2015 Engineering Symposium in Rochester

27-Apr-15

Sponsored by

Rochester's Technical and Engineering Societies

April 29, 2015

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

7:30 to 8:15	Registration and Continental Breakfast					
8:15 to 8:30	**Welcoming Remarks: Chris Devries,** Chair of the 2015 ESR Committee					
	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**
Host	**Jim Baker**	**Kip Finley**	**Ron Salzman**	**Dave Krispinsky**	**Jennifer Wengender**	**Joe Dombrowski**
8:30 to 9:30	Athletic Fields Specifications: Concepts, Construction Alan Dungy Highlight current practices utilized in successful projects. Identify critical points during construction.	Mechanical Mixing for Wastewater Process Vessels Patrick O'Donnell Attendees will gain knowledge and understanding of the principles of mechanical mixing for tanks, reactors, and other vessels used in wastewater treatment. Specific topics include, basic theory of mixing, applications for total suspended solids mixing and nutrient removal, process design issues, and operation and maintenance.	Capabilities and Limitations of 3D Printing Denis Cormier, PhD The talk will provide an overview of 3D printing and additive manufacturing tecnologies, and will provide useful information on what these tecnologies can and cannot do.	Virtual acoustics in action: turning a classroom into a concert hall Dr. Sung Young Kim Accoustical environment is an essential factor for quality of life of people. However, it is hard to control accoustical characteristics of an enclosure physically. The presentation introduces alternative methods to actively control accoustical characteristics using electroaccoustical peripherals.	NYS Building Codes and Referenced Standards Andy Taylor A review of the Building Codes of New York State and how to apply the standards that are referenced in these codes.	Restraint, Support, and Vibration Isolation of Roof Mounted HVAC Equipment Dick Sherren Overview of Code required restraint for roof mounted equipment
9:30 to 9:45	Break					
9:45 to 10:45	Planning Around Critical Water System Component Downtime Clem Chung Development of a temporary water system operations plan to ensure minimmal disruption of service during modifications to critical water system components to improve water quality.	Civic Center Green Roof Jim Krapf The presentation will detail the primary components of the Civic Center Plaza Revitalization project with a focus on the sustainability features incorporated into the project, structural issues and means of overcoming project challenges.	Science and Technology at the Laboratory for Laser Energetics Steven Ivancic A review of the scientific discoveries and technical innovations at the Laboratory for Laser Energetics is presented.	Big Data Applications in Telecommunications Dr. Yossi Nygate The telecommunications industry is growing exponentially and last year reached $7 trillion with over $40 billion in software	Coordination of Building Storm water discharge with on-site Disposal David Johnson Balancing the requirements for handling runoff from roofs and urban sites with emphasis on how they relate to local codes and green infrastructure requirements.	No Session
10:45 to 11:00	Break					
11:00 to 12:00	Carbon Reduction - The New Design Parameter James D'Aloisio, P.E. One seldom-considered but important aspect is the Carbon Dioxide Equivalent (CO_2e) emissions generated by their use. We will review the CO_2e emissions of steel, concrete, masonry, and wood construction, see how to reduce the emissions in practical ways, and what materials to avoid completely.	Air Transport Engineering; Foundations of Operational Safety Fred White The overall course objective is to introduce professional engineers to the rules and processes that support life safety requirements in the air transport industry. Aviation industry standards will be reviewed and presented as design practices for civilian and military airports and aircraft.	Field Analysis and Diagnosis of Mechanical Failures [1] Neville W. Sachs, P.E. An overview of how the critical procedures used in mechanical failure analysis along with several examples	GE diesel locomotives 1. Dr. Shola Olabisi Power and energy conversion in an AC locomotive	East Irondequoit CSD Cogeneration system Dave Hart, PE Case study at East Irondequoit High School for a cogen system used for building heat and air conditioning, as well as domestic water heating and emergency power generation.	Reading Time Current Curves John Kowal Overview of TCC structure and important information to be gleened from them

