



Sustainability Showcase

October 28 – 30, 2019

<https://sustainability.gatech.edu/showcase>

Kendeda Building for Innovative Sustainable Design
422 Ferst Drive NW, Atlanta GA 30313

CREATING THE NEXT

Sponsored by:

Brook Byers Institute for Sustainable Systems
Office of the Executive Vice President for Research
Kendeda Building for Innovative Sustainable Design
Sustainable Design & Manufacturing Lab
Ray C. Anderson Center for Sustainable Business

Schedule

Three full-days, subdivided into **six half-day** sessions – attend only what matters to you:

Monday Morning October 28 9:00AM

People: Health, Wealth, Wellbeing, Equity, Ethics, Socioeconomics, Behavior, Culture, Education, Metrics

- Japan Summer Program in Sustainable Development (Brian Woodall)
- Sustainability in Germany - GT Students and the UN SDGs (Britta Kallin)
- Service learning in Metz, France: accelerating language acquisition and cross-cultural competency while making a difference. (Tatiana Kozhanova)
- Community Organizations and the Teaching of Sustainability in Study Abroad Programs in France (Chris Ippolito)
- Serve-Learn-Sustain in Spain: Social, Economic, and Environmental Approaches (Kelly Comfort)
- Overview of The Global Media Festival: Sustainability across Languages and Cultures (Juan Carlos Rodriguez)
- Chinese Cultural events on Sustainability (Jin Liu)
- The Global Media Fest and Sustainability Studies in Atlanta (Stephanie Boulard)
- German Global Media Fest Events and Course Module (Jan Uelzmann)
- Ashes to Honey: Sustainability in Japan (Amanda Weiss)
- Re-Shape: A Platform to Cultivate Care in the Practice of Data Science (Ben Shapiro and Amanda Meng)
- Incentives for Workplace Safety (Ravi Subramanian)

Monday 10:30AM – Noon Live Remote Viewing of the Inauguration of President Angel Cabrera

Monday Noon – 1:00PM Lunch Social, Poster Viewing, and Exploration of the Kendeda “Living Building”

Monday Afternoon October 28 1:00PM

Keynote 1:00-1:30PM: Intergenerational Change (John Lanier, Executive Director, Ray C. Anderson Foundation)

Organizations and Institutions: Governance, Decision Making, Planning, Regulation, Investment, Markets

- Atlanta Food Bank visit in Japanese class (Aya McDaniel)
- Ideas to Serve Competition: Moving from a solutions-first to a learning – first approach (Dori Pap)
- Broader Impacts: Sustainability Education in K-12 (Lizanne DeStefano)
- Multi-dimensional Poverty and Environmental Factors (Shatakshee Dhongde)
- Teaching and Implementing Just Sustainabilities in a Music and Culture Mecca (Joycelyn Wilson)
- Service Learning and Sustainable Writing Pedagogy (Darcy Mullen)
- Using Societal Priorities for Multicriteria Decision Making (Emily Grubert)
- Energy, sustainability, finance and politics. (Kate Pride Brown)
- Equilibrium Sorting and Moral Hazard in Residential Energy Contracts (Dylan Brewer)
- Improving Water Access in Mumbai Slums through Citizen Empowerment (Anjali Thomas)
- The use of public private partnerships to facilitate sustainable and smart city development (Yunping Liang and Baabak Ashuri)
- Optimal Service Portfolio for Non-Profit Organizations Serving Distressed Individuals (Karthik Ramachandran)
- Energy Transitions in History (Germán Vergara)
- Integrating Science, Engineering and Economics for Sustainable Policies (Emanuele Massetti - Emanuele Di Lorenzo)
- Reversible fuel cells for energy storage and conversion (Meilin Liu)
- Negative CO2 Emissions Technologies Based on Direct Air Capture of CO2 (Christopher Jones)
- Improved sustainability and resilience using decentralized water and energy infrastructure (John Crittenden)

Keynote 4:30-5:00PM: Reflections on Sustainability at Georgia Tech (G. Wayne Clough, President Emeritus of Georgia Tech and former Secretary of the Smithsonian Institution)

Tuesday Morning October 29 9:00AM

Natural Systems: Atmosphere, Oceans, Water, Biodiversity, Climate, Weather, Natural Resources

