Saman Rashidi, PhD

Department of Mechanical Engineering
Ferdowsi University of Mashhad
Mashhad, Khorasan Razavi, 9177948974, Iran
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EDUCATION

PhD, Mechanical Engineering (Energy Conversion) 2014-2017
Ferdowsi University of Mashhad
Mashhad, Iran, **(**GPA: 18.90/20**)**

Dissertation: Application of porous material and blade installation in solar stills- Experimental and numerical investigations

M.Sc., Mechanical Engineering (Energy Conversion) 2011-2013
Semnan University
Semnan, Iran, **(**GPA: 17.05/20**)**

Thesis: Magnetohydrodynamic flow and heat transfer around a solid cylinder wrapped with a porous ring

B.Sc., Mechanical Engineering 2006-2010
Semnan University
Semnan, Iran

RESEARCH AREAS OF INTEREST

- Solar energy systems
- Energy and entropy analysis
- Transport phenomena in porous media
- Computational Fluid Dynamics (CFD)
- Augmentation techniques in heat transfer
- DPM model for simulating particulate flows
- Control of flow
- Optimization

SELECTED PUBLICATIONS

A) Review articles

1. **S. Rashidi,** M.H. Kashefi, K.C. Kim, O. Samimi-Abianeh, "Potentials of porous materials for energy management in heat exchangers–A comprehensive review.'' **Applied Energy**, 243 (2019) 206-232.

2. **S. Rashidi**, N. Karimi, O. Mahian, J.A. Esfahani, "A concise review on the role of nanoparticles upon the productivity of solar desalination systems.'' **Journal of Thermal Analysis and Calorimetry**, 132 (2019) 1145-1159.
3. **S. Rashidi**, M. Eskandarian, O. Mahian, S. Poncet, "Combination of nanofluid and inserts for heat transfer enhancement.'' **Journal of Thermal Analysis and Calorimetry**, 135 (2019) 437–460.
4. **S. Rashidi,** J.A. Esfahani, N. Karimi "Porous materials in building energy technologies-A review of the applications, modelling and experiments.'' **Renewable and Sustainable Energy Reviews**, 91 (2018) 229-247.
5. **S. Rashidi,** M.H. Kashefi, F. Hormozi "Potential applications of inserts in solar thermal energy systems – A review to identify the gaps and frontier challenges.'' **Solar Energy**, 171 (2018) 929-952.
6. **S. Rashidi,** O. Mahian, E.M. Languri, "Applications of nanofluids in condensing and evaporating systems.'' **Journal of Thermal Analysis and Calorimetry**, 131 (2018) 2027–2039.
7. **S. Rashidi**, H. Bafekr, M.S. Valipour, J.A. Esfahani, "A review on the application, simulation, and experiment of the electrokinetic mixers.'' **Chemical Engineering & Processing: Process Intensification**, 126 (2018) 108-122.
8. **S. Rashidi,** J.A. Esfahani, A. Rashidi "A review on the applications of porous materials in solar energy systems.'' **Renewable and Sustainable Energy Reviews**, 73 (2017) 1198-1210.
9. **S. Rashidi,** H. Bafekr, R. Masoodi, E.M. Languri, "EHD in thermal energy systems-A review of the applications, modelling, and experiments.'' **Journal of Electrostatics**, 90 (2017) 1-14.
10. **S. Rashidi**, J.A. Esfahani, M. Maskaniyan, "Applications of magnetohydrodynamics in biological systems-a review on the numerical studies.'' **Journal of Magnetism and Magnetic Materials**, 439 (2017) 358–372.
11. **S. Rashidi**, M. Hayatdavoodi, J.A. Esfahani, "Vortex shedding suppression and wake control: A review.'' **Ocean Engineering**, 126 (2016) 57-80.

B) <u>Original research articles</u>

Field of solar energy

1. **S. Rashidi**, P. Javadi, J.A. Esfahani, "Second law of thermodynamics analysis for nanofluid turbulent flow inside a solar heater with the ribbed absorber plate.'' **Journal of Thermal Analysis and Calorimetry**, 135 (2019) 551-563.

