had much to do with the fact that one of the founders was Donald G. Fink, who had been editor of McGraw-Hill's *Electronics* from 1946 - 1952



The first article in the first issue

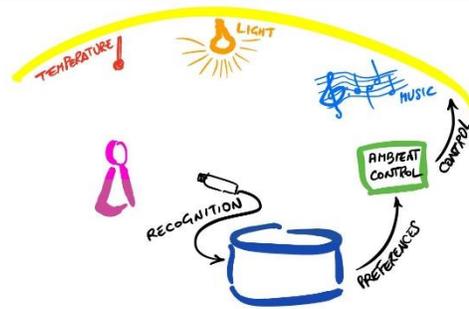


the development and applications of science and technology. At times this has not been easy. For example, a Spectrum editor participated in the planning and installation of solar power grid high in the Himalayas. This was reported in Spectrum of December 2016*.



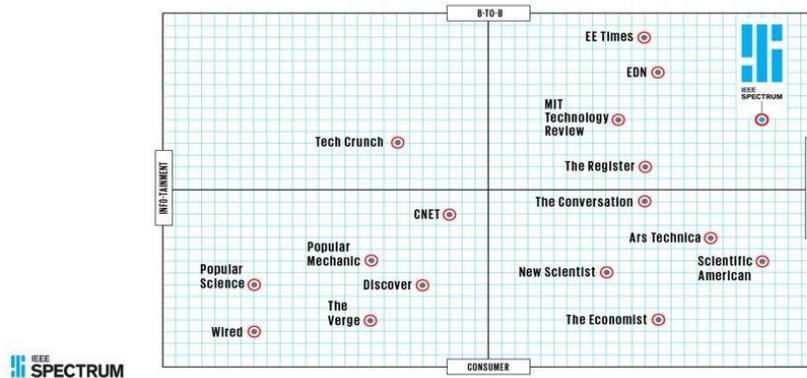
Illustration: Brandon Palacio

Mr. Zorpette went on to describe the “protocols” followed inside the magazine’s offices — accuracy, relevance, and timeliness— that are important attributes from a reader’s point of view.



Zorpette also mentioned about the competition our magazine faces from other popular scientific magazines. But Spectrum’s ratings are higher. See the Spectrum’s logo on the upper right corner.

The Competitive Landscape



Alas, we are not able to put the audio part of Zorpette’s lecture for you to hear. However, you will find the video part in

https://site.ieee.org/ny-monitor/files/2019/12/SpectrumPPTemplate_REV1.pptx

Warning: The file is big and will take a few minutes to download. Be patient!



***Excerpts from the report Lights for the Enlightened: An Engineering Trek in the Himalayas by Jean Kumagai, Senior Editor, Spectrum:**

Lingshed village has been the site of the Tibetan Buddhist monastery for about 900 years, and about 700 people live in the village itself or in the surrounding area. The plan is to install a total of 14 microgrids here, divided among the monastery, the local elementary school’s dormitories, and a small computer lab that will double as an Internet café for trekkers. Each microgrid will include a 250-W PV panel, a pair of 12-V lead-acid deep-discharge tubular batteries specially designed for solar systems, and about thirty 3-W LED lightbulbs. Such a modest system strains the definition of the term “microgrid.”



The complete report may be seen at:

<https://spectrum.ieee.org/green-tech/solar/lights-for-the-enlightened-an-engineering-trek-in-the-himalayas>



Women who were honored with Nobel Prizes

IEEE enthusiastically supports women in science and engineering through its WOMEN IN ENGINEERING GROUP (WIE). The group organizes events in many Sections all over the globe. The annual gathering of WIE is a special one for the NY Section that has always sent a representative. With this background in mind, we thought it would be interesting to see the names of women who have been honored with Nobel prizes for their contribution to the advancement of physics and chemistry (closest to the science of electrical engineering). The list was compiled by nobelprize.org.

