KEYNOTE SPEAKERS

Michelle Addington
Hines Professor of Sustainable Architectural Design, School Of Architecture, Yale University
Technological Pasts and Futures

Jennifer Gerbi
Program Director, Advanced Research Projects Agency-Energy (ARPA-E)
ARPA-E: Saving Energy Outside the Box

Gurdip Singh
Associate Dean for Research and Doctoral Programs, College of Engineering and Computer Science, Syracuse University
Perspectives on Smart and Connected Communities and Cyber-Physical Systems

Skylar Tibbits
Lecturer, Research Scientist, Department of Architecture, MIT
Self-Assembly & Programmable Materials

Fei Wang
Assistant Professor, MS Program Coordinator, School of Architecture, Syracuse University
Design | Energy | Futures

SCHEDULE

WEDNESDAY, September 21	Crowne Plaza
1:30	Registration, networking, and coffee
2:00	Welcome and introductions, **Ed Bogucz**, SyracuseCoE and Syracuse University
2:15	**Keynote Presentation** - Introduction by **Teresa Dahlberg**, Syracuse University **Gurdip Singh**, Syracuse University *Perspectives on Smart and Connected Communities and Cyber-Physical Systems*
3:00	**Keynote Presentation** - Introduction by **Michael Speaks**, Syracuse University **Fei Wang**, Syracuse University *Design | Energy | Futures*
3:45	**Keynote Presentation** - Introduction by **Tarek Rakha**, Syracuse University **Skylar Tibbits**, MIT *Self-Assembly & Programmable Materials*
	SyracuseCoE HQ
4:30	**Transition to SyracuseCoE Headquarters** for reception and posters
5:00	Reception and Student Poster Competition

THURSDAY, September 22	Crowne Plaza
8:00	Registration, networking, and continental breakfast
8:30	Welcome and introductions, **Ed Bogucz**, SyracuseCoE and Syracuse University
8:45	**Keynote Presentation** - Introduction by **Shere Abbott**, Syracuse University **Michelle Addington**, Yale University *Technological Pasts and Futures*
9:30	Coffee and transition to multi-track sessions - Thursday's schedule continued inside

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Advances in research and technology are catalyzing transformations in education and practice for sustainable and resilient built environments. In SyracuseCoE's 16th Annual Symposium, presentations will address emerging innovations across many scales, from high-performance buildings to human-centered urban design, from nanoscale-enabled energy systems to cyber-physical interactive environments, and from smart grids and power system resiliency to adaptive building systems and performance augmentation materials.

PROGRAM COMMITTEE

SYRACUSE UNIVERSITY FACULTY

Tarek Rakha, Chair
Daekwon Park
Shalabh Maroo
Sara Eftekharnejad
Jason Dedrick
Amber Bartosh

POSTER JUDGES

Vince Bongio, SBB, Inc
Joe Borowiec, NYSERDA
Aimee Clinkhammer, NEIWPCC
Lee Davis, Ephesus Lighting
Bob DelZoppo, SRC
Hugh Henderson, CDH Energy
Pete King, King + King Architects
Larry Wetzel, Air Innovations