2. **S. Rashidi,** S. Akar, M. Bovand, R. Ellahi, "Volume of fluid model to simulate the nanofluid flow and entropy generation in a single slope solar still.'' **Renewable Energy**, 115 (2018) 400-410.
3. **S. Rashidi,** M. Bovand, N. Rahbar, J.A. Esfahani, "Steps optimization and productivity enhancement in a nanofluid cascade solar still.'' **Renewable Energy**, 118 (2018) 536-545.
4. **S. Rashidi,** N. Rahbar, M.S. Valipour, J.A. Esfahani, "Enhancement of solar still by reticular porous media: Experimental investigation with exergy and economic analysis.'' **Applied Thermal Engineering**, 130 (2018) 1341-1348.
5. **S. Rashidi**, M. Bovand, J.A. Esfahani, "Volume-of-fluid model for simulating vapor–liquid phase change in a solar still.'' **Journal of Thermophysics and Heat Transfer**, 32 (2018) 917-924.
6. **S. Rashidi,** J.A. Esfahani, N. Rahbar, "Partitioning of solar still for performance recovery: Experimental and numerical investigations with cost analysis.'' **Solar Energy**, 153 (2017) 41-50.
7. **S. Rashidi**, J.A. Esfahani, "Spatial entropy generation analysis for the design improvement of a single slope solar still." **Environmental Progress & Sustainable Energy**, 37 (2018) 1112-1120.
8. N. Rahbar, A. Gharaiian**, S. Rashidi**, "Exergy and economic analysis for a double slope solar still equipped by thermoelectric heating modules-an experimental investigation.'' **Desalination**, 420 (2017) 106-113.
9. **S. Rashidi**, M. Bovand, J.A. Esfahani, "Optimization of partitioning inside a single slope solar still for performance improvement.'' **Desalination**, 395 (2016) 79-91.
10. **S. Rashidi**, M. Bovand, J.A. Esfahani, "Heat transfer enhancement and pressure drop penalty in porous solar heat exchangers: A sensitivity analysis." **Energy Conversion and Management**, 103 (2015) 726-738.
11. M. Bovand, **S. Rashidi**, J.A. Esfahani, "Heat transfer enhancement and pressure drop penalty in porous solar heaters: Numerical simulations.**'' Solar Energy**, 123 (2016) 145-159.

Field of energy and entropy analysis

1. H. Shamsabadi, **S. Rashidi**, J.A. Esfahani, "Entropy generation analysis for nanofluid flow inside a duct equipped with porous baffles.'' **Journal of Thermal Analysis and Calorimetry**, 135 (2019) 1009-1019.

2. M Akbarzadeh, **S. Rashidi**, R. Masoodi, O. Samimi-Abianeh, "Effect of transverse twisted baffles on performance and irreversibilities in a duct.'' **Journal of Thermophysics and Heat Transfer**, 33 (2019) 49-62.
3. M. Akbarzadeh, **S. Rashidi**, N. Karimi, N. Omar, "First and second laws of thermodynamics analysis of nanofluid flow inside a heat exchanger duct with wavy walls and a porous insert.'' **Journal of Thermal Analysis and Calorimetry**, 135 (2019) 177-194.
4. **S. Rashidi**, M. Akbarzadeh, N. Karimi, R. Masoodi, "Combined effects of nanofluid and transverse twisted-baffles on the flow structures, heat transfer and irreversibilities inside a square duct–A numerical study.'' **Applied Thermal Engineering**, 130 (2018) 135-148.
5. M. Akbarzadeh, **S. Rashidi,** N. Karimi, R. Ellahi, "Convection of heat and thermodynamic irreversibilities in two-phase, turbulent nanofluid flows in solar heaters by corrugated absorber plates.'' **Advanced Powder Technology,** 29 (2018), 2243-2254.
6. S. Akar, **S. Rashidi**, J.A. Esfahani, "Second law of thermodynamic analysis for nanofluid turbulent flow around a rotating cylinder.'' **Journal of Thermal Analysis and Calorimetry**, 132 (2018) 1189–1200.
7. P. Javadi, **S. Rashidi**, J.A. Esfahani, "Effects of rib shapes on the entropy generation in a ribbed duct.'' **Journal of Thermophysics and Heat Transfer**, 32 (2018) 691-701.
8. **S. Rashidi**, M. Akbarzadeh, R. Masoodi, E.M. Languri, "Thermal-hydraulic and entropy generation analysis for turbulent flow inside a corrugated channel.'' **International Journal of Heat and Mass Transfer**, 109 (2017) 812-823.
9. **S. Rashidi**, N.M. Zade, J.A. Esfahani, "Thermo-fluid performance and entropy generation analysis for a new eccentric helical screw tape insert in a 3D tube.'' **Chemical Engineering and Processing: Process Intensification**, 117 (2017) 27-37.
10. M. Bashi, **S. Rashidi**, J.A. Esfahani, "Exergy analysis for a plate-fin triangular duct enhanced by a porous material.'' **Applied Thermal Engineering**, 110 (2017) 1448-1461.
11. N.M. Zade, S. Akar, **S. Rashidi**, J.A. Esfahani, "Thermo-hydraulic analysis for a novel eccentric helical screw tape insert in a three dimensional tube.'' **Applied Thermal Engineering**, 124 (2017) 413-421.
12. M. Akbarzadeh, **S. Rashidi**, J.A. Esfahani, "Influences of corrugation profiles on entropy generation, heat transfer, pressure drop, and performance in a wavy channel.'' **Applied Thermal Engineering**, 116 (2017) 278-291.
13. J.A. Esfahani, M. Akbarzadeh, **S. Rashidi**, M.A. Rosen, R. Ellahi, "Influences of wavy wall and nanoparticles on entropy generation over heat exchanger plat.'' **International Journal of Heat and Mass Transfer,** 109 (2017) 1162-1171.

