CLEAN ENERGY FRONTIERS:

FROM LAB TO MARKET

15TH ANNUAL SYRACUSECOE SYMPOSIUM

November 9, 2015 | SyracuseCoE HQ
November 10, 2015 | Crowne Plaza Hotel
SYRACUSE, NEW YORK

PROGRAM

Monday, November 9th - SyracuseCoE HQ			
5:00 - 7:00 PM	Student Poster Viewing and Reception		
Tuesday, November 10th, Morning, Crowne Plaza			
8:30	**Registration and Continental Breakfast**		
9:00	**Welcomes and Introductions**, LaFayette Room **Ed Bogucz**, Executive Director, SyracuseCoE and Associate Professor, Syracuse University		
9:15	**Keynote Presentation** *Envisioning New York's Clean Energy Future* **Janet Joseph**, Vice President for Innovation and Strategy, NYSERDA Introduction by **Shere Abbott,** Vice President for Sustainability Initiatives and University Professor of Sustainability Science and Policy, Syracuse University		
10:15	**Break and Networking**		
Session 1	**Pompey Room** **A.1 Combustion Technologies**	**Camillus Room** **B.1 Energy Efficient Approach to Improving IAQ**	**Skaneateles Room** **C.1 Opportunity | Crisis: Adding Microgrids to Public Urban Infrastructure**
10:30	*Over 80% of our energy comes from technologies that depend on combustion of conventional and alternative fuels. This session is focused on combustion research that will yield tools that can facilitate the design of combustion systems that are characterized by higher energy conversion efficiencies and lower emissions.*	*Low energy buildings are more air-tight and highly insulated, but they have less margin for IAQ variations. This session discuss various approaches to improve IAQ through source reduction, ventilation, air cleaning, demand-based predictive controls, while achieving high building energy efficiency.*	*Public infrastructure in older urban neighborhoods includes both urgently needed repairs and innovative additions, all within public rights-of-way, spaces crowded above and below ground and home to many competing uses, such as all-weather transportation and street life. Dialogue and synergy between these many interests are crucial to financially feasible plans to make urban neighborhoods vibrant and attractive places to live and work.*
	Combustion Chemistry Research in Support of Advanced Combustion Technology **Ben Akih-Kumgeh**, Assistant Professor, Syracuse University	*Integrated IAQ Strategies via Source Control, Ventilation and Air Purification* **Jensen Zhang**, Professor, Syracuse University	*Cultivating Perception of Urban Infrastructure* **Susan Dieterlen**, Research Assistant Professor, Syracuse University
	Combustor Operability Issues in Low-NOx Gas Turbine Engines **Jacqueline O'Connor**, Assistant Professor, Pennsylvannia State University	*Synergistic Integration of a CO2 and Detection Sensor Network for Healthy and Sustainable Building Operation in a Low Energy Building* **Kwang Hoon Han**, Assistant Research Professor, Syracuse University	*Urban Water Management: Can Green Infrastructure Help?* **Cliff Davidson**, Thomas C. and Colleen L. Wilmot Professor of Engineering, Syracuse University
	Technological Challenges and Advances in Forced Ignition Systems **Nathan Peters**, PhD Student, Syracuse University	*Getting to Net-zero without Stinkin' up the Joint: Long Term Air Quality Monitoring in a Net-zero Energy Home* **Dustin Poppendieck**, Environmental Engineer, NIST	*Infrastructure Innovation in Syracuse* **Sam Edelstein**, Analytics Coordinator, Office of Innovation for the City of Syracuse
	Session Chair: **Ben Akih-Kumgeh**	Session Chair: **Jensen Zhang**	Session Chair: **Susan Dieterlen**
11:45	**Lunch** **Keynote Presentation** *A National Perspective on Energy Technologies and Research Opportunities* **Chioke Harris,** AAAS Science & Technology Policy Fellow, U.S. Department of Energy **Lightning Talks by Student Poster Competition Winners**		

