Engineers Joint Committee of Long Island

Anthony Cacioppo, P.E., Chair
Paul Lanzillotta, P.E., Vice-Chair

ENGINEERS WEEK SEMINAR SERIES

Wednesday, February 15, 2023

(Snow Date: Thursday, March 2, 2022)

Place: ***Holiday Inn Plainview - 215 Sunnyside Boulevard, Plainview, NY 11803***
516-349-7400 (Front Desk)

Program:	**8:00 am – 9:00 am**	**Registration & Continental Breakfast**
	9:00 am – 10:00 am	**Morning Seminars**
	10:00 am – 10:15 am	**Break**
	10:15 am – 12:15 pm	**Morning Seminars Cont'd.**
	12:15 pm – 1:15 pm	**Lunch**
	1:15 pm – 3:15 pm	**Afternoon Seminars**
	3:15pm – 3:30 pm	**Break**
	3:30 pm – 4:30 pm	**Afternoon Seminars Cont'd.**

CLICK HERE TO REGISTER ONLINE

Seminars & Descriptions

"Bay Park Water Pollution Conveyance Project" **(1 PDH)** **9:00 am – 10:00 am**
Presented by: K. N. Gunalan, PE, Vice President, AECOM
This is a water pollution project in Nassau County with a goal of reducing nitrogen pollution in the Western Bays by conveying treated water from the Bay Park Water Pollution Control plant to the Cedar Creek WPCP ocean outfall. Special Micro-tunneling equipment was developed to recondition/reline a 1906 aqueduct installed under Sunrise Highway for use to pump the treated water the 7.3 miles.

"Solid Wastes Recycling?" **(2 PDH)** **10:15 am – 12:15 pm**
Presented by: Nathiel Egosi, PE, President, RRT, Inc.
This seminar will provide an overview of the regulatory guidelines, how the recycling industry works and what are the processing steps in a recycling facility to convert materials into commodities for sale in the open market. Using engineering principles technology is applied to automate separation and beneficiation. Details regarding machinery & equipment selection & economic/environmental benefits of recycling will be included.

"Direct Fusion Drive Power for Spacecraft Long Term Missions" **(2 PDH)** **1:15 pm – 3:15 pm**

Presented by: Christopher Galea, Ph. D., PE, Princeton Satellite Systems, Inc.
The Direct Fusion Drive (DFD) is a nuclear fusion rocket engine based on the Princeton Field-Reversed Configuration (PFRC) machine about the size of a minivan. The DFD can generate propulsion by allowing energy to escape as a plasma plume. The concept of DFD allows deep space missions to fly directly to destination rather than having to use complex gravity assists from other planets. This seminar will discuss the physics & capabilities of DFD for space power & propulsion.

"Deep Energy Retrofits" **(1 PDH) 3:30 pm – 4:30 pm**
Presented by: David Goldstein, P.E., President, Hydronic Shell Technologies
Reducing carbon emissions from the built environment is one of the biggest challenges facing our industry today. Cities and countries around the world have announced ambitious carbon reduction targets by the year 2050 and beyond. Given that the large majority of buildings that will exist in the year 2050 already exist today, deep energy retrofits of existing buildings will play an important role in meeting such targets.

While the industry is well aware of this challenge, there is a lack of viable solutions for how to achieve such deep energy retrofits at the necessary scale. A major part of the solution must be to transition buildings away from burning fossil fuels for space heating. Such a transition has proven challenging due to several factors including high cost, invasive installation, and strains on existing electrical infrastructure. This presentation outlines a strategy for achieving deep energy retrofits and introduces an emerging HVAC technology called Hydronic Shell.

"Industrial Heat Pumps, Chillers &Boilers for Large Scale Projects" **(1 PDH) 9:00 am – 10:00 am**
Presented by: Ian Rowburrey, Business Development & Engineering Mgr., Miller Proctor Nickolas
This seminar will introduce engineers to large capacity water-to-water Heat Pumps/Chillers for district wide heating, large commercial/residential heating & cooling. Topics include energy sources, system design concepts & how water-to-water heat pump technology has evolved over the past 10 years. Active applications will be discussed.

