Academic/ Professional Background

Name	Mohamed Abdelkareem.
Title	Assistant Professor of Mechanical Engineering, Texas State University.

Educational Background

2019	**Ph.D. Mechanical Engineering**, *University of Central Florida* *Dissertation:* Dynamic Behavior and Performance of Different Types of Multi-Effect Desalination Plants.
2017	**M.Sc. in Aerospace Engineering,** *University of Central Florida*
2012	**M.Sc. Mechanical Power Engineering**, *Zagazig University, Zagazig, Egypt.* *Thesis:* Study of Fluid Flow and Heat Characteristics for Forced Heat Convection over Fins Array with and Without a Shield.
2008	**B.Sc. Mechanical Power Engineering**, *Zagazig University, Zagazig, Egypt.*

Research and Work Experience

2024-Present	**Assistant Professor**, *Texas State University*.
2023 –2024	**Postdoctoral Research Associate,** *University of Missouri- Columbia*
2021 –2023	**Assistant Professor**, *Zagazig University, Egypt.*
2019 –2021	**Postdoctoral Research Associate,** *University of Central Florida*
2015 –2019	**Teaching Assistant,** *University of Central Florida*
2012 –2014	**Assistant Lecturer,** *Zagazig University*, Egypt.
2009 –2012	**Teaching Assistant,** *Zagazig University*, Egypt.
2009 - 2014	**Part-time Mechanical Engineer**, *FIRE TRIANGLE, Egypt.*

Teaching Experience

2016- 2019	Thermodynamics of Mechanical Systems and Heat Transfer courses *University of Central Florida.*
2009 –2014	Mechanical Power Engineering Department, *Zagazig University*, Teaching assistant for several undergraduate classes including Thermodynamics, Refrigeration and air conditioning, Heat and mass transfer, Computational Fluid Dynamics, Internal combustion engines and Water Desalination. - Responsible for setting up and teaching thermo-fluid undergraduate laboratories.

Mentoring

2009 – 2014	Senior design groups for solar desalination, electronic cooling, and HVAC systems. *Zagazig University, Egypt.*
2015 – 2018	Senior design groups to design a setup to measure the adsorption isotherms and design a test rig for novel flat plate thermal desalination. *University of Central Florida*

Academic & Professional Service

- *Member of professional societies*

- American Society of Thermal and Fluids Engineers (ASTFE).
- American Institute of Aeronautics and Astronautics (AIAA).
- American Society of Mechanical Engineers (ASME).
- Presenter at the Renewable Energy Systems and Sustainability Conference at the Florida Polytechnic University, July 31-August 1, 2017, Lakeland, FL, USA.
- Speaker in 3rd Thermal and Fluids Engineering Conference (TFEC), March 4-7, 2018, Fort Lauderdale, FL, USA.
- Speaker in ASME's International Mechanical Engineering Congress and Exposition (IMECE), November 9-15, 2018.

- *Journal Reviewer (selected)*

- Desalination, Desalination and Water Treatment, International Journal of Heat and Mass transfer, International Journal of Refrigeration, Applied Thermal Engineering
- Energy, Energy Conversion and Management etc.

- *Conference Reviewer (selected)*

3rd Thermal and Fluids Engineering Conference (TFEC) 2018, FL, USA.
5th Thermal and Fluids Engineering Conference (TFEC) 2020, LA, USA.
ASME's International Mechanical Engineering Congress and Exposition (IMECE) 2018-2024.

- *Judge* for senior design projects at UCF 2016 to 2020.

