

Mohammad Hossein Ahmadi

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Associate Professor at the Shahrood
University of Technology

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EDUCATION:

University of Tehran, Tehran
Ph.D of Energy System Engineering

K.N.Toosi University of Technology, Tehran
MSc in Energy System Engineering

Chabahar Maritime and Marine University
Bachelor of Science (BS)
Naval architecture

ACTIVITIES:

Sustainable Energy, Renewable Energy, CO₂ Capture, Energy efficiency, Nano/Micro scale Thermodynamics, Pinch Technology, Process Integration Modelling and Optimization, Desalination, Energy Audit, Optimization, Artificial Intelligence.

TEACHING ACTIVITIES:

Undergraduate teaching:

1. Thermodynamics
2. Heat Transfer I,II
3. Engineering mathematics
4. Numerical calculations
5. Programming

Postgraduate teaching

1. Pinch Technology
2. Exergy Analysis
3. Solar Power plans

AWARD AND HONORS:

1. **Highly Cited Researcher (2021)**
2. First Rank of Ph.D program in Energy System Engineering
3. Forth Rank student at MS.c program of Energy System Engineering

4. Engineering Faculty of University of Tehran Distinguished researcher award, 2015-2016.
5. Outstanding oral presentation, ISME2013 Held in Tehran

Editorial Board:

1. Director-in-Charge of Renewable Energy Research and Applications
2. Assistant Editor of **Journal of Nanostructure in Chemistry (IF=6.391 (ISI))**
3. Member of Editorial Board (**IET Renewable Power Generation, IF= 3.93 (ISI)**)
4. Member of Editorial Board (**Journal of Power and Energy, Part A of the Proceedings of the Institution of Mechanical Engineers , IF=1.882 (ISI)**)
5. Member of Editorial Board (**World Journal of Engineering (ISI)**)
6. Member of Editorial Board (**International Journal of Renewable Energy Development (ISI)**)
7. Member of Editorial Board (**International Journal of Energy Economics and Policy (Scopus)**)
8. Member of Editorial Board (**International Journal of Energy Technology and Policy (Scopus)**)
9. Member of Editorial Board (**Mathematical Modelling of Engineering Problems (Scopus)**)
10. Member of Editorial Board (**Technological Audit and Production Reserves**)
11. Member of Editorial Board (**Current Alternative Energy**)
12. Member of Editorial Board (**International Journal of Hydromechatronics**)
13. Lead Guest Editor of **Sustainable Energy Technologies and Assessments (SI: Solar Energy Systems: Harvesting, Energy storage and Applications) Q2**
14. Lead Guest Editor of **Journal of Thermal Analysis and Calorimetry (SI: Exergetic Dimensions of Energy Systems and Processes) Q2**
15. Lead Guest Editor of Applied Sciences (SI: **Application of Machine Learning, Artificial Intelligence, Deep Learning and Big Data Analysis in Nanofluids and Nanoparticles Design) Q2**
16. Guest Editor of Sustainability (SI: **Applications of Artificial Intelligence Model of Heat and Mass Transfer) Q2**
17. Lead Guest Editor of Mathematical Problems in Engineering (SI: **Modelling, Optimisation, and Control of Medium and Low-temperature Thermal Energy Systems Based on the Organic Rankine Cycle) Q3**

18. Lead Guest Editor of International Journal of Chemical Engineering (SI: **Recent Advances in Fuel Cells as Complex Energy Systems**) Q3
19. Member of SSME2015 Technical Program Committee
20. Member of Nano-Micro Conference 2017 Technical Program Committee

Scopus ID: 55016898100, **h-index: 56**

h-index (Google Scholar):59

Active reviewer

- Journal of Thermal Analysis and Calorimetry
- Applied Thermal Engineering Journal.
- Energy Journal.
- Energy Conversion and Management.
- International Journal of Energy Research (IJER).
- Neural Computing and Applications Journal
- Renewable Energy
- Journal of Renewable and Sustainable Energy
- Ambient Energy
- International Journal of Hydrogen Energy
- Applied Energy - Journal
- Renewable & Sustainable Energy Reviews
- Environmental Progress & Sustainable Energy
- Biomass & Bioenergy
- Applied Soft Computing - Journal

PUBLICATION:

Book Chapter

Ahmadi M.H., Dehghani S., Mohammadi A.H., Feidt M., Multi-objective optimization of a Stirling engine with irreversibility consideration using Finite speed thermodynamics. *Advances in Energy Research* (Volume 18), 01/2014; Nova Science Publishers, Inc., NY, USA.

