

Technical Program

June 18, 2026

We take this opportunity to thank and welcome everyone to the 9th Cleaner Earth & Atmosphere Conference (Holistic Engineering 2026), and Forging Forward Tenably 2026. We hope that you will have a wonderful time in the Southernmost city of Canada.

Please refer to <https://www.caeconference.ca/>, <http://www.turbulenceandenergylab.org/-annual-conference-series.html>, and <https://allinterestresearchinstitute.ca/conference> for updates and details. The banquet will be on Thursday June 18. Please advise us of dietary restriction, special needs, etc. via email to TELab@uwindsor.ca

This in-person-only conference is for paid delegates only. If you have not registered, please do so at <https://www.uwindsor.ca/engineering/research/495/turbulence-and-energy-lab-annual-conference> Remember to save the receipt as you checkout.

FFT2026 is running parallel to HE2026, under the 9th Cleaner Earth & Atmosphere Conference umbrella. Only one registration is required to attend. If the number of presentations is small, FFT2026 presentations will be scheduled in series with HE2026 presentations. If required, the presentations may run in parallel to fit all presentations within the two days, based on first come (register) first serve, where overflows will be presented as poster presentations only.

Please limit your presentation to 15 minutes, leaving 3 minutes for discussion, and 2 minutes for changeover. In case of a no-show, the next presentation(s) will be advanced accordingly.

Selected papers for the CEA2026 will be considered for a Refereed Conference Proceeding, a Reviewed Volume with Springer Nature. The first come (accepted after the review process) first serve approach will be invoked, where overflows may be considered for other active volumes we are editing.

Notation

- ☺ good standing
- * presenting author
- † corresponding author

Paper/presentation Status

- 📄 full-length paper under review
- 🕒 reviews conveyed, waiting for revision
- ✓ paper accepted for the Springer Nature Proceedings or another volume
- ➔ pending confirmation; please update us

Thursday, June 18, 2026

08:15–08:30	Centre for Engineering Innovation (CEI) Atrium <u>Breakfast</u> (Please savor your breakfast in the presentation room to stay on time) Registration Package Pickup
08:30–08:40	Welcome and Opening Remarks (Room 1101 CEI) Rupp Carriveau VP Research & Innovation – Shanthi Johnson, Dean of Engineering – Bill Van Heyst
08:40–09:20	Plenary Lecture #1 (Room 1101 CEI) “2030 – the passing of another courageous deadline?” – Graham T. Reader
	Sustainable Engineering, Room 1101. Co-Chairs: Ahmad Vasselbehagh & Jamie Smith
09:20–09:40	☉ Harnessing Light: Radiation-control Technologies for the Clean Energy Transition. Paul G. O’Brien*†, Nima Talebzadeh Department of Mechanical Engineering, Lassonde School of Engineering, York University, Ontario, Canada
09:40–10:00	☉ ☹ Intersectionality in Transportation: A Systematic Review of Barriers, Blind Spots, and the Hierarchy of Visibility. Wilson Wellington Biney, Abimbola Grace Oyeyi†, Nelson Wellington Biney, Funmilayo Egun Rotimi, Mithila Joysree* Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada Department of Built Environment Engineering, Auckland University of Technology, Auckland, New Zealand
10:00–10:20	☉ A Safety-Constrained Charging Strategy to Prevent Lithium Plating in EV Batteries at Low Temperatures. Frosina Filiposka*, Jennie Parker, Frederick Ben-Smith, Narayan C. Kar† Centre for Hybrid Automotive Research and Green Energy (CHARGE) Lab University of Windsor, Canada
10:20–10:40	<u>Coffee Break</u> (Please savor your coffee & titbit in the presentation room to stay on time)
	Sustainable Development, Room 1101. Co-Chairs: Paul G. O’Brien & Adeyemi Adesina
10:40–11:00	☉ LED Lighting Technology for Cleaner Crop Production. Rob Nicol*† Research & Innovation, Lambton College, Canada
11:00–11:20	☉ Modeling the Formation of an Ammonia-Powered Engine’s Conrail. Torge Bohlken*, Ahmad Vasselbehagh† Department of Mechanical & Aerospace Engineering, University of South Florida, Tampa, Florida, USA
11:20–11:40	☉ ✓ Effect of Using Demolition Waste as Recycled Coarse Aggregate in Isolated Footings for Low-Rise Buildings. Salome Oluwademilade Aina*†, Sarupya Dhakal, Sulaimon Olawale Onaolapo, Hamad Alimardan, Adeyemi Adesina Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada
11:40–12:00	☉ Batch Study of Co-digestion of Raw Sludge, Wet Distillers’ Grain and Vegetable Waste. Joshua Long*†, Rajesh Seth, Nihar Biswas, Monsuru Suara Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada
12:00–13:00	<u>Lunch & Poster Presentation</u>

