Registration: 9:00am – 10:00am

Parallel Oral Sessions – Part 1 (10:00am – 11:40am)

A1: Energy Storage Technologies and Applications  
Room: Osborne Amphitheatre  
Session Chair: Glen Merfeld, GE Global Research Center  
a1. Novel Glass Ceramic Composites for Large Scale Capacitance Storage, Minoru Tomozawa, RPI  
a2. Understanding of Capacitive Storage, Vincent Meunier, RPI  
a3. Ultracapacitors for Transportation, Sudha Jayaraman, Corning  
a4. Novel Carbon Chemistries for Battery Storage, Ulrich Wiesner, Cornell

B1: Energy Efficiency  
Room: 2nd Floor, Sage I Conference Room  
Session Chair: Peter Douglas, NYSERDA  
b1. Updates on GE SiC Power Device Technologies, Ljubisa Stevanovic, GE  
b2. Comparison of GaN DMOSFET with 4H-SiC MOSFETs, S. Chowdhury and T. P. Chow, RPI  
b3. Power Electronic Drivers’ Influence on LED Light Flicker, Brad Lehman, Northeastern University  
b4. Smart Lighting - Illumination Systems that Think, Bob Karlicek, RPI

C1: Grid Resiliency and Microgrids  
Room: 2nd Floor, Sage II Conference Room  
Session Chair: George Stefopoulos, New York Power Authority  
c1. High Performance Computing for Power System Applications, Liang Min, Lawrence Livermore National Laboratory  
c3. Measurement-Based Voltage Stability Margin Calculation for Large-Scale Wind Power Plants, Scott Ghiocel and Joe H. Chow, RPI  
Luncheon with Keynote Speech (11:50am – 1:15pm) – 1st Floor, Ferris Ballroom

11. Welcome and Introduction, Jian Sun, Director of CFES
12. Keynote Speech, John Rhodes, NYSERDA

Parallel Oral Sessions – Part 2 (1:30pm – 2:45pm)

A2: Energy Storage Technologies and Applications
Room: Osborne Amphitheatre
Session Chair: Glenn Merfeld, GE Global Research Center

a6. The Integration of Scattering Experiments and Simulations in Energy Applications, Emily Liu, RPI
a7. Controlled and Efficient Synthesis of Anion Exchange Fuel Cell Membranes, Chulsung Bae, RPI

B2: Energy Efficiency
Room: 2nd Floor, Sage I Conference Room
Session Chair: Peter Douglas, NYSERDA

b5. DC Grid Infrastructure for Solid State Lighting, N. Narendran, RPI
b6. Active Flow Control Technologies in Building Environments, David Menicovich, RPI

C2: Grid Resiliency and Microgrids
Room: 2nd Floor, Sage II Conference Room
Session Chair: George Stefopoulos, New York Power Authority

c6. Real-Time Simulation of Type-III Wind Turbine Interactions with the Grid, Ignacio Vieto and Jian Sun, RPI
c7. Reliable and Sustainable Microgrid Planning, Bo Yang, Hugo Bashualdo, David Lovelady and Yaosuo Xue, Siemens
Poster Session (3:00pm – 6:30pm) 1st Floor, Ballroom Foyer

Beverages will be served starting at the beginning of the session. Hors d’oeuvres, beer and wine will be served from 4:00 to the end of the session.

**Student Poster Awards**: Four posters will be selected for the Best Student Poster Awards. Each award will consist of a certificate and a cash prize of $250. To qualify for this award, a poster must be prepared and presented by a student (excluding post-doc) who is identified as the lead author. Selection of the awards will be conducted by the attendees of the conference during the poster session. The results will be announced at 6:00 pm. The lead student author is underlined for each qualified poster listed below.

**Materials for Energy Conversion**


p2. *Phosphonated Block Copolymer Fuel Cell Membrane*, **Bhagyashree Date** and Chulsung Bae, RPI


p7. *Mechanistic Modeling of a Biomimetic Dimanganese Water Oxidation Catalyst at the B3LYP Level of Theory*, **James Buchwald** and Peter Dinolfo, RPI

p8. *Examination of Charge Transport in Molecular Based Solar Cells Composed of Smart Matrix Light Harvesting Arrays Assembled via a Layer-by-layer Technique*, **Marissa Civic** and Peter Dinolfo, RPI


p10. *Quantum Confinement at Nanoscale and its Use in Thermal Mapping*, **Ashish Mishra** and Liping Huang, RPI

p11. *Claus Process Reactor Simulation*, Joel Plawsky and Max Bloomfield, RPI
Materials for Energy Storage


p14. Transport Properties of Hierarchical Nanostructured Porous Carbon Membranes Studied by Molecular Dynamics Simulations, Kisung Chae and Liping Huang, RPI


p17. Graphene-Wrapped Mesoporous Cobalt-Oxide Hollow Spheres Anode for High-Rate and Long-Life Lithium Ion Batteries, Hongtao Sun, Xiang Sun, Mingpeng Yu, Tao Hu, Fengyuan Lu and Jie Lian, RPI