16TH ANNUAL SYRACUSECOE
SYMPOSIUM

21 & 22
September, 2016
Syracuse, NY

9:45 SESSION 1 - LAFAYETTE ROOM — DESIGN	9:45 SESSION 1 - CAMILLUS ROOM — ENERGY	9:45 SESSION 1 - SKANEATELES ROOM — FUTURES
A.1 Multiscale Materials for Building Performance Augmentation	**B.1 Smart Grids: Transformation in Generation Profiles, Technology, & Power System Structure**	**C.1 Future Materials, Methods, & Environments**
This session will focus on the development of innovative multiscale materials (i.e. hybrid or architectured materials) that strategically enhances the performance of buildings. The performative criteria ranges from thermal management and structural optimization to material selection, consumption and assembly.	*Power systems are rapidly transforming to smart grids. This session will discuss various aspects of smart grids. The focus will be on high penetration of renewable energy resources, changes in distribution systems and transmission system technology.*	*This session will focus on speculative futuristic materials and methods that will change how we conceive of the material palette for construction and environments.*
Philseok Kim, SLIPS Technologies, Inc. *Commercialization of Academic Invention - Slippery Liquid Infused Porous Surfaces (SLIPS)*	**Steven W. Pullins**, Hitachi America Ltd *Case Study: Syracuse Near Westside Community Microgrid*	**David Maack**, Corning Incorporated Science & Technology *Corning® Gorilla® Glass Speakers: Corning and the Pursuit of Innovation*
Junho Chun, Syracuse University *Topology Optimization Frameworks for the Design of Structures Subjected to Random Excitations*	**Lei Wu**, Clarkson University *Developing Advanced Resilient Community Microgrid to Improve Disaster Response Capability*	**Fengqi Li**, Syracuse University *Wall Parley---An Exploration of Future Architecture Embedded with Artificial Intelligence*
Leire Asensio Villoria, Harvard University *Ceramic Formations*	**James T. Gallagher**, New York State Smart Grid Consortium *Grid Modernization in New York - Challenges and Opportunities*	**Amber Bartosh & David Shanks**, Syracuse University *Physical, Digital, and Virtual Prototyping of Emergent Materials for Building*
Session Chair: **Robert Hubeli**, Syracuse University	Session Chair: **Sara Eftekharnejad**, Syracuse University	Session Chair: **Bess Krietemeyer**, Syracuse University
11:00 Break		
11:15 SESSION 2 - POMPEY ROOM — DESIGN	**11:15 SESSION 2 - CAMILLUS ROOM — ENERGY**	**11:15 SESSION 2 - SKANEATELES ROOM — FUTURES**
A.2 Nanoscale/Microscale-Enabled Energy Systems Design	**B.2 Power System Resiliency and Security**	**C.2 Innovation for Municipal Infrastructure**
This session will discuss the advancements brought about in energy systems due to the inclusion of nano/micro-scale based designs. Such designs affect the process at the fundamental level and lead to enhancements in energy efficiency as well as cost savings.	*Power system resiliency, especially during extreme events such as natural disasters and cyber intrusions, has gained recent attention. Fast recovery and adapting to extreme events are critical for a resilient power grid. Smart grids have introduced opportunities to increase system resiliency and challenges such as cyber security of the power grid. This session will discuss these opportunities and challenges from various perspectives.*	*The City of Syracuse's Innovation Team recently launched a series of initiatives aimed at addressing infrastructure challenges that many municipalities experience. They will discuss their infrastructure interventions, and explain how technology and data can be used to solve similar problems in other communities.*
H. Ezzat Khalifa, Syracuse University *Micro Environmental Control Systems*	**Steve J. Chapin**, Syracuse University *Security Implications of Distributed, Bidirectional Power Grids*	**Andrew Maxwell**, City of Syracuse
Andrej Lenert, University of Michigan *Shaping the Spectrum of Thermal Radiation: Nanostructures for Efficient Solar Power and Buildings*	**Quanyan Zhu**, New York University *Resilient Analysis and Design of Interdependent Critical Infrastructures: Concepts and Case Studies*	**Adria Finch**, City of Syracuse
Scott N. Schiffres, State University of New York at Binghamton *Efficiency Through Adsorption*	**James Perkinson**, National Grid *A Utility Experience with Advanced Distribution Automation*	**Sam Edelstein**, City of Syracuse
		Jonnell Robinson, Syracuse University & City of Syracuse
Session Chair: **Shalabh Maroo**, Syracuse University	Session Chair: **Carlos Caicedo**, Syracuse University	**Varun Adibhatla**, ARGO Labs
12:30 Lunch, Networking, and Lightning Talks by Student Poster Competition Winners in Lafayette Room		
2:00 SESSION 3 - POMPEY ROOM — DESIGN	**2:00 SESSION 3 - CAMILLUS ROOM — ENERGY**	**2:00 SESSION 3 - SKANEATELES ROOM — FUTURES**
