

Personal and Contact information:



Nationality: Iranian
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Institution: Faculty of Mechanical
Engineering, University of Tabriz, Tabriz,
Iran

Academic/Research Links:

https://scholar.google.com/citations?user=FlpDi_qAAAAJ&hl=en

Education:

- | | |
|-----------------------------|---|
| Feb 2009 – July 2013 | University of Tabriz, Tabriz, Iran
PhD, Mechanical Engineering – Energy Conversion
Thesis: Thermoeconomic Analysis with Reliability Considerations
of Waste Heat Recovery from GT-MHR |
| Sep 2006 – Aug 2008 | University of Tabriz, Tabriz, Iran
Master of Science, Mechanical Engineering – Energy Conversion
Thesis: Exergy Analysis of Gas Turbine Inlet Air Cooling Using
Absorption Refrigeration |
| Sep 2001 – Aug 2005 | University of Tabriz, Tabriz, Iran
Bachelor of Science, Mechanical Engineering – Solid Mechanics
Thesis: Kinematics and Kinetics Analysis of Non-circular Gears |

Honors and Awards:

- ✓ Ranked as one of the World's Top 2% most-cited researchers based on Stanford University released list in 2019, 2020 and 2021

- ✓ Ranked as one of the World's Top 1% highly-cited researchers based on ISC released list in 2018, 2019, 2020 and 2021
- ✓ Rank 1st in PhD entrance exam of the University of Tabriz in the energy conversion field (Fall 2008)
- ✓ Rank 1st among 23 graduated M.Sc. students in the energy conversion field (summer 2008)
- ✓ Member of university's elite office, University of Tabriz, Tabriz, Iran (2010–2013)
- ✓ Full Scholarship for Ph.D. program awarded by Iranian Ministry of Science, Research and Technology

Research Interests:

- ✓ Thermodynamics of thermal systems, power & refrigeration cycles
- ✓ Thermo-economic analysis of multi-generation energy systems
- ✓ Reliability investigation in thermal system analysis
- ✓ Renewable and biomass energy technology
- ✓ Building energy supply
- ✓ Zero energy/emission buildings

Teaching and Research Experiences:

a) Teaching

- ✓ Engineering Thermodynamics 1 & 2
- ✓ Chemical Engineering Thermodynamics 1
- ✓ Heat Transfer
- ✓ HVAC Systems
- ✓ Power plants
- ✓ Fuels and Combustion
- ✓ Internal Combustion Engines
- ✓ Advanced Thermodynamics (postgraduate)
- ✓ Biomass and Bioenergy (postgraduate)

- ✓ Energy Systems' Modeling (postgraduate)
- ✓ Thermo-economics (postgraduate)

b) Research

- ✓ Supervising 20+ Master students in Mechanical Engineering-Energy Conversion
- ✓ Supervising 5 PhD students in Mechanical Engineering-Energy Conversion

Main Publications:

a) Selected Journal Papers:

- 1) SH Khodaparast, **V. Zare**, F Mohammadkhani, "Geothermal assisted hydrogen liquefaction systems integrated with liquid nitrogen precooling; Thermoeconomic comparison of Claude and reverse Brayton cycle for liquid nitrogen supply" *Process Safety and Environmental Protection*, 171, (2023) 28–37
- 2) H Caliskan , E Acikkalp, HR Takleh, **V. Zare**, "Advanced, extended and combined extended-advanced exergy analyses of a novel geothermal powered combined cooling, heating and power (CCHP) system" *Renewable Energy*, 206, (2023) 125–134
- 3) E Gholamian, **V. Zare**, N Javani, F Ranjbar, "Dynamic 4E (energy, exergy, economic and environmental) analysis and tri-criteria optimization of a building-integrated plant with latent heat thermal energy storage" *Energy Conversion and Management* 267, (2022) 115868
- 4) E Gholamian, RB Barmas, **V. Zare**, F Ranjbar, "The effect of Incorporating phase change materials in building envelope on reducing the cost and size of the integrated hybrid-solar energy system: An application of 3E dynamic simulation with reliability consideration" *Sustainable Energy Technologies and Assessments* 52, (2022) 102067
- 5) HR Takleh, **V. Zare**, F Mohammadkhani, MM Sadeghiazad, "Proposal and thermoeconomic assessment of an efficient booster-assisted CCHP system based on solar-geothermal energy" *Energy* 246, (2022) 123360