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12:00 to 1:30	**Lunch and Keynote Program** **Getting it Right and Getting Along** **Peter DeMarco** The priorities of Getting it right and getting along are a fundamental skill in the world today. There are four types of prioritizers, each has performance and ethical implications. This presentation will examine the ethical implications of each style of prioritizer.					
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Room	**Riverview**	**Douglas**	**Eastman**	**Fitzhugh**	**Silver**	**Gleason**
Host	**Erin McCormick**	**Paul Presutti**	**Bill Bishop**	**Dave Krispinsky**	**Michelle Sommerman**	**Joe Dombrowski**
1:30 to 2:30	All the Good Sites are Gone Aggregate Pier Case Studies Wendel Armstrong and Ken Kniss Aggregate Pier design and construction methods are discussed. Three case studies are presented in which Aggregate Piers were installed to improve ground beneath spread footings.	The GardenAerial: Challenging Engineering and Capital Project Norms Michael Phillipson History of development, abandonment and current revival and restoration of the high falls gorge area to make it a 21st Century sustainable destination	Engineering Disasters: A Hazardous Materials Management Perspective Richard Cartwright Lessons learned from a history of engineering disasters from a hazardous materials management perspective.	Vehicular Collision Avoidance System 3. Dr. Clark Hochgraf Preventing car accidents using radar, camera, and radio technology is becoming feasible for mass production cars. The design and implications of such systems is discussed	Natatorium Design Jordan Daniow Analyze pool design challenges and provide an in-depth look at their solutions.	Understanding DNP3 Jim Quist Overview of the DNP Protocols - advantages and limitations of DNP for remote data gathering
2:30 to 2:45	Break					
2:45 to 3:45	Geological and Geotechnical Aspects of the Maid of the Mist Drydock, Niagara Falls, New York Mike Mann Project consists of evaluating the causes for a historic rock slide to determine the likelihood of a repeat and assessing in-place, impacted construction prior to repurposing.	Access 390 Interchange 16 Howard Ressel, Chris Bayer The design process and preliminary design studies conducted for the Access390 project to include Engineering, Social, Economic and Environmental analysis; update current construction phases; and a detailed engineering presentation of the steel erection plans for one structure currently under construction	Particle Control with Holographic Optical Tweezers Joseph L. Lawson The presentation describes optical trapping techniques and how they are currently being applied across a variety of fields. An overview of the physics enabling optical trapping is presented first. this is then followed by a description of how holograms are created and how they may be used to generate multiple optical traps.	An Introduction to Software Defined Radio Dr. Miguel Bazdresch An introduction to the topic of software defined radio, its applications and implications.	Spreadsheet Energy Modeling Analysis Erik Durka Review the application of both system and building modeling, the pros and cons of each. Two examples will be reviewed to show available tools and techniques in system modeling.	LED Lighting Mike Trippe Review of the evolution and application of LED lighting for outdoor applications
3:45 to 4:00	Break					
4:00 to 5:00	Design Build Roundtable – Lessons Learned (Kendrick Road & RTS Transit Center) Various Presenters Design Build lessons learned from the RTS Transit Center and Kendrick Road projects.	Cost Effective Engineering Techniques for Environmental Benefit Sarah Piecuch While not always obvious, transportation projects offer opportunities to incorporate environmental enhancements that provide environmental benefits for wildlife and humans. This presentation will provide a basic guide and give several regional examples of how this was done on transportation projects.	Energy Metrics in a Carbon Constrained Economy Bill Bishop Economic dependence on fossil fuels; climate change constraints on carbon emissions; energy intensity; EROI; oil and gas fracking; energy density; renewables; limits to economic growth	CLEAN ENERGY POWER SYSTEMS & RIT GIS LEED Platinum Building Dave Krispinsky An overview of clean energy systems and a look at the LEED certified sustainibility building at RIT. Description of materials used in course taught at RIT	Prroperly Apllying & Specifying VRF Systems Marty Brinton Discuss piping and performance differences between VRF system brands, key application topics, and how to properly specifiy VRF systems to insure design expectations are met.	Controlling LED to Meet Customer Expectations Scott Garrett Overview of control schemes and advantages and limitations for LED lighting
5:00 to 7:00	**Cocktails and Conversation in the Lounge**					