- Phosphorus removal, recovery, and recycling (Jie Xu)
- Air Quality Research at Georgia Tech (Nga Lee (Sally) Ng, Rodney Weber, Greg Huey, Jennifer Kaiser, and Ted Russell)
- Biologically inspired systems design for sustainability (Marc Weissburg)
- Breaking the Bucket List: Sustainable Heritage Tourism (Danielle Willkens)
- An historical perspective to biodiversity conservation strategies (Jenny McGuire)
- How honey bees collect pollen (Marguerite Matherne)
- Pollinator Conservation, Research, and Education on Campus: The Urban Honey Bee Project and Bee City USA (Jennifer Leavey)
- Environmental Economics: Valuing our Natural Capital (Laura Taylor)
- Environmental Externalities and Cost of Capital (Sudheer Chava)
- Workplace Implications of Just-in-Time Scheduling (Qiuping Yu)
- The Economic Impact of Right-to-Work Laws (Andras Danis)
- Creative Destruction? Assessing the Impact of E-Commerce on Employees at Brick-and-Mortar Retailers (Manpreet Singh)
- Supply Chain Transparency as a Mechanism to Promote Social & Environmental Responsibility (Basak Kalkanci)
- Product Recalls and Corporate Social Responsibility (Manpreet Hora)
- Sustainable Cities Minor at Georgia Tech (Jairo Garcia)
- Extreme Atlanta: Educating Students in Sustainability, Global Climate Change and Urban Spaces (Zachary Handlos)
- Impacts of Climate Change on Long-Term Reliability of Structures (Iris Tien)
- An Outlook on Energy and Materials Loops in the Future (Hailong Chen)
- Materials for Batteries (Matt McDowell)
- Artificial Intelligence for Sustainability (Ashok Goel)
- Library Resources for Sustainability Research (Isabel Altamirano)

Tuesday Noon – 1PM Lunch Social, Poster Viewing, and Exploration of the Kendeda “Living Building”

Tuesday Afternoon October 29 1:00PM

Built Systems: Cities, Transportation, Power & Energy, Water, Data & Communications, Food & Agriculture, Buildings, Landscape

- Energy and water budgeting tool for Kendeda building operators (Jung-Ho Lewe)
- Regenerative building simulator: Kendeda building fast forward to 2050 (Jung-Ho Lewe)
- Smart Commons: GT Shenzhen smart campus research (Perry Yang)
- How do we build a sustainable transportation infrastructure? (Kari Watkins)
- Emerging tech, new mobility services, and their impacts on urban mobility and the environment (Giovanni Circella)
- Biomass as a Sustainable Energy Solution (Valerie Thomas)
- Transportation Infrastructure Sustainability through Bridge Weigh-In-Motion (Yang Wang)
- Transportation Sustainability in a world of Connected and Automated Vehicles (Angshuman Guin)
- Behavioral incentives for electric vehicle charging (Omar I. Asensio)
- Retrofitting Suburbia (Ellen Dunham-Jones)
- Sustainability Follows Integration (Pardis Pishdad-Bozorgi)
- Global Sustainable Sanitation: Reinventing the Toilet (Shannon Yee)
- Organic and Hybrid Materials for Power Production. (Seth Marder)
- Organic and Hybrid Thermoelectrics for Power Generation and Personal Cooling (Shannon Yee)
- Urban-Aware Materials for Passive Heat Management (Natalie Stingelin (represented by Carlos Silva))
- Green Chemistry in research: gauging process development and developing new metrics (Andy Bommarius)
- Nanocellulosic aerogels, films and composites (Yulin Deng)
- Serve-Learn-Sustain Affiliated Faculty Share Their Experiences as Teachers, Researchers, and Program-Builders (Ruth Yow, Allen Hyde, Dori Pap, Jen Singh, and Frank Wickstead)
- Assessing the Sales Impact of Firms' CSR Initiatives (Adi Pattabhiramaiah)
- Designing Effective Extended Producer Responsibility Programs (Beril Toktay)

Wednesday Morning October 30 9:00AM

Technologies: Manufacturing, Construction, Design, Engineering, Computing, Operations, Logistics

