Curriculum Vitae

Navid Moghaddas-Zadeh Bazzaz

Contact Information

School of Mechanical Engineering
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Dedicated mechanical engineer and researcher specializing in thermodynamic analysis, HVAC systems design, and control strategy optimization. My work includes hybrid chiller plants, absorption-compression refrigeration systems, and heat transfer enhancement techniques in heat exchangers. I am particularly interested in integrating renewable energy sources into heating and cooling systems and optimizing energy use in data centers and district systems. Passionate about innovative solutions for energy efficiency and sustainability, my research has contributed significantly to advancements in fuel consumption reduction and waste heat recovery. Committed to advancing the field through rigorous research and collaborative teamwork.

Research Interests

- Thermodynamic cycles analysis
- Hybrid (Absorption-Compression) multi-chiller plants
- Chiller plant control strategy
- Combined Power and Refrigeration Generation Thermodynamic Cycles
- Control strategy optimization in the chiller plant
- Fuel consumption reduction in heating process of CGS gas stations
- Heat Transfer Enhancement (HTE) methods in heat exchangers
- Thermal management in Data center and HVAC systems
- District cooling and heating systems
- Renewable energy integration in HVAC systems
- Waste heat recovery and utilization

Education

PhD in Mechanical Engineering- Energy Conversion

Faculty of Engineering, Ferdowsi University of Mashhad;*Mashhad, Iran.*
Sep 2018 – Mar 2024
Thesis: Energy and economic analysis and investigation of control operation strategies of absorption-compression hybrid chiller plant with energy storage
Supervisor: Mahmood Farzaneh-Gord, Professor
Advisor: William P. Bahnfleth, Professor

MSc. in Mechanical Engineering- Energy Conversion

Faculty of Engineering, Ferdowsi University of Mashhad; *Mashhad, Iran.*
Jan 2017 - Sep 2018
Thesis: Investigation of the swirling flow blade effect near the wall in a heat exchanger tube on heat transfer and pressure drop
Supervisor: Javad Abolfazli Esfahani, Professor

BSc. in Mechanical Engineering

Faculty of Engineering, Ferdowsi University of Mashhad; *Mashhad, Iran.* *Sep 2011 - Aug 2015*

Publications

1- Optimal design and operation of the hybrid absorption-compression chiller plants - Energy and economic analysis

DOI: 10.1016/j.jobe.2023.108182

Journal of Building Engineering | November 2023

2- Techno-economic assessment of a proposed novel hybrid system for natural gas pressure reduction stations

DOI: 10.1016/j.psep.2023.08.082

Journal of Process Safety and Environmental Protection | October 2023

3- ANN-based procedure to obtain the optimal design and operation of the compression chiller network – Energy, economic and environmental analysis

DOI: 10.1016/j.jobe.2023.106711

Journal of Building Engineering | August 2023

4- Performance enhancement of heat exchangers using eccentric tape inserts and nanofluids

DOI: 10.1007/s10973-019-08009-x

Journal of Thermal Analysis and Calorimetry | January 2019

5- Potential of gear-ring turbulator in three-dimensional heat exchanger tube from second law of thermodynamic viewpoint

DOI: 10.1108/HFF-05-2018-0250

International Journal of Numerical Methods for Heat and Fluid Flow | December 2018

6- Thermo-hydraulic analysis for a novel eccentric helical screw tape insert I n a three-dimensional tube

DOI: 10.1016/j.applthermaleng.2017.06.036

Journal of Applied Thermal Engineering | September 2017

7- Thermo-fluid performance and entropy generation analysis for a new eccentric helical screw tape insert in a 3D tube

DOI: 10.1016/j.cep.2017.03.013

Journal of Chemical Engineering and Processing: Process Intensification | July 2017

Professional Experiences

Research Assistant

Department of Mechanical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran

Dec 2020 – Mar 2023

- Conducted research on hybrid chiller plants and energy storage systems.
- Developed thermodynamic models and performed economic analyses.
- Published findings in high-impact journals.

Teaching Assistant

Department of Mechanical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran

Sep 2018 – Sep 2019

- Assisted in teaching courses on thermodynamics and heat transfer.
- Guided undergraduate and graduate students in their research projects.

Mechanical Maintenance Supervisor/Engineer

Operation & Maintenance unit of mechanical and electrical facilities, PEYRIZANTOOS CO., Ferdowsi University of Mashhad, Iran

Nov 2018 - Dec 2019

Peer Review Experience

18 reviews for 2 publications

- Review activity for International Journal of Refrigeration (2)
- Review activity for Journal of Building Engineering (16)

Teaching Experiences

- Lecturer in “Thermodynamics Laboratory”
- Teacher assistant in “Thermodynamics 1”
- Teacher assistant in “Advanced Thermodynamics”
- Teacher assistant in the course titled “Heat transfer 2”
- Teacher assistant in “Heat transfer 1”

Awards and Honors

- PhD admission without exam (Sep 2018)
- Ranked 3rd among all graduated students of mechanical engineering major (Energy Conversion), Ferdowsi University of Mashhad. (Sep 2018)

Skills

- **Mechanical Software:** TRNSYS, Modelica, Fluent & Gambit, ANSYS-CFD, EES, EnergyPlus, Carrier-HAP, SolidWorks, Revit MEP.
- **Programming Language**: Python.
- **Machine Learning**: Artificial neural network (ANN), Genetic Algorithms (GA), Particle Swarm Optimization (PSO).
- **Writing**: MS Office (Word, Excel, PowerPoint), Mendeley, EndNote.
- **Operating Systems**: Microsoft Windows.
- **Other**: MATLAB, Design-Expert, Minitab, Tecplot, Origin, Edraw.
- **Languages**: Persian (Mother tongue), Fluent in English