

# 2023 ENGINEERING SYMPOSIUM IN ROCHESTER

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April 25, 2023

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 2023 ESR Committee				
Room	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
8:30 to 9:30	<p>The right tool for the job: Understanding project limitations to maximize the earth retention.</p> <p>Robert Ross, PE, Keller North America David Pecorini, PE, Keller North America To maximize the building footprint the earth retention system was pushed to the property limits. A design alternate solution of soldier piles and lagging using internal bracing was proposed to maximize the working footprint at the site. The design challenges included</p>	<p>Title: Non-metallic Piping Sealing Challenges</p> <p>Matt Tones</p> <p>Industrial Piping and equipment have continued to evolve to include non-metallic materials such as PVC, FRP and other polymer based materials. While these new materials do provide advantages over traditional metallic systems, they also have</p>	<p>EV-Chargers, Present And Future</p> <p>Sreeram Dhurjaty, PhD, SMIEEE, Distinguished Speaker, IEEE</p> <p>This talk will discuss present-day EV chargers and issues of compatibility associated with them. Future chargers, such as wireless chargers will be described.</p>	<p>Ground Source Heat Pump Systems: For a More Sustainable Future</p> <p>Tom Piekunka</p> <p>Review of the Inflation Reduction Act tax incentives as it relates to geothermal systems, NY state incentives, ground heat exchangers, design considerations, and why ground source heat pump systems are a significant part of the HVAC decarbonization</p>	<p>Life Safety through HVAC Security and System Resilience</p> <p>Angela Waters</p> <p>Attendees will learn the fundamental security elements in a large building, what is HVAC resilience to natural disasters</p>
9:30 to 9:45	Break				
9:45 to 10:45	<p>RGRTA Zero Emission Bus Project</p> <p>David P. Belaskas, P.E., RGRTA</p> <p>The electric bus project at RTS started in the spring of 2017 when New York Gov. Andrew Cuomo announced grant funding for five electric buses and charging equipment. What followed was funding for fifteen more buses, and more than five years of planning.</p>	<p>Title: Chain Reaction– Cycling for Climate Change Mitigation</p> <p>William J. Bishop, PE</p> <p>Transportation generates one-quarter of U.S. greenhouse gas emissions. Bicycles are incredibly efficient human-powered machines that can help us become cleaner, happier, and healthier in an era of urgent climate change mitigation and adaptation.</p>	<p>Static Electricity Industrial Hazards and Mitigations</p> <p>Kelly Robinson, PE, PhD</p> <p>Static Electricity causes sparks in industrial manufacturing operations that can ignite fires, cause explosions, shock operators, and disrupt digital process control systems. Highlighted will be findings of the Static Electricity Incident Review, a research</p>	<p>Rethink Water Heating</p> <p>Chris Anderson</p> <p>Discussion about the electrification of water heating (vs gas, steam, etc) Save Energy, Water and Space.</p>	<p>Cured in Place Pipe (CIPP) Rehabilitation</p> <p>Jeffrey Gardiner</p> <p>Provide an overview of the CIPP process, including engineering sizing calculations, specifications, and potential error traps for engineers responsible for sizing liners and review of contractor submittals. Discuss state of research for health risks to installers.</p>
10:45 to 11:00	Break				
11:00 to 12:00	<p>Monroe County Strategic Energy Management</p> <p>B. Andrew Fraser, Engineering Operations Manager, MCDES, Corky Kelsey, Chief Operator, MCDES</p> <p>Strategic Energy Management program implementation for the Frank E VanLare Water Resource Recovery Facility and Northwest Quadrant Treatment Plant.</p>	<p>Title: PP-R/PP-RCT Systems for Potable &amp; Process Piping</p> <p>Roger Stolting and Brett Pavear</p> <p>Understanding composition, aspects, developments, installation considerations and applications of PP-R/PP-RCT piping systems to better utilize our resources while remaining cost efficient &amp; provide system longevity</p>	<p>Applying AC Drives</p> <p>Kevin Diehl</p> <p>Discuss the different styles of AC drives. Benefits, concerns and issues for AC drive applications</p>	<p>Design and Sizing Considerations for Oil Separators</p> <p>Emily Miller and Randy Schafer</p> <p>Overview of Oil Interceptors Codes and Design</p>	<p>ATS Fundamentals. A Basic Understanding Of Types, Vocabulary And Functions</p> <p>William Schneeloch</p> <p>Overview of different types of ATS's and their applications</p>