- Occupant-Centered Workplace Hybrid Ventilation in the US: Now and the Future (Xinyi Song)
- Building Technology for the Sustainability of the Built Environment (Tarek Rakha)
- Grid-scale energy storage as an enabling technology (Richard Simmons)
- Status Opportunity and Next Generation Silicon Photovoltaics Research At Georgia Tech (Ajeet Rohatgi)
- Re-Wind: Re-Use of De-Commissioned Wind Turbine Blades (Russell Gentry, Tristan Al-Haddad and Larry Bank)
- Recycling Carbon: CO₂ to Fuels (Matthew Realff)
- Largest-Ever USDA Grant To Grow Vegetables with Wastewater Nutrients (Yongsheng Chen)
- Opportunities for renewable driven food, energy and water systems (Marta Hatzell)
- Aerating bed for black soldier fly larvae (Olga Shishkov)
- Greener oxidation technologies for safer and more sustainable water environments (Ching-Hua Huang)
- Biomass to biofuel, an enzyme approach to renewable and clean bioenergy (Hongnan (Conan) Cao)
- Phenol Production from Lignin (Carsten Sievers)
- Chemical ecology interventions for algal biofuel production (Julia Kubanek)
- A Model-based Approach for a Mobility and Traffic Incident Forecasting Environment (Michael Balchanos)
- Connected Vehicles to the Rescue: How Connected Vehicle Technology based Signal Preemption can improve Emergency Vehicle Response Times (Angshuman Guin)
- Spatial-Temporal Event Modeling for Complex Systems (Xiaoming Huo)
- A Look at the New Green Deal: Results from an Analysis using GT's National Energy Modeling System (Marilyn Brown)
- Internet technology and education for kids in poor areas (Haizheng Li)
- Biologically Inspired Design (Jeannette Yen, Marc Weissburg, Michael Helms)
- Advancing the UN SDGs and Education for Sustainable Development at Georgia Tech and across the Greater Atlanta Region (Sebnem Ozkan, David Eady, Alice Favero, John Taylor)

Wednesday Noon – 1PM Lunch Social, Poster Viewing, and Exploration of the Kendeda “Living Building”

Wednesday Afternoon October 30 1:00PM

Future Vision

- Sustainability-Themed Socio-technical project-based learning in the Engineering classroom (Raghu Pucha)
- Master of / Certificate in Sustainable Energy and Environmental Management programs (Dan Matisoff)
- Minor in Leadership Studies aka The Global Engineering Leadership Minor (GELM) (Adjo Amekudzi-Kennedy)
- Creating a healthy workplace for college students (Eunhwa Yang)
- Uncertain Projections of Sea Level Rise and the Implications for Coastal Decision-Making (Alex Robel)
- Preliminary Climate Vulnerability Assessment of Downtown Atlanta (Jairo Garcia)
- "Smart" solutions for climate change resilience (Kim Cobb)
- Autonomous vehicles and their impact on cities and urban living (Subhro Guhathakurta)
- Sustainable engineering systems – From cars to ecosystems (Bert Bras)
- From Landfill to Road: Transform high-value Industrial Waste into Low CO₂ Emission Vehicles (Kyriaki Kalaitzidou)
- Beyond Carbon Considerations in Georgia Drawdown (Michael Oxman)
- Energy Affordability in Atlanta (Beril Toktay)
- 21st Century Housing Prototypes (Michael Gamble)
- Smart Materials for a Sustainable Future (Bernard Kippelen)
- Fast Forward to 2050: Carbon neutrality path planning tool for GT Campus (Scott Duncan)
- Town Hall on the Future of Sustainability Research and Education at Georgia Tech (Bert Bras, Kim Cobb, Steve French, Jennifer Hirsch, Matthew Realff, Anna Stenport, Valerie Thomas, Beril Toktay, and Marc Weissburg)

Keynote 4:30-5:00PM: Big Sustainability (John Brock, Former Chairman and Chief Executive Officer of Coca-Cola Enterprises Inc.)

