2014 Engineering Symposium in Rochester

28-Mar-14

Sponsored by

Rochester's Technical and Engineering Societies and RIT

April 8, 2014

PDH hours will be acceptable in New York State. Schedule subject to change.

730 to 8:15	**AM**	**Registration and Continental Breakfast**				**AM**
8:15 to 8:30	**Welcoming Remarks**					
	Civil Engineering Sponsored by ASCE	Civil Engineering Sponsored by ASCE	Mechanical Engineering Sponsored by ASME	Electrical Sponsored by IEEE	Mechanical, Plumbing, & Fire Protection Sponsored by ASHRAE and ASPE	Lighting and Power Sponsored by IES Rochester
Room	**Riverview**	**Douglas**	**Eastman**	**Fitzhugh**	**Silver**	**Gleason**
Moderator	**Jim Baker**	**Dennis Roote**	**Dave Roberts**	**Dave Krispinsky & Kip Finley**	**Jennifer Wengender**	**Joe Dombrowski**
8:30 to 9:30	Differentiating Sources of Groundwater Plumes in Urban Environments Bill Soukup	Evolution of the Flange Tim Hurley	Climate Change Science William Bishop,PE, BEMP, LEED AP Pathfinder Egrs & Arch.	ATS Protection and Selective Coordination Considerations Benjamin Brown, Cooper/Eaton	Airflow Measurement: the Key to Efficient Building Control Jeremy Mahon	Seismic Restraints for Electrical Equipment & Systems Richard Sherren, Kinetic Noice Corp
Presentation Description	The program will review analysis of trace constituents; including bromide (Br) and iodide (I); stable isotopes of hydrogen, nitrogen, and oxygen, and MTBE, and radioactive isotope of hydrogen, tritium (3H) to identify contaminant sources in urban plumes.	The flange has been fraught with problems for thousands of years. A new flange replacement technology is now available that eliminates most, if not all of these problems. This course will cover in depth this new technology.	How greenhouse gas emissions drive global warming resulting in our changing climate. Human and natural forcings and feedbacks, likely impacts and trajectory, updated using IPCC AR5 and recent research.	Overview of overcurrent protection for ATS and considerations for application of circuit breakers, fuses and current limiting fuses. Help engineers understand the choices and implications (cost, size, etc) between choosing fuse protection versus circuit breakers for ATSs.	Overview of airflow measurement technologies and their appropriate applications for Heating and Ventilating systems as related to efficient building temperature control.	AN OVERVIEW OF CODE REQUIREMENTS FOR SEISMIC ELECTRICAL SYSTEMS AND TYPICAL METHODS OF REINFORCEMENT
9:30 to 9:45	Break					
9:45 to 10:45	A Centralized and Sustainable Approach for Managing Shale Gas Waste Water & Residuals Jerry Leone	Corrosion Control Utilizing Cathodic Protection for Steel in Concrete Structures and Buried Pipe Jim Lary	Climate Change Solutions William Bishop,PE, BEMP, LEED AP Pathfinder Egrs & Arch.	The Space Radiation Environment: Causes & Effects Dr. Dennis A. Thompson & Dr. Frank J. Ryan Part 1 of 2 (Must take both)	District Heating in Rochester John Duchesneau & Hendrik Shank	Implementing Energy Efficient Data Centers Neil Raymond, Square D