12:00 to 1:30	<b>Lunch and Keynote Program: ASCE NYS INFRASTRUCTURE REPORT CARD John Folts, PE, MASCE</b> <i>Overview of the ASCE NYS Report Card grades that were released in 2022</i>				
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<b>Room</b>			Highland D/G		
1:30 to 2:30	Rochester's I-390/I-490 Major Interchange Improvement Project - Phases 1 & 2 Mark J. Pawloski, P.E., NYSDOT R6; Paul J. Spitzer, P.E., NYSDOT R4 This 4-phase project is a series of infrastructure investments strategically aimed at easing access and improving traffic flow along Route 31, Route 390, and the I-390/I-490 Interchange in Monroe County.	Title: A Practical Look at Gears and Reducers, and their most common problems. Presented by Neville W. Sachs, P.E. Abstract: This presentation will start by describing how they actually operate, with the resultant bending, Hertzian and contact fatigue stresses, and the metallurgies. After reviewing some of the design standards, it will show example of several failures and	Paralleling Concepts Michael Hainzl This interest will include paralleling generators in a facility and paralleling generation with a utility if the utility allows.	Value Engineering (PVC vs Cast Iron) Sal Terranova The pros/cons of Cast Iron vs PVC	Design/Build Of A Helium Recovery, Compression, Purification & Liquefaction System Jeffrey Gardiner Provide an overview of the demand for Helium and impacts to pricing and availability. Provide case-study of the design, build and installation of a 300LPD Helium Recovery System. Understand key components and project interfaces unique to
2:30 to 2:45	Break				
2:45 to 3:45	Rochester's I-390/I-490 Major Interchange Improvement Project - Phase 3 & 4 Rob Schiller, PE, Erdman Anthony and/or Chris Sichak, PE. Erdman Anthony The Cold Spring Construction Company team recently completed work on the third and fourth stages of the I-390 interchange improvements at I-490 project in Gates, New York. The New York State Department of Transportation Design-Build project included	Multi-spectral imaging and Artificial Intelligence to Detect Breast Cancer Satish Kandlikar, Distinguished Professor, RIT and President, BiRed Imaging, Inc. : Next year 350,000 new cases of breast cancer will be diagnosed, and 43,700 women will die from this disease in the USA. One of the best defenses is early detection. Mammography is the gold standard for screening; however, it is not reliable for	Reliability Concepts Michael Hainzl Discusses various reliability concepts that are necessary to evaluate equipment choices and design options	Are your Buildings and its Systems Designed, Installed and Functioning Properly? Code Requirements, Common Mistakes, and Best Practices from an Chonghui Liu, PE, CEM, LEED AP Commissioning related requirements have been in ASHRAE 90.1 since 1999 and in IECC since 2012. However, commissioning has only been recognized and enforced for most of jurisdictions in NYS in recent years. This presentation discusses the related	Genset Natural Gas Piping Design Steven Huber Basic design requirements for natural gas generator sets.
3:45 to 4:00	Break				
4:00 to 5:00	Celebrating Public Space with the ROC the Riverway's Rundel Library North Terrace Project Susan Matzat, PE; LaBella Associates, DPC The existing elevated north terrace was replaced from foundation to surface with the goal of creating a low maintenance, vibrant public space that incorporated a new cantilevered river overlook, terraced amphitheater seating, a gateway sculpture,	Cannabis: The Application Zachary Chenier An introduction to Cannabis; The plant, production facilities and stages, HVAC and system considerations	From Sand to Solar Farms: Silicon Photovoltaics enters Terawatt Era Dr. Santosh Kurinec This talk will present groundbreaking design & manufacturing innovations in silicon photovoltaics ranging from substrate, cells, and modules to system levels. Silicon PV has reached PWh energy potential, with continued cost reductions expanding	Electrification of Legacy Central Heating Plants Jim Parks "With New York State's ambitious decarbonization and electrification goals, what can we do today to prepare our heating systems for this change? How can we utilize the central plant infrastructure that exists in many buildings to reduce the carbon footprint	Back to basics: a Beginner's Introduction to Lighting. Michael Trippe Basic introduction to lighting vocabulary, luminaire types, LED technology and application examples
5:00 to 7:00	<b>Cocktails and Conversation - Riverside Court</b> Sponsored by				