Selected ISI International Journals

- Beigzadeh, Milad, Fathollah Pourfayaz, Mahyar Ghazvini, and **Mohammad H. Ahmadi**. "Energy and exergy analyses of solid oxide fuel cell-gas turbine hybrid systems fed by different renewable biofuels: A comparative study." *Journal of Cleaner Production* 280 (2021): 124383.
- Jagtap, Hanumant P., Anand K. Bewoor, Ravinder Kumar, **Mohammad Hossein Ahmadi**, Mamdouh El Haj Assad, and Mohsen Sharifpur. "RAM analysis and availability optimization of thermal power plant water circulation system using PSO." *Energy Reports* (2020).
- Jagtap, Hanumant P., Anand K. Bewoor, Ravinder Kumar, **Mohammad Hossein Ahmadi**, and Lingen Chen. "Performance analysis and availability optimization to improve maintenance schedule for the turbo-generator subsystem of a thermal power plant using particle swarm optimization." *Reliability Engineering & System Safety* 204 (2020): 107130.
- Zolfagharnasab, Mohammad Hossein, Cyrus Aghanajafi, Soheil Kaviani, Niloufar Heydarian, and **Mohammad Hossein Ahmadi**. "Novel analysis of second law and irreversibility for a solar power plant using heliostat field and molten salt." *Energy Science & Engineering* 8, no. 11 (2020): 4136-4153.
- Rahmati, A., S. M. Varedi-Koulaei, **M. H. Ahmadi**, and H. Ahmadi. "Dimensional synthesis of the Stirling engine based on optimizing the output work by evolutionary algorithms." *Energy Reports* 6 (2020): 1468-1486.
- Jagtap, Hanumant, Anand Bewoor, Ravinder Kumar, **Mohammad Hossein Ahmadi**, and Giulio Lorenzini. "Markov-based performance evaluation and availability optimization of the boiler–furnace system in coal-fired thermal power plant using PSO." *Energy Reports* 6 (2020): 1124-1134.
- Vakilabadi, M. Akbari, M. Bidi, A. F. Najafi, and **Mohammad Hossein Ahmadi**. "Energy, Exergy analysis and performance evaluation of a vacuum evaporator for solar thermal power plant Zero Liquid Discharge Systems." *Journal of Thermal Analysis and Calorimetry* 139, no. 2 (2020): 1275-1290.
- Abdollahpour, Amir, Roghayeh Ghasempour, Alibakhsh Kasaeian, and **Mohammad H. Ahmadi**. "Exergoeconomic analysis and optimization of a transcritical CO₂ power cycle driven by solar energy based on nanofluid with liquefied natural gas as its heat sink." *Journal of Thermal Analysis and Calorimetry* 139, no. 1 (2020): 451-473.