A.3 Dynamic and Adaptive Building Systems for Environmental Control	**B.3 Data Analytics and the Electric Grid**	**C.3 Future Cities**
This session will discuss about the state-of-the-art technologies and methods that are contributing to developing building systems that can dynamically adapt to its environment and occupants. The scope of the enabling technology includes both software and hardware (e.g. simulation platforms to innovative building envelop systems) that augments the design, construction, and control process of adaptive building systems.	*The electric grid is being transformed with the deployment of smart meters, monitors, controllers, and smart devices all networked and generating large amounts of data which can be used to match supply and demand, repair outages more quickly, help consumers manage their energy usage and better manage grid resources. This panel will look at the opportunities and challenges created by big data on the grid.*	*This session will explore the environmental implications, energy resources, and urban planning transformation of future cities with a special consideration for how the ubiquity of technology is re-shaping how we envision and interact with our environments.*
Forrest Meggers, Princeton University *Science-Inspired Architecture: Sensing & Deploying Novel Radiant Reflections for Advanced Prototypes*	**Joe Phillips**, IBM Buildings Industry Solutions *Analytics and Internet of Things: Climate Change Mitigation at Meaningful Scale*	**Lydia Kallipolliti**, Rensselaer Polytechnic Institute *Closed Worlds*
Doris Sung, USC / dO|Su Studio Architecture *Architecture Unplugged*	**Jeffrey Saltz**, Syracuse University *Data Science Organizational processes*	**Temitope Olujobi**, Syracuse University *Unreal Urbanisms*
Jensen Zhang, Syracuse University *Solar Chimney for Ventilation: Modeling, Design, and Demonstration*		**Bess Krietemeyer**, Syracuse University *Projective Empowerment: Co-Creative Sustainable Design Processes*
Session Chair: **Daekwon Park**, Syracuse University	Session Chair: **Jason Dedrick**, Syracuse University	Session Chair: **Amber Bartosh**, Syracuse University
3:15 Ice Cream Break		
3:30 SESSION 4 - POMPEY ROOM — DESIGN	**3:30 SESSION 4 - CAMILLUS ROOM — ENERGY**	**3:30 SESSION 4 - SKANEATELES ROOM — FUTURES**
A.4 Bio-design for Engineering Energy and Health	**B.4 Demand Response from Policy, Economic, and Consumer Behavior Perspectives**	**C.4 Leaping to Net-Zero Energy Futures for Existing Buildings**
This session will discuss on advancements in health-related technology by understanding and engineering various aspects of the human body, and such designs can lead to potential transformations in the health-care sector. The impact of bio-designed materials on energy and the environment will also be discussed.	*Demand response programs encourage customers to adjust their electricity usage in response to the supply and demand for electricity, helping to reduce peak demand and avoid potential outages. This can be accomplished through price incentives, voluntary appeals, or automated control over customer usage. This panel will discuss the effectiveness of different approaches to demand response.*	*A Dutch consortium of builders, suppliers, municipalities and financiers has demonstrated how existing residential buildings can be transformed to become net-zero energy via turn-key whole-building retrofits that are completed within a few days. Presentations will describe the "Energiesprong (Energy Leap)" model, and explain how NYSERDA is using a similar approach to transform the multifamily housing sector across New York state.*
Peter Huang, State University of New York at Binghamton *Development and Characterization of a 3D Microfluidic Device to study EndMT Mechanobiology*	**David Blum**, Lawrence Berkeley National Laboratory *Demand Response with Next-Generation Building Modeling and Control*	**Ian Shapiro**, Taitem Engineering
Paul Chiarot, State University of New York at Binghamton *Synthetic Asymmetric Vesicles Built Using Continuous Microfluidic Technology*	**Andrea Feldpausch-Parker**, State University of New York College of Environmental Science and Forestry *Smart Grid Electricity System Planning Post-Superstorm Sandy: Analysis of Climate and Energy Discourse*	**Loic Chappoz**, NYSERDA
Shikha Nangia, Syracuse University *Breaking Through the Blood-Brain Barrier*	**Peter Cappers**, Lawrence Berkeley National Laboratory *Experience with Residential TOU Retail Electric Rates*	
Session Chair: **Shalabh Maroo**, Syracuse University	Session Chair: **Peter Wilcoxen**, Syracuse University	Session Chair: **Ed Bogucz**, SyracuseCoE and Syracuse University
4:45 **Keynote Presentation** - **Jennifer Gerbi**, Advanced Research Projects Agency-Energy (ARPA-E), *ARPA-E: Saving Energy Outside the Box* with introduction by **Joseph Borowiec,** NYSERDA		
5:30 **Program close**		