- 6) MH Seyyedvalilu, **V. Zare**, F Mohammadkhani, "Comparative thermoeconomic analysis of trigeneration systems based on absorption heat transformers for utilizing low-temperature geothermal energy" *Energy*, 224 (2021) 120175
- 7) H. Rostamnejad, **V. Zare** "Proposal and thermoeconomic evaluation with reliability considerations of geothermal driven trigeneration systems with independent operations for summer and winter" *International Journal of Refrigeration*, 127, (2021) 34–46
- 8) **V. Zare** "Role of modeling approach on the results of thermodynamic analysis: Concept presentation via thermoeconomic comparison of biomass gasification-fueled open and closed cycle gas turbines" *Energy Conversion and Management*, 225 (2020) 113479
- 9) **V. Zare** "Performance improvement of biomass-fueled closed cycle gas turbine via compressor inlet cooling using absorption refrigeration; thermoeconomic analysis and multi-objective optimization" *Energy Conversion and Management*, 215 (2020) 112946
- 10) **V. Zare**, H. Rostamnejad "Novel geothermal driven CCHP systems integrating ejector transcritical CO₂ and Rankine cycles: Thermodynamic modeling and parametric study" *Energy Conversion and Management*, 205 (2020) 112396
- 11) S. Balafkandeh, **V. Zare**, E. Gholamian " Multi-objective optimization of a tri-generation system based on biomass gasification/digestion combined with S-CO₂ cycle and absorption chiller" *Energy Conversion and Management*, 200 (2019) 112057
- 12) H. Rostamnejad, **V. Zare** "Employing thermoelectric generator and booster compressor for performance improvement of a geothermal driven combined power and ejector-refrigeration cycle" *Energy Conversion and Management* 186 (2019) 120–130
- 13) H. Rostamnejad, **V. Zare** "Performance improvement of ejector expansion refrigeration cycles employing a booster compressor using different refrigerants: Thermodynamic analysis and optimization" *International Journal of Refrigeration* 101 (2019) 56–70

- 14) Simin Anvari, Shahram Khalilarya, **V. Zare**, "Power generation enhancement in a biomass-based combined cycle using solar energy: Thermodynamic and environmental analysis" *Applied Thermal Engineering* 153 (2019) 128–141
- 15) E. Shayan, **V. Zare**, I. Mirzaee "On the use of different gasification agents in a biomass fueled SOFC by integrated gasifier: A comparative exergo-economic evaluation and optimization" *Energy* 171 (2019) 1126–1138
- 16) A. Behzadi, A. Habibollahzade, **V. Zare**, M. Ashjaee "Multi-objective optimization of a hybrid biomass-based SOFC/GT/double effect absorption chiller/RO desalination system with CO₂ recycle" *Energy Conversion and Management* 181 (2019) 302–318
- 17) Simin Anvari, Shahram Khalilarya, **V. Zare**, "Exergoeconomic and Environmental analysis of a novel configuration of Solar-Biomass hybrid power generation system", *Energy* 165 (2018) 776–789
- 18) A. Habibollahzade, E. Gholamian, **V. Zare** "Development and multi-objective optimization of geothermal-based organic Rankine cycle integrated with thermoelectric generator and PEM electrolyzer for power and hydrogen production" *Energy Conversion and Management* 174 (2018) 112–125
- 19) R. Bet Sarkis, **V. Zare**, "Proposal and analysis of two novel integrated configurations for hybrid solar-biomass power generation systems: Thermodynamic and economic evaluation" *Energy Conversion and Management*, 160 (2018) 411–425
- 20) E. Shayan, **V. Zare**, I. Mirzaee "Hydrogen production from biomass gasification; a theoretical comparison of using different gasification agents" *Energy Conversion and Management*, 159 (2018) 30–41
- 21) **V. Zare**, V. Palideh "Employing thermoelectric generator for power generation enhancement in a Kalina cycle driven by low-grade geothermal energy" *Applied Thermal Engineering*, 130 (2018) 418–428.

