SFU FACULTY OF APPLIED SCIENCES | SUSTAINABLE ENERGY ENGINEERING

SEEGRAD 2024 Program
(version 6.0)

Date and Time	Friday May 10th, 2024, 8:00-18:30
Venue	School of Sustainable Energy Engineering 10285 University Drive, Surrey, BC

Atrium

8:00-8:45	Registration / Coffee, light refreshment
8:45-9:00	MC: Zafar Adeel Opening Remarks Eugene Fiume, Dean of the Faculty of Applied Sciences
9:00-9:30	Keynote speaker Melina Scholefield, PEng, Executive Director of Zero Emission Innovation Centre (ZEIC), https://www.zeic.ca/

SYRE 2016

Session 1

Session chair: Reza Safavi

9:40-10:00	DER Large-scale Integration Impacts on the Distribution System Protection, **Eduardo Finck,** Mariana Resener
10:00-10:20	Impact of Ion Exchange Capacity and Reinforcement Thickness on Mechanical Durability of Hydrocarbon based Pemion® Proton Exchange Membranes, **Seyed Hesam Mirfarsi**, Aniket Kumar, Ethan Brown, Jisung Jeong, Michael Adamski, Scott McDermid, Scot Jones, Benjamin Britton, Erik Kjeang
10:20-10:40	Machine Learning Classification of Air Quality Monitoring Stations Using Chemical Transport Model, **Hossein Alizadeh**, Erfan Hajiparvaneh, Charles Robert Koch, Vahid Hosseini
10:40-11:00	Dynamic Thermo-fluid Modeling of an Onboard Gaseous Fuel Compression System for Low-Carbon Heavy-Duty Vehicles, **Mehdi Nikkhah**, Gordon McTaggart-Cowan
11:00-11:20	Break

Session 2- Part 1

Session chair: Yameena Naqvi

11:20-11:40	High-efficiency Natural Gas Engine with a Hybrid Powertrain for Long-haul Trucks, **Navid Balazadeh Meresht**, Gordon McTaggart-Cowan
11:40-12:00	Enhancing Efficiency of Rooftop Solar Potential Assessment: A Machine Learning Approach with Streamlined Data Preparation, **M Eliasinul Islam**

SYRE 4016

Session 2 – Part 2

Session chair: Yameena Naqvi

12:10-12:30	Analyzing the Impact of the Public Transit Decarbonization Plans on the Air Quality of the Surrey Central Bus Station, **Maha Shehadeh**, Hossein Alizadeh, Vahid Hosseini
12:30-12:50	Assessing the Impact of Electric Vehicle Charging and Residential Solar Photovoltaic Generation on Distribution Grids, **Gustavo Aschidamini**, Matheus Holzbach, Mariana Resener

Atrium

13:00-13:30	Lunch and networking
13:30-14:00	Poster presentations and competition