Thursday, June 18, 2026	
	Cleaner Tomorrow, Room 1101. Co-Chairs: Paul Henshaw & Robert Nicol
13:00–13:20	© The Farm of the Future. Joshua Martin, Nicholas Schembri, Jacqueline Stagner [†] , Rupp Carriveau* Environmental Energy Institute, Turbulence & Energy Laboratory, University of Windsor, Windsor, Canada
13:20–13:40	© ✓ Life Cycle Assessment of Ordinary Portland Cement vs. Limestone Calcined Clay Cement for a Structural Concrete Floor Slab in Ontario, Canada. P.A.S.Kawmudhia* [†] , Ashika Arunbhai Maisuriya, Diego Alexander Barreto Gutierrez, Mon Aung Thwe, Adeyemi Adesina Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada
13:40–14:00	© ⚡ Hydrodynamic Performance of a Novel Multi-Task Wave Energy Converter Installed in Front of a Caisson Breakwater. Soheil A. Gholizadeh* [†] , Hassan Akbari Faculty of Civil & Environmental Engineering, Tarbiat Modares University, Tehran, Iran.
14:00–14:20	© Cleaner Tomorrow with Clean Combustion Engines. Navjot Sandhu* [†] , Xiao Yu, Ming Zheng Clean Combustion Engine Laboratory, University of Windsor, Windsor, Canada
14:20–14:40	© Single ZTA Sphere Heating in Steady Hot Air. Md Nasir Uddin Mondal*, David S-K Ting, Rupp Carriveau [†] Turbulence & Energy Laboratory, University of Windsor, Windsor, Canada
14:40–15:00	<u>Coffee Break</u> (Please savor your coffee & titbit in the presentation room to stay on time)
	Clean Energy, Room 1101. Co-Chairs: Quade Digweed & Abimbola Grace Oyeyi
15:00–15:20	© ⚡ Effective Ignition Strategy on Combustion Enhancement under High Turbulence Flow Conditions. Long Jin* [†] , Sabrina Asma, Binghao Cong, Xiao Yu, Graham Reader, Ming Zheng Clean Combustion Engine Laboratory, University of Windsor, Windsor, Canada
15:20–15:40	© A Review of Heat Pump Systems Integrated with Phase Change Materials: Real-world Applications and Implementation Challenges. Saania Syed Azam Pasha Albiz*, Ricardo Cardoso, Michael Alleyne, Mohammadparsa Ahangari, Paul G. O'Brien [†] Advanced Materials for Sustainable Energy Technologies Laboratory, York University, Ontario, Canada
15:40–16:00	© Controlled Environment Food Production. Quade Digweed* [†] Agriculture and Agri-Food Canada
16:00–16:20	© Energy Optimization Challenges for CHP integrated Greenhouse. Kayes Reza* [†] , Chris Del Greco Under Sun Acres Inc.. Canada
16:20–16:40	© Effects of Freestream Turbulence on Flow Induced Vibrations of a Cylinder. Ella Luisa Marthinsen-Legate*, Johnson Babalola [†] , David S-K Ting Birmingham City University, United Kingdom Turbulence & Energy Laboratory, University of Windsor, Canada
4:45 pm	Bus leaves CEI, University of Windsor (@ 4:50 pm) for Banquet
18:00–20:00	Banquet at Cooper's Hawk Vineyards
8:00 pm	Bus returns from banquet (~8:00 pm) to CEI, & then, hotels, as needed