Wide Bandgap Semiconductors for Energy Conversion


p22. Comparison of GaN DMOSFET with 4H-SiC MOSFETs, Sauvik Chowdhury and Paul Chow, RPI


p24. Optically Induced Damage in AlGaN, Tanuj Saxena, Gintautas Tamulaitis, Max Shatalov, Jinwei Yang, Remis Gaska and Michael Shur, RPI


Energy Efficient Buildings

p26. Construction Lighting in High Bay Environments, Jennifer Brons and Russ Leslie, RPI

p27. Bio-Mechanical Air Management Systems for the Reduction of Toxicity and Restoration of Biodiversity of Indoor Air Quality – Update on the PSAC II Testbed,
Marianne Nyman, Jason Vollen, Marianne Nyman, K.V. Lakshmi, and Anna Dyson, RPI


p30. Nanostructured Dynamic Building Facades, Brandon Andow, Bess Krietemeyer, Jason Vollen, Nikhil Koratkar, and Anna Dyson, RPI

p31. Dynamic Hygrothermal Polymeric Membranes for Intelligent Building Desiccation, Shane Smith, Anna Dyson, and Jason Vollen, RPI

p32. Development of Parametric Notational Systems for the Visualization of Environmental and Energy Flows within Built Ecologies, Nina Wilson, Justin Shultz, Brandon Andow, Berardo Matalucci, and Anna Dyson, RPI

Grid Modeling, Control and Renewable Energy Integration


p34. Impedance-Based Approach to HVDC System Stability Analysis, Shahil Shah, Hanchao Liu, and Jian Sun, RPI

p35. Measurement of Three-Phase System Impedance for Stability Analysis, Mauricio Cespedes and Jian Sun, RPI

p36. Mitigation of Inverter-Grid Harmonic Resonance by Narrowband Damping, Mauricio Cespedes and Jian Sun, RPI

p37. Multiterminal HVDC Systems for Offshore Wind Farms, Shahil Shah and Jian Sun, RPI

p38. Measurement-Based Voltage Stability Margin Calculation for Large-Scale Wind Power Plants, Scott Ghiocel and Joe Chow, RPI

p39. Real-Time Simulation of Type-3 Wind Turbine Interactions with the Grid, Ignacio Vieto, Mauricio Cespedes, and Jian Sun, RPI

p40. Small-Signal Stability Analysis of Offshore Wind Farms with HVDC, Hanchao Liu and Jian Sun, RPI

p41. Modeless Reconstruction of Missing Synchrophasor Measurements, Pengzhi Gao, Meng Wang, Scott G. Ghiocel, and Joe Chow, RPI

p42. Real-Time Distributed Simulation of Wind Farms Interactions with the Grid, Shahil Shah and Jian Sun, RPI


p44. A Simple Wind Turbine Calculator, Bennett Stephen, Joseph Bernstein, Kathleen DiMilia, Matthew Karamanlis, Jared LaPorte, Michael Pizzari, Dave Runkel, Amanda Shagoury, Brittney Shkil, Scott Miller, and Mark Embrechts, RPI
Power System Economics and Operation


p47. Improved Emission Functions for Generators, Their Characterization and Resolving a Controversy About the Emission Effects of Wind Power, Andrew Kindle, Kedaar Raman, and Daniel Shawhan, RPI

p48. An Empirical Test for Inter-State Carbon-Dioxide Emissions Leakage Resulting from the Regional Greenhouse Gas Initiative, Andrew Kindle and Daniel Shawhan, RPI

p49. A Method for Selecting Hours that Represent the Joint Distribution of Electricity Demand, Wind, and Sun, Zamiyad Dar and Daniel Shawhan, RPI

p50. Energy, Cost, and Emission Savings from Removing Transmission Shield Wires, Biao Mao, Daniel Shawhan, RPI

p51. BitTorrent-inspired Decentralized Management of Residential Distributed Energy Resources (DER), Matthew Titus and Wayne Bequette, RPI

p52. Providing Industry High-Performance Simulations, Mark Shephard and Cameron W. Smith, RPI, and Mark W. Beall, Simmetrix

CFES Energy Scholars

p53. Nanocryrstalline Barium Titanate/Glass Composites for Improved Electrical Energy Storage, Maya Nath, Xiaofeng Su, and Minoru Tomozawa, RPI, and Patrick Tepesch, Corning


p55. Bike Based Power Station, Siyuan Peng and Michael Shur, RPI, and Khalil Shalabi, NYPA