“The Nobel Prize and Prize in Economic Sciences have been awarded to women 54 times between 1901 and 2019. Only one woman, Marie Curie, has been honored twice, with the 1903 Nobel Prize in Physics and the 1911 Nobel Prize in Chemistry. This means that 53 women in total have been awarded the Nobel Prize between 1901 and 2019”.

The Nobel Prize in Physics

[The Nobel Prize in Physics 2018](#)

[Donna Strickland](#)

“for groundbreaking inventions in the field of laser physics”

“for their method of generating high-intensity, ultra-short optical pulses.”

[The Nobel Prize in Physics 1963](#)

[Maria Goeppert Mayer](#)

“for their discoveries concerning nuclear shell structure”

[The Nobel Prize in Physics 1903](#)

[Marie Curie, née Sklodowska](#)

“in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel”

The Nobel Prize in Chemistry

[The Nobel Prize in Chemistry 2018](#)

[Frances H. Arnold](#)

“for the directed evolution of enzymes”

[The Nobel Prize in Chemistry 2009](#)

[Ada E. Yonath](#)

“for studies of the structure and function of the ribosome”

[The Nobel Prize in Chemistry 1964](#)

[Dorothy Crowfoot Hodgkin](#)

“for her determinations by X-ray techniques of the structures of important biochemical substances”

[The Nobel Prize in Chemistry 1935](#)

[Irène Joliot-Curie](#)

“in recognition of their synthesis of new radioactive elements”

[The Nobel Prize in Chemistry 1911](#)

[Marie Curie, née Sklodowska](#)

“in recognition of her services to the advancement of chemistry by the discovery of the elements radium and polonium, by the isolation of radium and the study of the nature and compounds of this remarkable element”



Upcoming events

Following the decision of the IEEE president Prof Toshio Fukuda all meetings planned in brick-and-mortar venues have been postponed. His letter is copied below. The new schedules will be posted only after the relaxation of the physical distancing rules. It is unfortunate but the entire tale of the pandemic is unfortunate.

We have no control no control over it. Our hearts go out for all those who suffered. (In case you have missed it below we provide a copy of the president's letter.



Earlier today, you were sent a message from IEEE President Toshio Fukuda and IEEE Executive Director Stephen Welby that was incorrectly addressed. The critical information below regarding COVID-19 and IEEE remains unchanged. We sincerely apologize for this error, and the inconvenience to you.

IEEE Business and Data Related Services

Dear IEEE Member,

As you are aware, last week the World Health Organization officially declared the novel coronavirus COVID-19 a pandemic. This global health crisis is a unique challenge that has impacted many members of the IEEE family. We would like to express our concern and support for all the members of the IEEE community, our staff, our families and all others affected by this outbreak.

Governments around the world are now issuing restrictions on travel, gatherings, and meetings in an effort to limit and slow the spread of the virus. The health and safety of the IEEE community is our first priority and IEEE is supporting these efforts.

We request that all members avoid conducting in-person IEEE activities in areas impacted by the coronavirus threat and instead maximize the use of our online and virtual alternatives. IEEE provides many tools to support our membership with virtual engagement, including our online collaboration space [IEEE Collabratec](#).

Following the advice of local authorities, most upcoming IEEE conferences and meetings have already been postponed or replaced with virtual meetings.

IEEE publications continue to accept submissions and publish impactful cutting-edge research. Our online publications remain available to researchers and students around the world.

IEEE standards development also continues, using online collaboration to replace in-person working groups.

IEEE educational activities continue to offer online instruction and

IEEE's [pre-university educational resources](#) may be of assistance to families of students whose classroom activities have been disrupted.

All IEEE operations are continuing. At many of our global offices, IEEE staff will support IEEE's mission while teleworking from their homes to minimize risk. As of this time, on the advice of local authorities, IEEE offices in China and India remain open.

We know that many of you are directly and indirectly engaged in the fight against this disease: supporting biomedical research and applications, supporting data analysis and modeling, maintaining critical communications and power infrastructure, and caring for each other. We are grateful for your work.