Presentation Description	The presentation will provide an overview of the process of fracking shale gas wells, the content and composition of fracking fluids, and provide an overview a sustainable, cost effective treatment process.	Discusses the causes of corrosion and the application of both galvanic and impressed current cathodic protection on bridges, buildings, piers and buried water, oil and gas piping.	Mitigation vs. adaptation, geoengineering and carbon capture, energy scenarios with fossil fuels, nuclear and renewables, energy efficiency, hydrogen, coal phase out, "wedges" strategy, cap & trade, fee & dividend.	The space environment for earth orbiting satellites is a stressful and challenging one.This presentation provides an environmental overview, performance implications for each earth-orbiting satellites and terrestrial implications.	This presentation will look at the benefits of District Heating and how central heating plants can leverage economies of scale to produce efficient, reliable and environmentally responsible thermal energy. Topics include: business models, technologies, operating strategies, and advantages of District heating over in-house boilers.	It is possible to dramatically reduce the electrical consumption of typical data centers through appropriate design of the data center physical infrastructure and through the design of the IT architecture.
10:45 to 11:00	Break					
11:00 to 12:00	Code of Ethics for Professional Engineers Mark Koester	Connecting Engineering Design with the NYS Building Code Laurence E. Heininger, P.E., PMP, NYSCEO	Gasketing - Science of Sealing John Crandall & Matt Tones Garlock Sealing Technologies	The Space Radiation Environment: Causes & Effects Dr. Dennis A. Thompson & Dr. Frank J. Ryan Part 2 of 2 (Must take both)	Data Center Technology- Energy Efficiency Improvement Ali Raza & Casey Bernhard LaBella Associates	VFD Problems and How to Avoid Them John Eblacker, WEG Automation
Presentation Description	The program will provide an overview of the role of ethics in engineering practice. It will include interactive discussion of case studies in addition to review of NSPE Code of Ethics.	Discussion of soil types, foundation loads, residential structural design, fire and domestic water supply, sanitary and storm laterals, steep slopes and retaining walls.	A general overview on gasket selection describing when to select general gasket types for different applications. Covers forces acting on a gasket in a common industrial, flanged joint. We will then move to gasket selection criteria including Temperature, Application, Media, Pressure and Size.	The space environment for earth orbiting satellites is a stressful and challenging one.This presentation provides an environmental overview, performance implications for each earth-orbiting satellites and terrestrial implications.	This presentation will cover the latest developments in data center energy consumption and efficiency. Discussion will include where data center design has come from and where it is heading in regard to server power consumption and heat generation. Energy saving and Data center cooling system concepts will be reviewed.	AN OVERVIEW OF THE PITFALLS OF VARIABLE SPEED DRIVE APPLICATIONS AND HOW TO AVOID THEM.
12:00 to 1:30	**Lunch and Keynote Program** **Sustainable Manufacturing at Harbec Plastics** **Bob Bechtold**					