Tuesday, November 10th, Afternoon, Crowne Plaza			
Session 2	**Pompey Room** **A.2 SUNY-ESF Biofuels Pilot Plant**	**Camillus Room** **B.2 Distributed Environmental Controls**	**Skaneateles Room** **C.2 Sustainable Urban Mobility: Unlocking the Power of Walkable Cities**
1:15 PM	*The SUNY-ESF Biofuels Pilot Plant at SyracuseCoE can produce next generation bio-based fuels derived from renewable resources such as locally grown woody feedstocks including planation-grown willow, switchgrass, and forest-based biomass. This session will describe the capabilities of the Biofuels Pilot Plant and the experiences of current users.*	*A new paradigm in building HVAC is emerging in which individual building occupants are given the means to condition their personal micro environment via the use of distributed personal environmental control systems (PECS) to improve occupant satisfaction and decrease energy consumption. This session includes three papers addressing the benefits and challenges of using PECS in commercial buildings.*	*This session will discuss the principles of designing built environments that promote human-powered mobility as a clean and efficient mode of transportation. It will also present the current status and future trajectories of these forms of transportation in the context of Downtown Syracuse and the Hotel Syracuse.*
	New Forrest Economy (and The Role the SyracuseCoE Biofuels Pilot Plan) **Tom Amidon**, Professor, SUNY-ESF	*Personalized Environmental Control Systems: PECS* **H. Ezzat Khalifa**, NYSTAR Distinguished Professor, Syracuse University	*Introduction to Placemaking* **Heather Schroeder**, Economic Development Program Manager, Downtown Committee of Syracuse
	Using the SyracuseCoE Biofuels Pilot Plant: The Path Forward **Bhavin Bhayani**, President, Avatar Sustainable Technologies	*Distributed Demand-controlled Ventilation* **Dustin Demetriou**, Development Engineer, IBM	*The Visitor Experience* **David Holder**, President, Visit Syracuse
	800L Biofuels Fermenter Capabilities **Susuma Ikuta**, Visiting Professor, SUNY-ESF	*Energy and Comfort Optimization in Occupant-controlled Offices* **Can Isik**, Professor, Syracuse University	*Conceptual Design* **Steve Breitzka**,Managing Landscape Architect, Environmental Design & Research, D.P.C.
			Designing for Pedestrian Comfort **Tarek Rakha**, Assistant Professor, Syracuse University School of Architecture
	Session Chair: **Tom Amidon**	Session Chair: **H. Ezzat Khalifa**	Session Chair: **Tarek Rakha**
2:30	**Break and Networking**		
	A.3 Energy-Efficient, Environmentally-Friendly Thermochemical Systems	**B.3 Energy Efficiency Innovations in Data Centers**	**C.3 Integrating Distributed Renewables Into the Grid: Market, Policy, and Engineering Perspectives**
2:45	*Introduction of efficient and environmentally-friendly systems into the heating and/or power generation applications has an enormous impact on fuel savings and greenhouse gas emissions reduction. This session discusses the research, development and demonstration of these systems and a common challenge of dealing with them.*	*Energy costs are the fastest-rising expense for today's data centers. This session will explore innovative data center technologies and best practices to increase energy efficiency for the growing market.*	*As the use of renewable energy generation increases, the power grid has experienced several challenges to integrate these new resources. This panel will discuss the challenges and solutions from the perspective of the market, policy factors, and engineering needs.*
	Resilient Residential Furnace/ Boiler with Flame-assisted Fuel Cell (RRF FFC) **Ryan Milacarek**, PhD Student, Syracuse University	*Liquid Cooling Performance Capabilities, Implementation and Emerging Data Center Trends* **Dustin Demetriou**, Development Engineer, IBM	*Distribution System Management via Demand Response* **Peter Cappers**, Research Scientist, Lawrence Berkeley National Lab
	Hydronic Design and Control Strategies for Condensing Boilers **Shaun Turner**, Applications Engineer, Fulton	*Ramifications of Containment Solution on IT Availability in Data Centers* **Husam Alissa**, PhD Student, Binghamton University	*Impacts of Distributed Renewables on the Bulk Power System* **Sara Eftekharnejad**, Assistant Professor, Syracuse University
	Praxair's Ceramic Membrane based Modular Syngas Technology **Ines Stuckert**, Development Specialist, Praxair	*CRAH Bypass in Contained-Aisle, Air-cooled Data Centers* **H. Ezzat Khalifa**, NYSTAR Distinguished Professor, Syracuse University	*Regulatory Issues Raised by the Changing Relationship Between the Distribution System and the Bulk Power Grid* **Rebecca Slayton**, Assistant Professor, Cornell University
		Powering Data Centers of the Future **Roger Schmidt**, Traugott Distinguished Professor, Syracuse University	*Utility Adoption of Smart Grid Technologies and Big Data* **Jason Dedrick**, Professor, Syracuse University
	Session Chair: **Jeongmin Ahn**	Session Chair: **Roger Schmidt**	Session Chair: **Jason Dedrick**
4:15	**Closing Panel** *Clean Energy Opportunities: From Market to Lab* **Ian Shapiro,** Chairman, Taitem Engineering **Chioke Harris,** AAAS Science & Technology Policy Fellow, U.S. Department of Energy Panel Moderated by **Ed Bogucz,** Executive Director, SyracuseCoE and Associate Professor, Syracuse University		
5:00PM	**Program close & No-Host Happy Hour at the Library Lounge, Crowne Plaza Hotel**		

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