We extend our heartfelt thanks and appreciation to all of our IEEE members for your understanding. These are difficult times, but we will get through them by working together. Thank you for your support of our shared mission to advance technology for humanity.

Please stay safe and well.

Toshio Fukuda, 2020 IEEE President and CEO

Stephen Welby, IEEE Executive Director



POSTPONED

THE following presentations were scheduled but had to be postponed. We'll update the Monitor with the resumption of our normal operations as soon as they are available.

§ 1. A Computational Intelligence Society Chapter

presentation:

Data Science and Energy Informatics: Why Our Light Works and How Our Life is Enlightened: Allen Gilmer ; Co-Founder and Executive Chairman, Enverus , Austin, TX

§ 2. NY IEEE SMC Society, NY IEEE Computer Society & IEEE Student Branch at LIU-Brooklyn presentation: Introduction to XBee based

wireless sensor network and its Applications for IoT: Prof. Xin-Zhou Wei, Department of Electrical and Telecommunications Engineering Technology CityTech, CUNY

Abstract:

Wireless sensor network (WSN) plays an important role in the infrastructure of Internet of Things (IoT). It has been applied to the fields of smart buildings, smart cities, environmental & air pollution monitoring, energy monitoring, health monitoring, intelligence & precision agriculture. In this seminar, Prof. Xinzhou Wei will present a practical design of real time data collection system for smart building by using XBee based mesh WSN. It will collect temperature or humidity data from wireless sensors and visualize those data from various tools.

§ 3 NY IEEE SMC Society, NY IEEE Computer Society & IEEE Student Branch at LIU, presentation: Overview of 5G Technologies: Dr. Kyle J. Pan, Innovation Labs, InterDigital

Abstract:

Based on the general requirements set out by ITU-R, NGMN and 3GPP, a broad classification of the use cases for emerging 5G systems can be depicted as follows: Enhanced Mobile Broadband (eMBB), Massive Machine Type Communications (mMTC) and Ultra Reliable and Low latency Communications (URLLC). Different use cases may focus on different requirements such as higher data rate, higher spectrum efficiency, low power and higher energy efficiency, lower latency and higher reliability. A wide range of spectrum bands ranging from 700 MHz to 100 GHz are being considered for a variety of deployment scenarios.

It is well known that as the carrier frequency increases, the severe path loss becomes a crucial limitation to guarantee the sufficient coverage area. Transmission in millimeter wave systems could additionally suffer from non-line-of-sight losses, e.g., diffraction loss, penetration loss, oxygen absorption loss, foliage loss, etc. During initial access, the base station and user equipment (UE) need to overcome these high path losses and discover each other. Utilizing dozens or even hundreds of antenna elements to generate a beam formed signal is an effective way to compensate the severe path loss by providing significant beam forming gain. Beamforming techniques may include digital, analogue and hybrid beamforming.

In this talk the essential design principles for 5G system such as beam-centric designs, ultra-lean system designs, etc are discussed. The corresponding features and enabling technologies for 5G NR such as spectrum flexibility, scalable numerology, grant-free uplink transmission, massive MIMO, beam management, etc are introduced and discussed. What is next for 5G is also discussed.

EXCOMM MEETING !!

Bob Pellegrino, the NY Section chair has determined that there will be a virtual meeting of the executive committee starting at 12.30 pm on 13 May 2020. The details will be emailed by Pellegrino himself.



CUMULATIVE LIST OF PRESENTATIONS/VISITS ORGANIZED BY IEEE NY SECTION: 2020					
Seq	Date	Sponsor	Title of Presentation/Place of Visit and Speaker	Total attendance	Percentage of IEEE members
1	28 Jan	PES/IAS/LMA G	Gas Monitoring for HVAC Applications: Keith Miller		
2	25 Mar	PES/IAS/LMA G			
1	26 Feb	YP	Winter Mixer: Board Games, Drinks and Food	15	

CHECK YOUR INBOX REGULARLY

**THERE ARE LOTS OF INTERESTING NEWS FROM
IEEE**

**PLEASE STAY HOME
AND
STAY WELL**