

Technical Program

Version May 12, 2022

We take this opportunity to thank and welcome everyone to Responsible Engineering & Living 2022 and Engineering to Thrive 2022. We hope that you will have a wonderful time in the Southernmost city of Canada.

Sincerely,
REAL2022 Committee
ET2022 Committee

Website

Please refer to <https://real2022.ca/> and/or <https://et2022.ca/> for updates and details.

The banquet will be on Thursday June 23. Please advise us of any dietary restriction, special needs, etc. by emailing to TELab@uwindsor.ca

Notes:

This conference is for paid delegates only. If you have not registered, please do so at <https://www.uwindsor.ca/engineering/research/495/mitigating-climate-change-2022-symposium-industry-summit>
Remember to save the receipt as you checkout.

ET2022 is running parallel to REAL2022. Only one registration is needed to attend both conferences. If the number of presentations is small, ET2022 presentations will be scheduled in series a with REAL2022 presentations. If required, the presentations will run in parallel to fit all presentations into the two days. Selected papers for ET2022 will be published via University of Windsor Leddy Library, <https://scholar.uwindsor.ca/wtel/2022/>, like Thriving Through Climate Change and Pandemic 2021, <https://scholar.uwindsor.ca/tccap/2021/>. The authors will retain 100% of the copyright, allowing them to further their manuscripts and disseminate them as standard journal papers subsequently.

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 REAL2022 will be considered for a Refereed Conference Proceeding, a Reviewed Volume with Springer Nature.

Notation

* presenting author
† corresponding author

Paper/presentation Status

☺ presentation / abstract only
📄 presentation + full-length paper
➔ pending visa approval and/or registration confirmation

Thursday, June 23, 2022	
08:15–08:45	Centre of Engineering Innovation (CEI) Atrium Breakfast & Registration Package Pickup
08:45–09:00	Welcome and Opening Remarks (Room 1101 CEI) Rupp Carriveau President Robert Gordon?, VP Research (Heather Pratt), Dean of Engineering Dean Bill van Heyst
09:00–09:40	Plenary Lecture #1 (Room 1101 CEI) Mitigation or Adaptation? – Graham T. Reader
09:40–10:00	<u>Coffee Break</u>
	Renewable Energy and Environment, Room 1101. Co-Chairs: Graham Reader & Rajeev Ruparathna
10:00–10:20	☞ Solar Rooftop Test Cell – Experimental Methodology and Results of Multivariable Sensitivity Analysis Alex Nauta*, William David Lubitz†, Syeda Humaira Tasnim School of Engineering, University of Guelph, Canada
10:20–10:40	☞ A cross-examination of Ontario’s greenhouse gas (GHS) emission quantification methods for double counting Tharindu C. Dodanwala*, Dilusha Hemaal Kankanamge, Rajeev Ruparathna† Department of Civil and Environmental Engineering, University of Windsor, Canada
10:40–11:00	☞ Realizing clean combustion with ether fuels Simon LeBlanc*, Long Jin, Alex Bastable, Xiao Yu, Jimi Tjong, Ming Zheng† Clean Combustion Engine Laboratory, University of Windsor, Canada
11:00–11:20	☞ Investigation of solar-driven adsorbate-based thermochemical energy storage systems with an illuminated adsorption bed Kapil Narwal*, Roger Kempers, Paul G. O’Brien† Department of Mechanical Engineering, Lassonde School of Engineering, York University, Canada
11:20–11:40	☞ Challenges to the energy transition in transportation sector Navjot S. Sandhu*, Xiao Yu, Ming Zheng†, David S-K. Ting Clean Combustion Engine Laboratory, University of Windsor, Canada
11:40–12:00	
12:00–13:00	Lunch & <u>Poster Display (Co-chairs: Ahmad Reza Vassel-Be-Hagh & Jacqueline Stagner)</u>