- Açıkkalp, Emin, and **Mohammad H. Ahmadi**. "Performance Evaluation of PEM Fuel Cell-Chemical Heat Pump-Absorption Refrigerator Hybrid System." *International Journal of Ambient Energy* just-accepted (2020): 1-30.
- Ez Abadi, Ali Mohammad, Meisam Sadi, Mahmood Farzaneh-Gord, **Mohammad Hossein Ahmadi**, Ravinder Kumar, and Kwok-wing Chau. "A numerical and experimental study on the energy efficiency of a regenerative Heat and Mass Exchanger utilizing the counter-flow Maisotsenko cycle." *Engineering Applications of Computational Fluid Mechanics* 14, no. 1 (2020): 1-12.
- Sharma, Jeet Prakash, Aashish Sharma, Ravindra D. Jilte, Ravinder Kumar, and **Mohammad Hossein Ahmadi**. "A study on thermohydraulic characteristics of fluid flow through microchannels." *Journal of Thermal Analysis and Calorimetry* 140, no. 1 (2020): 1-32.
- **Ahmadi, Mohammad Hossein**, Alireza Baghban, Milad Sadeghzadeh, Masoud Hadipoor, and Mahyar Ghazvini. "Evolving connectionist approaches to compute thermal conductivity of TiO₂/water nanofluid." *Physica A: Statistical Mechanics and its Applications* 540 (2020): 122489.
- Aghayari, Reza, Heydar Maddah, Seyed Mohsen Pourkiaei, **Mohammad Hossein Ahmadi**, Lingen Chen, and Mahyar Ghazvini. "Theoretical and experimental studies of heat transfer in a double-pipe heat exchanger equipped with twisted tape and nanofluid." *The European Physical Journal Plus* 135, no. 2 (2020): 1-26.
- Nasirzadehroshenin, Fatemeh, Milad Sadeghzadeh, Amirhossein Khadang, Heydar Maddah, **Mohammad Hossein Ahmadi**, Hossein Sakhaeina, and Lingen Chen. "Modeling of heat transfer performance of carbon nanotube nanofluid in a tube with fixed wall temperature by using ANN–GA." *The European Physical Journal Plus* 135, no. 2 (2020): 1-20.
- **Ahmadi, Mohammad Hossein**, Behnam Mohseni-Gharyehsafa, Mahyar Ghazvini, Marjan Goodarzi, Ravindra D. Jilte, and Ravinder Kumar. "Comparing various machine learning approaches in modeling the dynamic viscosity of CuO/water nanofluid." *Journal of Thermal Analysis and Calorimetry* 139, no. 4 (2020): 2585-2599.
- **Ahmadi, Mohammad Hossein**, Alireza Baghban, Mahyar Ghazvini, Masoud Hadipoor, Roghayeh Ghasempour, and Mohammad Reza Nazemzadegan. "An insight into the prediction of TiO₂/water nanofluid viscosity through intelligence

schemes." *Journal of Thermal Analysis and Calorimetry* 139, no. 3 (2020): 2381-2394.

- **Ahmadi, Mohammad Hossein**, Mahyar Ghazvini, Heydar Maddah, Mostafa Kahani, Samira Pourfarhang, Amin Pourfarhang, and Saeed Zeinali Heris. "Prediction of the pressure drop for CuO/(Ethylene glycol-water) nanofluid flows in the car radiator by means of Artificial Neural Networks analysis integrated with genetic algorithm." *Physica A: Statistical Mechanics and its Applications* (2020): 124008.
- Açıkkalp, Emin, Süheyla Yerel Kandemir, and **Mohammad H. Ahmadi**. "Performance Evaluation of the Thermophotovoltaic-Driven Thermoionic Refrigerator." *Journal of Energy Resources Technology* 142, no. 3 (2020).
- Farzaneh-Gord, Mahmood, Behnam Mohseni-Gharyehsafa, Ahmad Arabkoohsar, **Mohammad Hossein Ahmadi**, and Mikhail A. Sheremet. "Precise prediction of biogas thermodynamic properties by using ANN algorithm." *Renewable Energy* 147 (2020): 179-191.
- Jilte, R. D., Ravinder Kumar, and **Mohammad H. Ahmadi**. "Cooling performance of nanofluid submerged vs. nanofluid circulated battery thermal management systems." *Journal of Cleaner Production* 240 (2019): 118131.
- Nikzad, Amirhossein, Mahmood Chahartaghi, and **Mohammad Hossein Ahmadi**. "Technical, economic, and environmental modeling of solar water pump for irrigation of rice in Mazandaran province in Iran: A case study." *Journal of Cleaner Production* 239 (2019): 118007.
- Mirzaee, Mojtaba, Reza Zare, Milad Sadeghzadeh, Heydar Maddah, **Mohammad Hossein Ahmadi**, Emin Acıkkalp, and Lingen Chen. "Thermodynamic analyses of different scenarios in a CCHP system with micro turbine–Absorption chiller, and heat exchanger." *Energy Conversion and Management* 198 (2019): 111919.
- **Ahmadi, Mohammad Hossein**, Mahyar Ghazvini, Milad Sadeghzadeh, Mohammad Alhuyi Nazari, and Mohammad Ghalandari. "Utilization of hybrid nanofluids in solar energy applications: A review." *Nano-Structures & Nano-Objects* 20 (2019): 100386.
- Ramezanizadeh, Mahdi, **Mohammad Hossein Ahmadi**, Mohammad Alhuyi Nazari, Milad Sadeghzadeh, and Lingen Chen. "A review on the utilized machine