Scholarly/Creative :

Journals:

1. Tariq Alsawy, Ramy H Mohammed, Osama Mesalhy, **Mohamed L Elsayed** "Dynamic performance of supercritical CO2 Brayton cycle and its relationship to the correction of turbomachinery performance maps: A comparative analysis" *Applied Thermal Engineering* volume 242, January 2024, 122364.
2. Ahmed A. Abdelfattah, Husam Zawati, Emad Z. Ibrahim, **Mohamed L. Elsayed**, Mohamed A. Abdelatief "Assessment strategy for a longitudinally finned semi-circular tube bank" International Communications in Heat and Mass Transfer volume 139, December 2022,106489.
3. Ahmed A. Abdelfattah, Husam Zawati, Emad Z. Ibrahim, **Mohamed L. Elsayed**, Mohamed A. Abdelatief "Assessment strategy for a longitudinally finned semi-circular tube bank" International Communications in Heat and Mass Transfer volume 139, December 2022,106489.
4. **Mohamed L. Elsayed**, Sattam Alharbi, Louis C. Chow, "Utilization of waste heat from a commercial GT for freshwater production, cooling and additional power: Exergoeconomic analysis and optimization", *Desalination*, volume 513, October 2021, 115127.
5. **Mohamed L. Elsayed**, Wei Wu, Louis C. Chow, "High salinity seawater BPE: experimental verification", *Desalination*, volume 504, May 2021, 114955.
6. Ahmed A. Abdelfattah, Emad Z. Ibrahim, Mohamed A. Abdelatief, **Mohamed L. Elsayed** "Thermal performance

augmentation of a semi-circular cylinder using fins" *International Communications in Heat and Mass Transfer* volume 120, January 2021,105048.

7. **Mohamed L. Elsayed,** Mohamed A. Abdelatief, Saeed A. Ahmed, Mohamed S. Emeara, Wael M. Elwan "Thermal design evaluation of ribbed/grooved tubes: An entropy and exergy approach" *International Communications in Heat and Mass Transfer* volume 125, June 2021,105159.
8. Zhiqiang Wang, Jingwen Liu, Ramy Mohammed, **Mohamed L. Elsayed**, Louis Chow, Ming Su, "A stably cross-linked ink on filter paper with 1D transport for efficient photothermal water treatment." *SN Applied Sciences*, volume 2, November 2020, Pages 1-10.
9. Sattam Alharbi, **Mohamed L. Elsayed**, Louis C. Chow, "Exergoeconomic analysis and optimization of an integrated system of supercritical CO2 Brayton cycle and multi-effect desalination" *Energy* volume 197, April 2020, 117225.
10. Osama Mesalhy, **Mohamed L. Elsayed**, Corona, J. J. Jc., Kwarteng, A. A., John P. Kizito, Quinn H. Leland, Louis C. Chow, "Study of a high-reliability dual-fan system for cooling aerospace electromechanical actuators." *Thermal Science and Engineering Progress* volume 18, August 2020, 100540.
11. **Mohamed L. Elsayed**, Osama Mesalhy, John P. Kizito, Quinn H. Leland, Louis C. Chow, "Performance of a Guided Plate Heat Sink at High Altitude." *International Journal of Heat and Mass Transfer* volume 147, February 2020, 118926.
12. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Ruiqing Huo, Ming Su, Louis C. Chow, "Performance of desiccant heat exchangers with aluminum foam coated or packed with silica gel." *Applied Thermal Engineering* volume 166, February 2020, 114626.
13. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Louis. Chow, "Performance enhancement of adsorption beds with silica-gel particles packed in aluminum foams*." International Journal of Refrigeration* volume 104, August 2019, Pages 201-212.
14. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, John P. Kizito, Quinn H. Leland, Louis C. Chow, "Enhancement of a Heat Sink Performance Using a Partial Shield and/or a Guide Plate." *International Journal of Heat and Mass Transfer* volume 134, May 2019, pages 948-958.
15. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "Process performance modeling for MED-MVC systems: Exergy and thermo-economic analysis approach." *Energy* volume 166, January 2019, pages 552-568.
16. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "Transient Performance of MED-MVC desalination plant." *Energy* volume 167, January 2019, pages 283-269.
17. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Louis C. Chow, "Assessment of numerical models in the evaluation of adsorption cooling system performance." *International Journal of Refrigeration* volume 86, December 2018, Pages 40-47.
18. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "Exergy and thermo-economic analysis for MED-TVC systems." *Desalination*, volume 447, December 2018, Pages 29-42.

19. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Louis. Chow, "Scaling analysis of heat and mass transfer processes in adsorption packed bed." *International Journal of Thermal Sciences*, volume 133, November 2018, Pages 82-89.
20. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "Effect of disturbances on MED-TVC plant characteristics: Dynamic modeling and simulation." *Desalination*, volume 443, 2018, Pages 99-109.
21. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Sichao Hou, Ming Su, Louis C. Chow, "Physical properties and adsorption kinetics of silica-gel/water for adsorption chillers." *Applied Thermal Engineering*, volume 137, July 2018, pages 368-376.
22. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "Transient Performance of MED Processes with Different Feed Configurations." *Desalination*, volume 438, July 2018, Pages 37-53.
23. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "Effect of Input Parameters Intensity and Duration on Dynamic Performance of MED-TVC Plant." *Applied Thermal Engineering***,** volume 139, July 2018, pages 210-221.
24. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Louis C. Chow, "Performance evaluation of a new modular packed bed for adsorption cooling systems." *Applied Thermal Engineering*, volume 136, May 2018, Pages 293-300.
25. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Ming Su, Louis C. Chow, "Revisiting the adsorption equilibrium equations of silica gel/water for adsorption cooling applications." *International Journal of Refrigeration* volume 86, February 2018, Pages 40-47.
26. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Louis C. Chow, "Novel compact bed design for adsorption cooling systems: Parametric numerical study." *International Journal of Refrigeration*, Volume 80, August 2017, Pages 238-251
27. Osama M. Mesalhy and **Mohamed L. Elsayed**, "Effect of A Slotted Shield on Thermal and Hydraulic Performance of Heat Sink." *ASME Journal of Electronic Packaging*, Volume 137, 2015, Pages 011004:1-6 (1).
28. Osama M. Mesalhy, and **Mohamed L. Elsayed** "Studying the performance of solid/perforated pin-fin heat sinks using entropy generation minimization." *Heat and Mass Transfer***,** Volume 51, May 2015, Pages 1-12.
29. M. R. Shaalan, M. A. Saleh, Osama M. Mesalhy and **Mohamed L. Elsayed**, "Thermo/Fluid Performance of a Shield Heatsink." *International Journal of Thermal Sciences*, Volume 60, October 2012, Pages 171-181.
30. M. R. Shaalan, M. A. Saleh, Osama M. Mesalhy and **Mohamed L. Elsayed**, "Thermal Performance of Flat Plate Heat sink with Attached Heat Shield." *The Egyptian Int. Journal of Engineering Sciences &Technology*, Zagazig University, Vol 15, No.1, Jan. 2012.

JOURNAL PUBLICATIONS (UNDER REVIEW/PREPARATION)

1. Mohamed M. Alanwar, Ahmed A. Hassan1, Mohamed A. Abdelatief, Emad Z Ibrahim, **Mohamed L. Elsayed "**Performance Enhancement of Steam Ejector via Novel Primary Nozzle Bypass: CFD analysis" Submitted for Energy.

2. **Mohamed L. Elsayed**, Louis C. Chow, "Proper exergoeconomic model for geothermal-ZLD to process oi-field produced wastewater." Under preparation for *Desalination.*
3. **Mohamed L. Elsayed**, Husam Zawati, Mohamed A. Abdelatief, "Optimization of a Novel Multi-Effect Desalination and Steam Jet Ejector Cogeneration Cycle." Under preparation for Desalination.
4. **Mohamed L. Elsayed**, Osama Mesalhy, Mohamed A. Abdelatief , "Enhanced performance pin-fin heat sink" Under preparation to *International Journal of Heat and Mass Transfer*.
5. Tariq Alsawy , Ramy H. Mohammed , Osama Mesalhy, **Mohamed L. Elsayed** "Accuracy assessment of the turbomachinery correction models used in dynamic charctrization for supercritical CO2 Brayton cycle" Submitted to Applied Energy.
6. Tariq Alsawy , Ramy H. Mohammed , Osama Mesalhy, **Mohamed L. Elsayed** "Dynamic performance of SCO2BC layouts; Comparative analysis" Submitted to Energy.
7. **Mohamed L. Elsayed**, Husam Zawati, Mohamed A. Abdelatief, "Is boiling point elevation (BPE) negligible for thermally zero liquid discharge (ZLD) systems?" Under preparation for Energy.