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12:00 to 1:30	**PM**					**PM**
	Civil Engineering Sponsored by ASCE	Civil Engineering Sponsored by ASCE	Mechanical Engineering Sponsored by ASME	Electrical Sponsored by IEEE	Mechanical, Plumbing, & Fire Protection Sponsored by ASHRAE and ASPE	Lighting and Power Sponsored by Elect. Assoc. of W N Y
Room	**Riverview**	**Douglas**	**Eastman**	**Fitzhugh**	**Silver**	**Gleason**
Moderator	**Tim Webber**	**Wendel Armstrong**	**Chris Devries**	**Dave Krispinsky & Kip Finley**	**Michelle Sommerman**	**Joe Dombrowski**
1:30 to 2:30	High Falls Festival Site Gorge Wall Susan Matzat, P.E., SECB, LEED AP	Water Storage Tank Modifications for Disinfection Byproduct Compliance Mark Koester Repeat from 2013	Engineering and Public Policy Margaret Bailey, PhD, PE & Dr Ron Hira, PE RIT	Stray Voltage Mitigation - Motor Bearing Protection Karyn Caverly & Chris Tones, Garlock	The Road Ahead for Facilities Automation Jeff Day Day Automation	LED Lighting For Exterior Applications: An Overview Michael Trippe, IES, LC Point Source Group
Presentation Description	Evaluation and analysis of eroding rock wall at edge of Genesee River Gorge supporting two-story building and rooftop terrace and implementation of selected stabilization alternative.	This presentation will discuss the importance of mixing water storage tanks (WST's) and will evaluate different ways to reduce disinfectant byproducts in WST's to meet the new disinfectant byproduct rules.	Many engineers have an interest in tackling society's most pressing problems, but they simply don't know how to channel this drive. The session will provide them a window into how they could realize those interests. The expected outcome will be participants who are enriched by an innovative, interdisciplinary experience that integrates the disciplines of engineering and public policy.	Energy consumption is on everyone's mind these days. Electric motor efficieny is improved with the use of VFD's, but bearing damage can occur from stray currents produced by the very same VFD's. This presentation addresses stray current mitigation to ensure motor efficiency is achieved while also protecting the motor bearings.	Join us for a discussion on the current and future technology that will be used in the HVAC temperature controls industry. You will be introduced to the best practices on BACnet, ModBus, IT systems, energy dashboards and facility analytics. Prepare for the technology changes that affect energy management systems.	LED Lighting has been growing at a rapid pace. This course will illustrate how the use of LED lighting in exterior applications is an ideal light source over traditional HID sources.
2:30 to 2:45	Break					
2:45 to 3:45	Horizontal Curve Study Brent Penwarden, III, P.E.& Earl Bailey	Seismic Design Category - A Case Study Mark Kluczynski, P.E.	Press Quenching and The Effects of Prior Thermal History on Distortion During Heat Treatment Arthur C. Reardon, PhD, PE The Gleason Works	Smart Grid Applications for Distribution Automation Oscar Bolado, ZIV USA	The 2013 Code challenge; How ASHRAE 90.1 – 2010 Impacts the Mechanical Engineer Bob Feduik, PE	Advances in Medium Voltage Transformers Robert W. Burke, Cooper/Eaton
Presentation Description	This program provides a case study of the application of important safety revisions mandated by FHWA pertaining to advisory speeds on horizontal curves.	A case study on the nuances of determining a project's Seismic Design Category per the Building Code of New York State and ASCE-7. Slight variations in calculations and Code references can have significant cost impacts on a project.	Press quenching is a specialized quenching technique that can be used during heat treatment to minimize the distortion of complex geometrical components. In this presentation the fundamental aspects of press quenching will be discussed, and a case study that clearly illustrates the impact of prior thermal history on part distortion will be presented.	This presentation reviews distribution automation applications including grid monitoring and control; VOLT/VAR control and FLISR (fault location, isolation and service restoration) and associated communication technologies.	This presentation will give the HVAC designer a practical evaluation of the 2010 changes and the way they will influence HVAC design. Practical examples are used allowing designers to evaluate the impacts of the changes on their designs.	Discussion of transformers advances including code compliance, liquid versus dry, 70° C transformers, VFI transformers, arc flash mitigation, data center designs, TriPlex designs. Update on advances that have reshaped the applications for indoor and outdoor transformers.
3:45 to 4:00	Break					
4:00 to 5:00	Rochester Port Marina Development Project Mark D. Gregor, CHMM & Stephen P. Metzger, PE	Asphalt- The Current State of Technology Pat DiLucia	The Current State of Biofuels Robert G. Helenbrook, PE Thermal Kinetics Engineering, PLLC	Medical Devices 101: FDA Basics for Engineers Transitioning into the Medical Device Industry Dr. Greg Gdowski, URMC	Chilled Beam System Design Kevin Cash	Lighting Control for Today's Light Sources Michael Piraino, LightSpec
Presentation Description	Planning, permitting and engineering considerations related to the redevelopment of the Port of Rochester Site.	The current state of asphalt technology and specification updates as they pertain to work with NYSDOT	In this presentation, the different processes to produce ethanol, methanol, and bio diesel from renewable energy sources will be outlined. The advantages and disadvantages of each process will be described. Different renewable energy sources such as corn, algae, switchgrass, dead animals, and cellulosic materials will be compared with fossil fuels.	The content will cover the difference agencies of the FDA, the classification of medical devices, and a review of the quality systems used in the medical device industry.	This presentation will review chilled beam design including outdoor air requirements, chilled water design, and controls.	An overview of common control technologies for dimming various light sources including incandescent, fluorescen!, LED and HID. Provide a basic understanding of the dimming technologies available for different light sources and their advantages and drawbacks.
5:00 to 7:00	**Cocktails and Conversation in the Lounge**					