learning approaches for modeling the dynamic viscosity of nanofluids." *Renewable and Sustainable Energy Reviews* 114 (2019): 109345.

- Shahdost, Bagher Mokhtari, Mohammad Ali Jokar, Fatemeh Razi Astaraei, and **Mohammad Hossein Ahmadi**. "Modeling and economic analysis of a parabolic trough solar collector used in order to preheat the process fluid of furnaces in a refinery (case study: Parsian Gas Refinery)." *Journal of Thermal Analysis and Calorimetry* 137, no. 6 (2019): 2081-2097.
- Maddah, Heydar, Mahyar Ghazvini, and **Mohammad Hossein Ahmadi**. "Predicting the efficiency of CuO/water nanofluid in heat pipe heat exchanger using neural network." *International Communications in Heat and Mass Transfer* 104 (2019): 33-40.
- **Ahmadi, Mohammad H.**, Mahyar Ghazvini, Mohammad Alhuyi Nazari, Mohammad Ali Ahmadi, Fathollah Pourfayaz, Giulio Lorenzini, and Tingzhen Ming. "Renewable energy harvesting with the application of nanotechnology: A review." *International Journal of Energy Research* 43, no. 4 (2019): 1387-1410.
- Dehghani Madvar, Mohammad, Alireza Aslani, **Mohammad Hossein Ahmadi**, and Narjes Sadat Karbalaie Ghomi. "Current status and future forecasting of biofuels technology development." *International Journal of Energy Research* 43, no. 3 (2019): 1142-1160.
- **Ahmadi, Mohammad Hossein**, Ali Ghahremannezhad, Kwok-Wing Chau, Parinaz Seifaddini, Mohammad Ramezannezhad, and Roghayeh Ghasempour. "Development of Simple-to-Use Predictive Models to Determine Thermal Properties of Fe₂O₃/Water-Ethylene Glycol Nanofluid." *Computation* 7, no. 1 (2019): 18.
- Naeimi, Abbas, Mokhtar Bidi, **Mohammad Hossein Ahmadi**, Ravinder Kumar, Milad Sadeghzadeh, and Mohammad Alhuyi Nazari. "Design and exergy analysis of waste heat recovery system and gas engine for power generation in Tehran cement factory." *Thermal Science and Engineering Progress* 9 (2019): 299-307.
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- Chahartaghi, Mahmood, Mohammad Kalami, **Mohammad Hossein Ahmadi**, Ravinder Kumar, and Ravindra Jilte. "Energy and exergy analyses and thermo-

economic optimization of geothermal heat pump for domestic water heating." *International Journal of Low-Carbon Technologies* (2019).