Thursday, June 23, 2022

	Engineering to Thrive, Room 1101. Co-Chairs: Fadi Al-Daoud & Paul O'Brien
13:00–13:20	<p>⌚ Energy intensity of human transportation William David Lubitz*† School of Engineering, University of Guelph, Canada</p>
13:20–13:40	<p>⌚ Bioinspired surface heating and cooling of an airfoil for improving its aerodynamic performance Mohd Sahil Akhtar*, David S-K. Ting† Department of Chemical Engineering, National Institute of Technology Karnataka, India Turbulence & Energy Lab, University of Windsor, Canada</p>
13:40–14:00	<p>⌚ Farming wind for food??? Abbey Morneau*, Rupp Carriveau†?? Environmental Energy Institute, University of Windsor, Canada</p>
14:00–14:20	<u>Coffee Break</u>
	Engineering Systems, Room 1101. Co-Chairs: Ahmad Reza Vasel-Be-Hagh & Lindsay Miller-Branovacki
14:20–14:40	<p>⌚ Review and evaluation of Archimedes screw pump design guidance Scott Simmons*, Murray Lyons, Lian Miller, William David Lubitz† Department of Mechanical Engineering and Metaphysics, University of the Yukon, Canada School of Engineering, University of Guelph, Canada</p>
14:40–15:00	<p>⌚ On the physics underlying the effects leg shape on thermoelectric generator performance William X. Wang*, Paul F. Henshaw†, David S-K. Ting Turbulence & Energy Lab, University of Windsor, Canada</p>
15:00–15:20	<p>⌚ Shark skin denticles and a circular cylinder in laminar cross-flow Disha Sharma*, David S-K. Ting† Department of Mechanical Engineering, MRS Punjab Technical University, India Turbulence & Energy Lab, University of Windsor, Canada</p>
15:20–15:40	<u>Coffee Break</u>
	Industrial Forum on Energy, Room 1101. Chair: Lindsay Miller-Branovacki
15:40–16:00	
16:00–16:20	
16:20–16:40	
16:45	Bus leaves CEI, University of Windsor (@ 4:45 pm) for Banquet
18:00–20:00	Banquet at Cooper's Hawk
20:00	Bus returns from banquet (Cooper's Hawk ~ 8:00 pm) to CEI, & then, hotels, as needed

Friday, June 24, 2022	
08:15–08:45	Centre of Engineering Innovation (CEI) Atrium Breakfast & Registration Package Pickup
08:45–09:00	Gift Draw (Room 1101 CEI) Rupp Carriveau, Dean of Engineering?
09:00–09:40	Plenary Lecture #2 (Room 1101 CEI) The Growing Greenhouse Vegetable Sector in Ontario – Opportunities and Challenges – Fadi Al-Daoud
09:40–10:00	<u>Coffee Break</u>
	Greenhouse and Energy, Room 1101. Co-Chairs: Fadi Al-Daoud & Paul Henshaw
10:20–10:40	☞ Comparison of the spectral and intensity response of light sensors used to measure greenhouse light emissions Benjamin Snow*, William Lubitz†, Syeda Tasnim, Thomas Graham, David Llewellyn, Fadi-Al-Daoud, Chevonne Dayboll School of Engineering, School of Environmental Science, University of Guelph Ontario Ministry of Agriculture, Food and Rural Affairs, Canada
10:40–11:00	☞ Evaluation of pond water performance for greenhouse irrigation cooling: A case study in southwestern Canada Sedigheh Khademi*, Rupp Carriveau†, David S-K. Ting, Lucas Semple Turbulence and Energy Laboratory, University of Windsor Under Sun Acres, Leamington, Canada
11:00–11:20	☞ Methodology and validation of a new climate prediction model for commercial and small-scale greenhouses Alex Nauta*, William David Lubitz†, Syeda Humaira Tasnim, Jingjing Han School of Engineering, University of Guelph
11:20–11:40	☞ Building facade and energy usage Naveen S. Bhoopal*, Jacqueline A. Stagner†, David S-K. Ting Turbulence & Energy Lab, University of Windsor, Canada
11:40–12:00	
12:00–13:00	Lunch

Friday, June 24, 2022	
	Wind, Water & Power, Room 1101. Co-Chairs: David Lubitz & Rupp Carriveau
13:00–13:20	<p>☞ Furthering commercial wind Ahmad Vasel-Be-Hagh*† Mechanical Engineering, Tennessee Tech University, USA</p>
13:20–13:40	<p>☞ PCM for reducing heating and cooling loads Oselen J. Imafidon*, David S-K. Ting† Turbulence and Energy Laboratory, University of Windsor, Canada</p>
13:40–14:00	<p>☞ Power to nourish tomorrow Lysandra Naom*, Lindsay Miller-Branovacki, Rupp Carriveau† Environmental Energy Institute, University of Windsor, Canada</p>
14:00–14:20	<u>Coffee Break</u>
	Food & Climate Change, Room 1101. Co-Chairs: Rajeev Ruparathna & Jacqueline Stagner
14:20–14:40	<p>☞ Commercial greenhouses water demand under climate change Mo'tamad Bata*, Rupp Carriveau†, David S-K. Ting Turbulence and Energy Laboratory, University of Windsor, Canada</p>
14:40–15:00	
15:00–15:20	
15:20–15:40	<p><u>Awards Presentation in Room 1101</u> Awards Committee: David Lubitz, Paul O'Brien, Ahmad Reza Vasel-Be-Hagh, Lindsay Miller-Branovacki</p>
	Thank you for your contribution. We look forward to seeing you next year.

Engineering to Adapt 2023, June 22-23, 2023. Information will become available at www.eta2023.ca (currently under construction).

Reclaiming Eden – Engineering a Brighter Tomorrow 2023, June 22-23, 2023. Information will become available at www.reebt2023.ca (currently under construction).