Friday, June 19, 2026	
08:15–08:30	Centre for Engineering Innovation (CEI) Atrium <u>Breakfast</u> (Please savor your breakfast in the presentation room to stay on time) Registration Package Pickup
08:30–08:40	Gift Draw (Room 1101 CEI) Rupp Carriveau
08:40–09:20	Plenary Lecture #2 (Room 1101 CEI) “Engineering a Sustainable Decarbonization.” – Ahmadreza Vassel-Be-Hagh
	Holistic Engineering, Room 1101. Co-Chairs: Jacqueline A. Stagner & Paul O’Brien
09:20–09:40	© On Intense and Isotropic Turbulence Generation. Johnson Babalola*†, David S-K Ting Turbulence & Energy Laboratory, University of Windsor, Canada
09:40–10:00	© The Development of an Apparatus for Accurately Testing Dynamic Adsorption-desorption Breakthrough Curves for Photo-regenerated Carbon Capture Materials. Muhammad Tariq*, Paul G. O’Brien† Department of Mechanical Engineering, Lassonde School of Engineering, York University, Toronto, Canada
10:00–10:20	© Can EV Motors Thrive Without Rare-Earth Permanent Magnets? A Review of Emerging Alternatives to Permanent Magnet Motors Adalin Murphy*, Kathryn Herbig, Remy-Michel Hopogap, Narayan Kar† Centre for Hybrid Automotive Research and Green Energy (CHARGE) Lab University of Windsor, Canada
10:20–10:40	<u>Coffee Break</u> (Please savor your coffee & titbit in the presentation room to stay on time)
	Energy and Food, Room 1101. Co-Chairs: Fadi Al-Daoud & Narayan Kar
10:40–11:00	© Beyond PAR – The Importance of Monitoring Natural UV Light Levels in Greenhouses Fadi Al-Daoud*†, Sharon Kitur, Caroline Strang Ontario Ministry of Agriculture, Food and Agribusiness, Canada Department of Biology, University of Western Ontario, Canada
11:00–11:20	© Exergy Analysis of Clean Hydrogen for Corn Drying. Muhammad Ali*, David S-K Ting, Rupp Carriveau† Turbulence & Energy Laboratory, University of Windsor, Canada
11:20–11:40	© Solar Fruit Drying: Airflow Uniformity Around a Row of Spheres. Daniela Guevara Loreda*, Johnson Babalola†, David S-K Ting Universidad Autónoma de San Luis Potosí, Mexico Turbulence & Energy Laboratory, University of Windsor, Canada
11:40–12:00	© Design Optimization of Reduced Rare-Earth Permanent Magnet Synchronous Motors for Electric Vehicle Applications. Shusmita Sur*, Dongju Seo, Narayan Kar† Centre for Hybrid Automotive Research and Green Energy (CHARGE) Lab University of Windsor, Canada
12:00–13:00	<u>Lunch & Posters</u>