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- Shams Ghoreishi, Seyed Milad, Moslem Akbari Vakilabadi, Mokhtar Bidi, Alireza Khoeini Poorfar, Milad Sadeghzadeh, **Mohammad Hossein Ahmadi**, and Tingzhen Ming. "Analysis, economical and technical enhancement of an organic Rankine cycle recovering waste heat from an exhaust gas stream." *Energy Science & Engineering* 7, no. 1 (2019): 230-254.
- Açikkalp, Emin, Süheyla Yerel Kandemir, and **Mohammad H. Ahmadi**. "Solar driven Stirling engine-chemical heat pump-absorption refrigerator hybrid system as environmental friendly energy system." *Journal of environmental management* 232 (2019): 455-461.
- Baghban, Alireza, Mostafa Kahani, Mohammad Alhuyi Nazari, **Mohammad Hossein Ahmadi**, and Wei-Mon Yan. "Sensitivity analysis and application of machine learning methods to predict the heat transfer performance of CNT/water nanofluid flows through coils." *International Journal of Heat and Mass Transfer* 128 (2019): 825-835.
- Ramezanizadeh, Mahdi, Mohammad Alhuyi Nazari, **Mohammad Hossein Ahmadi**, and Kwok-wing Chau. "Experimental and numerical analysis of a nanofluidic thermosyphon heat exchanger." *Engineering Applications of Computational Fluid Mechanics* 13, no. 1 (2019): 40-47.
- **Ahmadi, Mohammad H.**, Mohammad Alhuyi Nazari, Milad Sadeghzadeh, Fathollah Pourfayaz, Mahyar Ghazvini, Tingzhen Ming, Josua P. Meyer, and Mohsen Sharifpur. "Thermodynamic and economic analysis of performance evaluation of all the thermal power plants: A review." *Energy Science & Engineering* 7, no. 1 (2019): 30-65.
- **Ahmadi, Mohammad Hossein**, Milad Sadeghzadeh, Amir Hossein Raffiee, and Kwok-wing Chau. "Applying GMDH neural network to estimate the thermal resistance and thermal conductivity of pulsating heat pipes." *Engineering Applications of Computational Fluid Mechanics* 13, no. 1 (2019): 327-336.

- Maddah, Heydar, Reza Aghayari, **Mohammad Hossein Ahmadi**, Mohammad Rahimzadeh, and Nahid Ghasemi. "Prediction and modeling of MWCNT/Carbon (60/40)/SAE 10 W 40/SAE 85 W 90 (50/50) nanofluid viscosity using artificial neural network (ANN) and self-organizing map (SOM)." *Journal of Thermal Analysis and Calorimetry* 134, no. 3 (2018): 2275-2286.
- Açıkkalp, Emin, and **Mohammad H. Ahmadi**. "Parametric investigation of phosphoric acid fuel cell-Thermally regenerative electro chemical hybrid system." *Journal of Cleaner Production* 203 (2018): 585-600.
- **Ahmadi, Mohammad Hossein**, Mahyar Ghazvini, Milad Sadeghzadeh, Mohammad Alhuyi Nazari, Ravinder Kumar, Abbas Naeimi, and Tingzhen Ming. "Solar power technology for electricity generation: A critical review." *Energy Science & Engineering* 6, no. 5 (2018): 340-361.
- Mohammadi, Amin, Milad Ashouri, **Mohammad Hossein Ahmadi**, Mokhtar Bidi, Milad Sadeghzadeh, and Tingzhen Ming. "Thermoeconomic analysis and multiobjective optimization of a combined gas turbine, steam, and organic Rankine cycle." *Energy Science & Engineering* 6, no. 5 (2018): 506-522.
- Gholami, Ali, Ahmad Hajinezhad, Fathollah Pourfayaz, and **Mohammad Hossein Ahmadi**. "The effect of hydrodynamic and ultrasonic cavitation on biodiesel production: An exergy analysis approach." *Energy* 160 (2018): 478-489.
- Maddah, Heydar, Reza Aghayari, Mojtaba Mirzaee, **Mohammad Hossein Ahmadi**, Milad Sadeghzadeh, and Ali J. Chamkha. "Factorial experimental design for the thermal performance of a double pipe heat exchanger using Al₂O₃-TiO₂ hybrid nanofluid." *International Communications in Heat and Mass Transfer* 97 (2018): 92-102.
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- Mirzaei, Mojtaba, **Mohammad Hossein Ahmadi**, Mohammad Mobin, Mohammad Alhuyi Nazari, and Reza Alayi. "Energy, exergy and economics analysis of an ORC working with several fluids and utilizes smelting furnace gases as heat source." *Thermal Science and Engineering Progress* 5 (2018): 230-237.