Posters Available October 28 - October 30

- Locally Enhanced Electric Field Treatment (LEEF) for Next-Generation Water Disinfection (Xing Xie)
- Energy sharing boundaries for buildings and vehicles (Daniel Castro and Soowon Chang)
- Indoor air quality in the Kendeda Building (Jennifer Kaiser)
- Low Carbon Combustion Research at Georgia Tech (Tim Lieuwen)

- Freshman engineering students see value in sustainability-themed project-based learning (Raghu Pucha, Sunni Newton and Meltem Alemdar)
- Sustainability Programming and Curricular Resources in K-12 Education (Sabrina Grossman)
- Culture and Equity in Education (Diley Hernandez)
- Georgia Tech's New Certificate and Master of Sustainable Energy and Environmental Management (Marilyn Brown)
- Professional Learning and Outreach in Sustainability for K12 Educators (Mike Ryan)
- Library Research Tools for Built Systems and Sustainability (Lisha Li)
- Engaging Students in The Kendeda Building through Serve-Learn-Sustain (Jennifer Hirsch)
- Sustainable Undergraduate Research Fellows (William Abdallah, Joey Buehler, Leo Chen, Anielle Duritza, Kian Halim, Kyte Harvey, Gigi Pavur, Jeniveve Vaia, Michael Chang)
- Sustainable Partnerships for Social Impact (Dori Papp)

- Getting Personal with Data to Cultivate Care in Computing Education (Ben Shapiro)
- VERA: A Virtual Ecological Research Assistant (Ashok Goel)

- Gender, Frontline Health, and the Promises and Perils of AI (Neha Kumar)
- Global Meat: Social and Environmental Consequences of the Expanding Meat Industry (Bill Winders)
- Energy Security and Older Americans; the Impact of Environmental Water Stress (Sharon Murphy)
- Breaking the Bucket List: Sustainable Heritage Tourism (Danielle Willkens)

- Modeling ocean biogeochemical cycling (Taka Ito)
- Water Sustainability: Characterizing the Processes Transforming Metal and Organic Contaminants in Aquatic Systems (Martial Taillefert)
- Sea Level Rise and Savannah: Phenomena Based Curriculum for Middle School Science Science Classes (Jayma Koval)
- Multidisciplinary Design Optimization for Distributed Energy and Water System (Osvaldo Broesicke, Junchen Yan, Valerie Thomas, John Taylor, John Crittenden)
- Development of Next Generation >25% Efficient Passivated Contact Si Solar Cells and >30% Si-Perovskite Tandem Cells for Lowest-Cost Sustainable Source of Electricity (Ajeet Rohatgi, Young Woo Ok)

- Assessment of Electric Vehicle Energy Consumption in Regional Transportation Networks (Randall Guensler)
- Personal Vehicle Ownership and Operating Cost Calculator (Daejin Kim)
- A Sensitivity Analysis of Electric Vehicle Energy Efficiency, Driving Range, and Operating Cost Using Regional-level Household Daily Travel Patterns (Randall Guensler)
- A sustainable pavement preservation technology: micro-milling and thin overlay (Yi-Chang (James) Tsai/Zhaohua Wang)
- A Framework to Assess Fleet-wide Transit Energy Consumption with Alternative Fuels (Randall Guensler)
- Wireless Sensing and Bridge Weigh-In-Motion (Sissy Liu, Peter Lander, and Yang Wang)

- Sustainability and Technology: Working for the Corporacion del Proyecto ENLACE del Cano Martin Pena in Puerto Rico (Catherine Ross and Alberto Fuentes)
- 21st-Century Housing Options in Eight Different Countries (Michael Gamble)
- Patagonia National Parks- Exploring Facets of Sustainable Design (Amanda Lai)
- Disaster Lending: Fair Prices, but Unfair Access (Daniel Weagley)
- Atlanta Global Studies Center (AGSC) Initiatives in Education for Sustainable Development (ESD) and Atlanta Sustainability Studies (Sebnem Ozkan)
- Japan Summer Program in Sustainable Development (Brian Woodall)

- Atlanta Downtown Climate Vulnerability Assessment (Jairo Garcia)
- Georgia Drawdown: Identifying the most promising solutions for achieving carbon neutrality in Georgia (Marilyn Brown)
- Smart Sea Level Sensors in Chatham County, GA (Kim Cobb)