"*Solar Energy Application-Power Generation, Heating & Cooling"* (2 PDH*) 10:15 am – 12:15 pm
Presented by: Yong Gu, Ph. D., PE, USMMA
Renewable Solar energy is carried by2 forms photon particles or thermal temperature, and the method for direct electricity generation is called the photovoltaic (PV) technology. The method for conventional power generation is called concentrated solar power (CSP. There are 2 solar heating methods – passive & active. The seminar will discuss both. In the presentation, the working principles, variety of systems and equipment are illustrated.

" *Computational Fluid Dynamics & Heat Transfer* (2 PDH) 1:15 pm – 3:15 pm
Presented by: Nick DiZinno, Ph. D., PE, New York University
The equations that govern fluid flow and heat transfer are extremely complex. In many instances, they are impossible to solve in an analytical (closed-form) manner. In these cases, engineers are forced to rely on numerical techniques and computer simulations to generate a solution. This seminar will give a broad overview of the process of developing numerical solutions to fluid dynamics and heat transfer problems. Starting with the governing equations, we will investigate why they are so difficult to solve and how numerical solutions can provide an alternative. A variety of numerical algorithms will be surveyed; with critical attention paid to how different algorithms are more suited to different types of equations. Select results from a variety of applications will be presented.

"Venting of Products of Combustion in NYC" (1 PDH) **3:30 pm – 4:30 pm**

Presented by: Ian Rowburrey, Business Development & Engineering Mgr., Miller Proctor Nickolas

A review of the specific NYC venting requirements will be discussed including details associated with the type of fuel consumed by the boiler. This seminar will provide an overview of the importance of properly sizing a flue system and installation: types of draft control systems, smoke opacity installations, draft induction systems & proper drainage.

"BioHeat-A Green Building Option to Attain Carbon Reductions" **(1 PDH) 9:00 am – 10:00 am**

Presented by: Rhea Courtney Bozic, Clean Fuels Consulting

This course will explain the renewable liquid fuel biodiesel/bioheat's use in heating systems including: a short overview of the fuel, pertinent components of heating systems which are affected by higher bioheat fuel blends, the current state of equipment research and development, and storage and handling concerns. Biofuels can be used now in existing heating oil equipment. In New York's existing building stock, where heating oil is still in great use, it is easily possible to adapt home and facility heating equipment to use greater than 20% blends of biodiesel. Transitioning that entire market to pure electricity will be extremely difficult and expensive for industry, the property rental sector, and homeowners. There is currently significant research into how equipment can be modified via technology improvements to use greater blends of biofuels. Biodiesel/bioheat is a bridge fuel for the internal combustion equipment which will still be in use for decades to come.

"Surge Protection Technology in I&C and Power Applications " (2 PDH) **10:15 am – 12:15 pm**

Presented by: John Piccinic, Regional Sales Mgr., Eaton Corp.

This seminar reviews the sources of electrical surge currents & how to protect sensitive electronic systems. It's surprising to know lightning, being one source of surge, represents a very small % of surge currents. We will discuss the Surge Protection Devices technology with easy to understand terminology.

"Satellite Communications Trade-offs & Issues" **(2 PDH) 1:15 pm – 3:15 pm**

Presented by: Howard Hausman, IEEE

This seminar presents the differences between operating in each orbital category – Geostationary (the most traditional category), Medium and Low Earth Orbits. The major topics are (1) Satellite Communication Concepts, (2) Signal Transmission & Reception, (3) Signal Modulation Techniques, (4) Signal Errors & Mitigation and (5) Comparing Satellite Configurations.