- **Ahmadi, Mohammad Hossein**, Afshin Tatar, Mohammad Alhuyi Nazari, Roghayeh Ghasempour, Ali J. Chamkha, and Wei-Mon Yan. "Applicability of connectionist methods to predict thermal resistance of pulsating heat pipes with ethanol by using neural networks." *International Journal of Heat and Mass Transfer* 126 (2018): 1079-1086.
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- Nazari, Mohammad Alhuyi, **Mohammad H. Ahmadi**, Roghayeh Ghasempour, and Mohammad Behshad Shafii. "How to improve the thermal performance of pulsating heat pipes: A review on working fluid." *Renewable and Sustainable Energy Reviews* 91 (2018): 630-638.
- Nazari, Mohammad Alhuyi, **Mohammad H. Ahmadi**, Roghayeh Ghasempour, Mohammad Behshad Shafii, Omid Mahian, Soteris Kalogirou, and Somchai Wongwises. "A review on pulsating heat pipes: From solar to cryogenic applications." *Applied Energy* 222 (2018): 475-484.
- Jahangir, Mohammad Hossein, Mahyar Ghazvini, Fathollah Pourfayaz, and **Mohammad Hossein Ahmadi**. "A numerical study into effects of intermittent pump operation on thermal storage in unsaturated porous media." *Applied Thermal Engineering* 138 (2018): 110-121.
- **Ahmadi, Mohammad H.**, Mohammad-Ali Ahmadi, Emin Açıkkalp, Mohammad Alhuyi Nazari, Mohammad Arab Pour Yazdi, and Ravinder Kumar. "New thermodynamic analysis and optimization of performance of an irreversible diesel cycle." *Environmental Progress & Sustainable Energy* 37, no. 4 (2018): 1475-1490.
- Aghayari, Reza, Heydar Maddah, **Mohammad Hossein Ahmadi**, Wei-Mon Yan, and Nahid Ghasemi. "Measurement and Artificial Neural Network Modeling of Electrical Conductivity of CuO/Glycerol Nanofluids at Various Thermal and Concentration Conditions." *Energies* 11, no. 5 (2018): 1190.
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connectionist methods." *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 541 (2018): 154-164.

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- Mohammadi, Amin, **Mohammad Hossein Ahmadi**, Mokhtar Bidi, Mahyar Ghazvini, and Tingzhen Ming. "Exergy and economic analyses of replacing feedwater heaters in a Rankine cycle with parabolic trough collectors." *Energy Reports* 4 (2018): 243-251.
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- Nazemzadegan, Mohammad Reza, Alibakhsh Kasaeian, Somayeh Toghyani, **Mohammad Hossein Ahmadi**, R. Saidur, and Tingzhen Ming. "Multi-objective optimization in a finite time thermodynamic method for dish-Stirling by branch and bound method and MOPSO algorithm." *Frontiers in Energy* (2017): 1-17.

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RESEARCH INTEREST:

- Sustainable Energy,
- Renewable Energy
- Thermal engineering
- Carbon capture
- Biofuel
- Environmental Engineering
- Application of nano technology in Energy engineering
- Application of Artificial Intelligence in Energy engineering

LANGUEGE PROFISIENCY:

- **English:** Fluent in writing, speaking and verbal skills
- **Persian:** Native Language
- **Arabian:** Fluent in Reading and Writing

COMPUTER SKILLS:

- Soft wares: **HYSYS, Thermoflow ,EES, Energyplan**
- General soft wares : **Office Software Package, MATALB**

Pages:

<https://www.scopus.com/authid/detail.uri?authorId=55016898100&origin=cto>

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https://www.researchgate.net/profile/Mohammad_Ahmadi30

<https://www.linkedin.com/in/mohammadhosein-ahmadi-b491955a/>