1. Realizing NetZero Carbon in Datacenters, Ashok Sunder Rajan, Taco Niet
2. Optimizing Freight Train Efficiency and Rail Infrastructure Sustainability through Diesel-Battery Hybrid Consist Systems in North America, Beatrice Agyapong
3. Modelling Net Zero Pathways for Housing in British Columbia, Canada with an Open-Source Tool, Connor McGookin, Taco Niet
4. Representative Time-series Scenarios on Residential Power Demand, Electric Vehicle Charging, and Photovoltaic Generation Based on Unsupervised Learning Algorithms, Gustavo Aschidamini, Amir Shabani, Mariana Resener
5. Novel End of Line Manufacturing Diagnostics Methods for Rapid Detection of Defects in Polymer Electrolyte Fuel Cell Stacks, Ian Garvie, Lazar Cvijovic
6. Proposal on the Study to Improve Open-Source OSeMOSYS Models with Urban Building Energy Models, Junoh Bede
7. Demand Response and Shifts between Manufacturing and Services: Decarbonizing North Carolina, Luis Victor Gallardo, Taco Niet
8. Enhancing Modelling Techniques for VRE Capacity Disaggregation, M Eliasinul Islam, Taco Niet
9. ~~Onshore Wind Energy Land Impacts: Implications for Nova Scotia using the Atlantic Canada Energy System Model, Narges Sefid, Mohammed Alkatheri, Sven Scholtysikb, Taco Niet~~
10. ~~Liquid Water Distribution in Proton Exchange Membrane Fuel Cells, Shri Sai Teja Duddella~~
11. Emission Reduction Options for Near-Term Targets, Trevor Barnes, Taco Niet
12. Investigating the Impact of Hydrogen Addition to Diesel Engines on Selective Catalytic Reduction (SCR) in its Aftertreatment System, Zarqoon Mumtaz, Gordon McTaggart-Cowan
13. Evaluating the Use of Surface Wave Ultrasonics for Near-Surface Rolling Contact Fatigue Depth Characterization, Zhen (Lisa) Li
14. Assessing the Impacts of Climate Change in Kenya using CLEWs, Geoffrey Mwango, Ronnice Chepkoech, Taco Niet
15. Shock Heat Pyrolysis: A Comprehensive Study of Operational Parameters and Design Influences, Ghislain Madiot, Colin Copeland
16. Thermo-Mechanical Stability of Hydrocarbon-Based Pemion® Proton Exchange Membranes, Seyed Hesam Mirfarsi, Aniket Kumar, Jisung Jeong, Michael Adamski, Scott McDermid, Benjamin Britton, Erik Kjeang
17. Assessing Biomass Fuel Quality Metrics: Implications for Heat Generation Efficiency and Air Toxic Pollutants in the SFU's Burnaby Campus Utility, Mohammadreza Paydari, Zeinab Heidari, Gordon McTaggart-Cowan, Vahid Hosseini
18. Emission Modeling to Quantify Contribution of Diesel Truck High Emitters to the Local Air Quality, Negaar Razzaghi, Vahid Hosseini, Seyed Hamid Delbari
19. Instrumentation to Capture Vehicles' Real-World CO2 and Toxic Emissions of Alternative Powertrain Technologies and Fuels, Saeed Malekloo, Vahid Hosseini
20. Evolution of Wave Rotor Technology, Rujun Tian
21. Optimal Water Film Cooling of a PV Module in Real Ambient Conditions, Ali Azimi, Negin Basiri, Mohammad Eslami

SRYE 3016

Session 3

Session Chair: Maha Shehadeh

14:10-14:30	Modelling the Grid Impacts of Electric Vehicle Uptake in British Columbia, **K. Kuling**, P. McWhannel, E. Islam, T. Niet
14:30-14:50	Modelling and Analysis of Hydrogen-Diesel Dual-Fuel Engines: An Approach to Accelerate Heavy-Duty Long-Haul Trucks Near-Term Decarbonization, **Reza Farzam**
14:50-15:10	~~The Effect of Freeze/Thaw Cycles on Degradation of PEMFC Electrodes and Performance Decay, **Mojtaba Khalili Azar**, Erik Kjeang~~ [withdrawn]
15:10-15:30	Optimizing Micro-Engineered Textures on Silicon Enhances CO_2 Capture, **Omar Nemir**, Sami Khan, Campbell Tiffin, Jose Symmes Barbieri
15:30-15:50	Break

Session 4

Session chair: Sayma Supti

15:50-16:10	Boil Off Management of Liquid Hydrogen Tanks Using Ionic Liquid Compression System, **Yameena Naqvi**, Gordon McTaggart-Cowan
16:10-16:30	Identifying Sources of Vancouver's Air Particles Using Chemical Analysis and Statistical Models, **Seyed Hamid Delbari**, Vahid Hosseini, Maryam Zareshahne
16:30-16:50	Optimization of Hybrid Ferry Propulsion: A Nested Approach to Sizing and Operation, **Seyed Reza Safavi**, Gordon McTaggart-Cowan
16:50-17:10	Optimizing Thermoelectric Generator Performance Using the Taguchi Method: Investigating the Influence of Hot Side Temperature, Air Speed, And Ducting Configurations for The Case of a Single Versus Multiple Thermoelectric Units. **Chukwurah Ugochukwu,** Gordon McTaggart-Cowan
17:10-18:00	Closing remarks and award ceremony • Master of Ceremony: Vivian Neal (introductory remarks) • Zafar Adeel, Director pro tem, School of Sustainable Energy Engineering (School strategic directions) • Adeel - Volunteers Appreciation • GSA remarks • Colin Copeland - Announcement of presentation and poster awards • Conference Group Photo

Atrium

18:00-18:30	Reception and networking & Music