"Motor Circuits: Lessons Learned, NFPA 70-430" (1 PDH) **3:30 pm – 4:30 pm**

Presented by: Nathaniel Steier, PE

*An overview of NFPA 70 (National Electrical Code), Article 430 and how it drives motor circuit design including presentation of design highlights, several key tables and an analysis of several motor circuits *not* to use & why.*

Long Island ENGINEERS WEEK SEMINAR SERIES

Wednesday, February 15, 2023

(Snow Date: Thursday, March 2, 2023)

Holiday Inn Plainview - 215 Sunnyside Boulevard, Plainview, NY 11803

	Room/Track A	Room/Track B	Room/Track C
9:00 - 10:00	***Bay Park Water Pollution Conveyance Project 1 PDH***	***Industrial Heat Pumps, Chillers & Boilers for Large Scale HVAC Projects 1 PDH***	***BioHeat-A Green Building Option to Attain Carbon Emissions Reductions 1 PDH***
10:00 – 10:15	**BREAK**		
10:15 - 12:15	***Solid Waste Recycling 2 PDHs***	***Solar Energy Application-Power Generation, Heating & Cooling 2 PDHs***	***Surge Protection Technology in I&C and Power Applications 2 PDHs***
12:15 - 1:15	**LUNCH**		
1:15 - 3:15	***Direct Fusion Drive Power for Spacecraft Long Term Missions 2 PDHs***	***Computational Fluid Dynamics & Heat Transfer 2 PDHs***	***Satellite Communications Trade Offs & Issues 2 PDHs***
3:15 – 3:30	**BREAK**		
3:30 - 4:30	***Deep Energy Retrofits 1 PDH***	***Venting of Products of Combustion in NYC 1 PDH***	***Motor Circuits: Lessons Learned, NFPA 70-430 1 PDH***

PLEASE KEEP THIS PAGE FOR REFERENCE THROUGHOUT THE DAY

CLICK HERE TO REGISTER ONLINE

ENGINEERS WEEK SEMINAR SERIES
Wednesday, February 15, 2023.
To register online, click here.
To register by mail, complete and return this form with payment by February 11, 2023 to: NYSSPE-Long Island Chapter, 477 Miller Place Rd., Miller Place, NY 11764. Email questions to: lpellizzi@nysspe-li.org ALL FIELDS MUST BE COMPLETED. PLEASE PRINT NEATLY

CHECK ALL SEMINARS YOU WISH TO ATTEND.

Fee: ____ **$150 for full day (4-6 PDH); includes lunch**
____ **$75 for half day (3 or fewer PDH); includes lunch**

STUDENTS WITH A VALID ID MAY ATTEND AT NO COST (must submit form)

____	9:00am – 10:00am	"Bay Park Water Pollution Conveyance Project" (1 PDH)
____	10:15am – 12:15pm	"Solid Wastes Recycling" (2 PDH)
____	1:15pm – 3:15pm	"Direct Fusion Drive for Spacecraft Long Term Missions" (2 PDH)
____	3:30pm – 4:30pm	"Deep Energy Retrofits" (1 PDH)
____	9:00am – 10:00am	"Industrial Heat Pumps, Chillers & Boilers for Large Projects" (1 PDH)
____	10:15am – 12:15pm	"Solar Energy Application-Power Generation, Heating & Cooling" (2 PDH)
____	1:15pm – 3:15pm	"Computational Fluid Dynamics & Heat Transfer" (2 PDH)
____	3:30pm – 4:30pm	"Venting of Products of Combustion in NYC"
____	9:00am – 10:00am	"Bio-Heat – A Green Building Option to Attain Carbon Reductions" (1 PDH)
____	10:15am – 12:15pm	"Surge Protection Technology in I&C and Power Applications" (2 PDH)
____	1:15pm – 3:15pm	"Satellite Communications Trade-offs & Issues" (2 PDH)
____	3:30pm – 4:30pm	"Motor Circuits: Lessons Learned, NFPA 70-430" (1 PDH)

Total PDH _____ **Total Amount Enclosed $**_____

*** Make check payable to: Engineers Joint Committee of LI**

Name _____ Phone _____

Company _____ Check if Code Enforcement Official _____

Mailing Address _____

E-mail Address _____

If using a credit card, fill out above & below and e-mail form to: lpellizzi@nysspe-li.org

Credit Card Number _____ Billing Zip Code _____
CC Type (**Circle One**): MC, Visa, AE, Disc. Exp. Date _____ CCV Code _____