CONFERENCE PUBLICATIONS (BASED ON FULL PAPER REVIEW)

1. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "Effect of Changes In Input Parameters on The Operation of A MED-TVC Plant." *3rd Thermal and Fluids Engineering Conference (TFEC)* March 4–7, 2018, Pages 709-723, Fort Lauderdale, FL, USA.
2. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Louis C. Chow, "Experimental and numerical investigation of a silica gel/water packed bed for adsorption cooling applications." *3rd Thermal and Fluids Engineering Conference (TFEC)* March 4–7, 2018, Pages 1535-1546 Fort Lauderdale, FL, USA.
3. Sattam Alharbi, **Mohamed L. Elsayed**, Louis C. Chow, "Thermo-economic Analysis of an Integrated sCO2 Brayton Cycle and Multiple Effect Desalination Systems." *IMECE* 2018, November 9-15, 2018, Pages V06BT08A011, Pittsburgh, PA, USA.
4. Sattam Alharbi, **Mohamed L. Elsayed**, Louis C. Chow, "Energy and Exergy Analysis of a New Combined System for Power, Cooling, Heating and Freshwater Production Based on Gas Turbine." *5-6th Thermal and Fluids Engineering Conference (TFEC)* May 26–28, 2021, Pages 389-403, Virtual.

CONFERENCE PUBLICATIONS (BASED ON AN ABSTRACT)

1. **Mohamed L. Elsayed**, "Thermal/Hydrodynamic Study of Novel Solar Powered Thermal Desalination" Poster presented at **Renewable Energy Systems and Sustainability Conference**July31–Aug.1,2017, Lakeland, FL**.**
2. **Mohamed L. Elsayed**, Osama Mesalhy, Ramy H. Mohammed, Louis C. Chow, "MED-MVC systems: Exergy and thermo-economic analysis approach." IMECE 2018, Nov. 9-15, 2018, Pittsburgh, PA, USA.
3. Ramy H. Mohammed, Osama Mesalhy, **Mohamed L. Elsayed**, Louis. Chow, "A novel silica-gel/foam packed bed for adsorption cooling applications." IMECE 2018, Nov. 9-15, 2018, Pittsburgh, PA, USA.

RESEARCH REPORTS (PROJECTS INVOLVED)

1. **Mohamed L. Elsayed**, Louis C. Chow, High efficiency condenser with compressor for multi-effect solar desalination, UCF final report to Savengy for DOE/DE-SC0015809, September 2017.
2. Ramy H. Mohammed, **Mohamed L. Elsayed**, Louis C. Chow, Enhanced Adsorption Cooling with Monolithic Nanoporous Adsorbents, UCF final report to NSF/1603215, August 2019.
3. Osama Mesalhy**, Mohamed L. Elsayed**, Louis C. Chow, Thermal Management of Electromechanical Machines for Aerospace Systems, Quarterly Report # 6-8 to US Air Force/FA8650-17-2-2230, Dec. 2018 to Sept. 2019
4. **Mohamed L. Elsayed**, Louis C. Chow, Techno-economics study of a 10,000 gallons/day produced waters treatment unit with low brine discharge, UCF final report to Savengy for DOE/DE-SC0020060, September 2020.
5. **Mohamed L. Elsayed**, Louis C. Chow, High salinity seawater boiling point elevation: experimental verification, UCF mid-report to Savengy Technologies for NSF/1938476, September 2020.