- 22) **V. Zare**, A. Moalemi "Parabolic trough solar collectors integrated with a Kalina cycle for high temperature applications: Energy, exergy and economic analyses" *Energy Conversion and Management*, 151 (2017) 681–692
- 23) A. Aali, N. Pourmahmoud, **V. Zare** "Exergoeconomic analysis and multi-objective optimization of a novel combined flash-binary cycle for Sabalan geothermal power plant in Iran" *Energy Conversion and Management* 143 (2017) 377–390
- 24) **V. Zare**, M. Hasanzadeh "Energy and exergy analysis of a closed Brayton cycle-based combined cycle for solar power tower plants" *Energy Conversion and Management*, 128 (2016) 227–237
- 25) E. Gholamian, **V. Zare**, Seyed Mostafa Mousavi "Integration of biomass gasification with a solid oxide fuel cell in a combined cooling, heating and power system: A thermodynamic and environmental analysis" *International Journal of Hydrogen Energy*, 41 (2016) 20396–20406
- 26) **V. Zare** "A comparative thermodynamic analysis of two tri-generation systems utilizing low-grade geothermal energy" *Energy Conversion and Management*, 118 (2016) 264–274.
- 27) E. Gholamian, **V. Zare** "A comparative thermodynamic investigation with environmental analysis of SOFC waste heat to power conversion employing Kalina and Organic Rankine Cycles" *Energy Conversion and Management*, 117 (2016) 150–161.
- 28) **V. Zare** "Exergoeconomic analysis with reliability and availability considerations of a nuclear energy-based combined cycle power plant" *Energy* 96 (2016) 187–196
- 29) E. Gholamian, S.M. S. Mahmoudi, **V. Zare** "Proposal, exergy analysis and optimization of a new biomass-based cogeneration system" *Applied Thermal Engineering* 93 (2016) 223–235

- 30) **V. Zare** "A comparative exergoeconomic analysis of different ORC configurations for binary geothermal power plants" *Energy Conversion and Management*, 105 (2015) 127–138.
- 31) **V. Zare**, S.M. S. Mahmoudi "A thermodynamic comparison between organic Rankine and Kalina cycles for waste heat recovery from the GT-MHR" *Energy*, 79 (2015) 398-406
- 32) **V. Zare**, S.M. S. Mahmoudi, M. Yari "On the exergoeconomic assessment of employing Kalina cycle for GT-MHR waste heat utilization" *Energy Conversion and Management*, 90 (2015) 364–374
- 33) M. Yari, A. S. Mehr, **V. Zare**, S.M. S. Mahmoudi, M.A. Rosen "Exergoeconomic comparison of trilateral Rankine cycle, Organic Rankine cycle and Kalina cycle using a low grade heat source" *Energy*, 83 (2015) 712–722
- 34) A.S. Mehr, **V. Zare** "Energy and exergy analysis of a novel multi-generation system producing cooling, heating, power and pure water" *International Journal of Exergy*, 15 (2014) 233–255
- 35) **V. Zare**, S.M. S. Mahmoudi, M. Yari "An exergoeconomic investigation of waste heat recovery from the Gas Turbine-Modular Helium Reactor (GT-MHR) employing an ammoniaewater power/cooling cycle" *Energy* 61 (2013) 397–409
- 36) M. Yari, **V. Zare**, S.M. S. Mahmoudi "Parametric study and optimization of an ejector-expansion TRCC cycle integrated with a water purification system" *Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy* 227 (2013) 383–398
- 37) A.S. Mehr, **V. Zare**, S.M.S. Mahmoudi "Standard GAX versus hybrid GAX absorption refrigeration cycle: From the view point of thermoeconomics" *Energy Conversion and Management* 76 (2013) 68–82