Friday, June 19, 2026

Friday, June 19, 2026	
	Resources & Carbon, Room 1101. Co-Chairs: Rajeev Ruparathna & Rupp Carriveau
13:00–13:20	<p>☉ Development of Building Integrated Carbon Capture Technologies Sebastian Bissainthe-Vandermeer*, Ronald Hanson, Paul G. O'Brien† Department of Mechanical Engineering, Lassonde School of Engineering, York University, Toronto, Canada</p>
13:20–13:40	<p>☉ Preliminary Comparison of Measured Atmospheric Fluxes Across Urban, Natural, and Photovoltaic Canopies. Ahmed Tolba, Ahmad Vasselbehagh*† Department of Mechanical and Aerospace Engineering, University of South Florida, Tampa, USA</p>
13:40–14:00	<p>☉ Developments in Thermo-Fluids Engineering: Applications of Sustainable Energy. Himanshu Tyagi*† Department of Mechanical Engineering, Indian Institute of Technology Ropar, Rupnagar, Punjab, India Department of Energy and Mineral Engineering, Pennsylvania State University, Pennsylvania, USA</p>
14:00–14:20	<p>☉ ☞ Digital Transformation of Urban Water Infrastructure Systems through City Information Modeling. Luiz Gustavo Da Silva Snatiago*, Tharindu C. Dodanwala, Rajeev Ruparathna† Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada</p>
14:20–14:40	<p>☉ Mitigating Uncertainties in Building Turbulent Heat Convection Estimation. Mauricio Pierdant-Mora*, Johnson Babalola†, David S-K Ting Universidad Autónoma de San Luis Potosí, Mexico Turbulence & Energy Laboratory, University of Windsor, Canada</p>
14:40–15:00	<p><u>Coffee Break</u> (Please savor your coffee & titbit in the presentation room to stay on time)</p>
	Holistic Engineering, Room 1101. Co-Chairs: Himanshu Tyagi & Jacqueline Stagner
15:00–15:20	<p>☉ ✓ Disparities in Recycled Aggregate Acceptance Pathways for Structural Concrete: A Cross-Jurisdictional Primary-Document Analysis. Geovanny Solano-Vinueza*†, Arthen Ahmed Hashi, Rafael Ferreira Da Silva, Adeyemi Adesina Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada</p>
15:20–15:40	<p>☉ A Multiscale Modeling Approach to the Atmospheric Boundary Layer Above Solar Farms Using LES and Monin–Obukhov Similarity. Michael Edgemon, Ahmad Vasselbehagh*† Department of Mechanical & Aerospace Engineering, University of South Florida, Tampa, Florida, USA</p>
15:40–16:00	<p>☉ Will Robots Love for Love's Sake? Sara Alkheder*, Arreba Zaman*, Jacqueline Stagner†, Rupp Carriveau Environmental Energy Institute, Turbulence & Energy Laboratory, University of Windsor, Windsor, Canada</p>
16:00–16:20	<p>☉ Solar-Powered Cars: The Future of EV. Shauna Abdel Sater*, Celeste Deschamps, Ryan Kar, Narayan Kar† Centre for Hybrid Automotive Research and Green Energy (CHARGE) Lab University of Windsor, Canada</p>
16:20–16:40	<p>☉ Beyond the Pedal: How Brake-by-Wire Drives EV Efficiency and Sustainability Annie Poisson*, Huda Saleh, Diya Boparai, Tyler Womack, Narayan Kar† Centre for Hybrid Automotive Research and Green Energy (CHARGE) Lab University of Windsor, Canada</p>
16:40–17:00	<p>☉ ☞ Integrated Dual-Porosity and Real-Gas Modeling of Hydrogen Storage in Clay-Rich Geological Formations. Farzan Khorasani*†, Reza Yeganeh Khaksar, Mohammad Gheibi LUT University, Lappeenranta, Finland Aalto University, Espoo, Finland Technical University of Liberec, Liberec, Czech Republic</p>
17:00–17:15	<p>Awards Committee Meet Committee: Paul O'Brien (Chair), Jacqueline Stagner, Ahmadreza Vassel-Be-Hagh, Ambimbola Grace Oyeyi, Himanshu Tyagi, Rajeev Ruparathna</p>

Friday, June 19, 2026

17:20

Awards¹ Presentation in Atrium

Thank you for your contribution. We look forward to seeing you next year.

The Awards are:

Best Cleaner Earth & Atmosphere Presenter
Exceptional Eco-Friendly Paper / Poster
Finest Tenable Progress Paper /Poster
Most Holistic Research Presenter

Accepted Posters

☉✔ State of Low-Carbon Concrete in Canada (2020-2026).

Salome Oluwademilade Aina, Shamara Paththini Arachchige, Sulaimon Olawale Onaolapo, Adeyemi Adesina
Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada

☉✔ Microstructural and Elemental Analysis of Nanomodified High-Slag Cementitious Systems.

P.A.S. Kawmudhi, Adeyemi Adesina

Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada

☉✔ Comparative Life Cycle Assessment of Precast and In-situ Concrete Pavement Systems for an Urban Roadway Application.

Geovanny Solano-Vinueza, Marco Del Mistro, Arthen Ahmed Hashi, Muhammad Awais, Katakhi Sarode, Adeyemi Adesina
Department of Civil and Environmental Engineering, University of Windsor, Windsor, Canada
Dipartimento Politecnico di Ingegneria e Architettura, Università degli Studi di Udine, Udine, Italy

☉ Will Robots Love for Love's Sake? Emergent Cooperation in Multi-Agent Robotic Systems.

Sara Alkheder, Arreba Zaman, Jacqueline Stagner, Rupp Carriveau

Environmental Energy Institute, Turbulence & Energy Laboratory, University of Windsor, Canada

☉ Effect of Grid Orientation on Orifice Perforated-Plate Turbulence.

Johnson Babalola, David S-K. Ting

Turbulence & Energy Laboratory, University of Windsor, Canada

☉ CEA2026 will print the poster for free if received before June 8.

• Delegate will bring the poster, CEA2026 will provide the easel.