- 38) S. Soltani, S.M. S. Mahmoudi, M. Yari, T. Morosuk, M.A. Rosen, **V. Zare** "A comparative exergoeconomic analysis of two biomass and co-firing combined power plants" *Energy Conversion and Management* 76 (2013) 83–91
- 39) **V. Zare**, S.M. S. Mahmoudi, M. Yari, M. Amidpour "Thermoeconomic analysis and optimization of an ammonia–water power/cooling cogeneration cycle" *Energy* 47 (2012) 271–283
- 40) **V. Zare**, S.M. S. Mahmoudi, M. Yari "Ammonia–water cogeneration cycle for utilizing waste heat from the GT-MHR plant" *Applied Thermal Engineering* 48 (2012) 176–185
- 41) **V. Zare**, M. Yari, S.M. S. Mahmoudi "Proposal and analysis of a new combined cogeneration system based on the GT-MHR cycle" *Desalination* 286 (2012) 417–428

b) Conference Papers:

- 1) E. Shayan, **V. Zare**, I. Mirzaee "Analysis and thermodynamic performance comparison of two power generation systems based on solid oxide fuel cell" Presented at the 6th Iranian Conference on Renewable energy and distributed generation, Tabriz, Iran, March 2018. (In Persian)
- 2) A. Alipanah, **V. Zare**, "Energy and Exergy analysis of cascade refrigeration cycle and performance analysis for various working fluid pairs" Presented at the 25th International Conference on Mechanical Engineering (ISME), Tehran, Iran, May 2017. (In Persian)
- 3) **V. Zare**, A. Alipanah "Energy and Exergy analysis of a turbofan engine with afterburner" Presented at the 25th International Conference on Mechanical Engineering (ISME), Tehran, Iran, May 2017. (In Persian)
- 4) M. Moradi, **V. Zare**, M. Mousavi "Parametric optimization of different ORC configurations and comparison with an operating Kalina cycle-based geothermal power plant" Presented at the 4th International ETEC (Emerging Trends in Energy Conservation) conference, Tehran, Iran, January 2015. (In Persian)

- 5) E. Gholamian, V. Zare, S.M. S. Mahmoudi “*Thermodynamic analysis of a combined cycle for power generation from biomass resources*” Presented at the 23th International Conference on Mechanical Engineering, Tehran, Iran, May 2015. (In Persian)
- 6) S.M. S. Mahmoudi, E. Gholamian, V. Zare “*Exergy analysis of a new configuration of trigeneration system based on biomass gasifier*” Presented at the III. European conference on Renewable Energy systems, Antalya, Turkey, Oct, 2015.
- 7) V. Zare, S.M. S. Mahmoudi, P. Zeynali, A. Alizadeh “*Exergy analysis of Compressor inlet cooling in simple and regenerative gas turbine plants*” Presented at the 18th International Conference on Mechanical Engineering, Tehran, Iran, May 2010. (In Persian)
- 8) P. Zeynali, S.M. S. Mahmoudi, A. Farzi, V. Zare “*Exergy analysis of chemically recuperated gas turbine with compressor intercooler*” Presented at the 18th International Conference on Mechanical engineering, Tehran, Iran, May 2010. (In Persian)
- 9) J. Mohammadhasani, A. Dadvand, N. Hosseinpour, V. Zare “*Designing a novel gas-fired heater and analyzing its performance and pollution*” Presented at the 2nd Iran’s International Conference on Industrial Automation, Tehran, Iran, Feb 2011. (In Persian)

c) Course Books and manuals:

- 1) V. Zare “*A complete solution to **Fundamentals of Thermodynamics** by Sonntag and Borgnakke, 7th edition*” Elmiran publications, Tabriz, Iran, 2012. (In Persian)
- 2) V. Zare “*A complete solution to **Fundamentals of Thermodynamics** by Sonntag, Borgnakke and Van Wylen 6th edition*” Elmiran publications, Tabriz, Iran, 2009. (In Persian)
- 3) V. Zare and A. Alizadeh “*A complete solution to **Vector Mechanics for Engineers; Statics** by Beer and Johnston, 8th edition*” Elmiran publications, Tabriz, Iran, 2011. (In Persian)
- 4) A. Alizadeh and V. Zare “*A complete solution to **Engineering Mechanics; Statics** by Meriam and Kraige, 6th edition*” Elmiran publications, Tabriz, Iran, 2008. (In Persian)