14. S. Amirahmadi, **S. Rashidi**, J.A. Esfahani, "Minimization of exergy losses in a trapezoidal duct with turbulator, roughness and beveled corners.'' **Applied Thermal Engineering**, 107 (2016) 533-543.

Field of augmentation techniques in heat transfer

1. N. Moghaddaszadeh, **S. Rashidi**, J.A. Esfahani, "Potential of gear-ring turbulator in three-dimensional heat exchanger tube from second law of thermodynamic viewpoint.'' **International Journal of Numerical Methods for Heat & Fluid Flow,** (2018) https://doi.org/10.1108/HFF-05-2018-0250.
2. R. Parizad Laein, **S. Rashidi**, J.A. Esfahani, "Experimental investigation of nanofluid free convection over the vertical and horizontal flat plates with uniform heat flux by PIV.'' **Advanced Powder Technology**, 27 (2016) 312-322.
3. S. Zeibi Shirejini, **S. Rashidi**, J.A. Esfahani, "Recovery of drop in heat transfer rate for a rotating system by nanofluids.'' **Journal of Molecular Liquids**, 220 (2016) 961-969.
4. M. Akbarzadeh, **S. Rashidi**, M. Bovand, R. Ellahi, "A sensitivity analysis on thermal and pumping power for the flow of nanofluid inside a wavy channel." **Journal of Molecular Liquids**, 220 (2016) 1–13.
5. **S. Rashidi**, M. Bovand, J.A. Esfahani, "Opposition of Magnetohydrodynamic and Al_2O_3-water nanofluid flow around a vertex facing triangular obstacle.'' **Journal of Molecular Liquids**, 215 (2016) 276-284.
6. M. Bovand, **S. Rashidi**, J.A. Esfahani, "Optimum interaction between magnetohydrodynamics and nanofluid for thermal and drag management.'' **Journal of Thermophysics and Heat Transfer**, 31 (2016) 218-229.
7. **S. Rashidi**, M. Bovand, J.A. Esfahani, "Structural optimization of nanofluid flow around an equilateral triangular obstacle." **Energy**, 88 (2015) 385–398.
8. M. Bovand, **S. Rashidi**, J.A. Esfahani, "Enhancement of heat transfer by nanofluids and orientations of the equilateral triangular obstacle." **Energy Conversion and Management**, 97 (2015) 212-223.

Field of transport phenomena in porous media

1. Y. Kazemian, **S. Rashidi**, J.A. Esfahani, N. Karimi, "Simulation of conjugate radiation–forced convection heat transfer in a porous medium using the lattice Boltzmann method." **Meccanica,** (2019), https://doi.org/10.1007/s11012-019-00967-8.
2. M. Bovand, **S. Rashidi**, M. Dehesht, J.A. Esfahani, "Effect of fluid-porous interface conditions on steady flow around and through a porous circular cylinder." **International Journal of Numerical Methods for Heat and Fluid Flow**, 25 (2015) 1658-1681.

3. **S. Rashidi**, A. Nouri-Borujerdi, M.S. Valipour, R. Ellahi, I. Pop, "Stress-jump and continuity interface conditions for a cylinder embedded in a porous medium." **Transport in Porous Media**, 107 (2015) 171-186.
4. M.S. Valipour, **S. Rashidi**, R. Masoodi, "Magnetohydrodynamics flow and heat transfer around a solid cylinder wrapped with a porous ring." **ASME Journal of Heat Transfer**, 136 (2014) 062601.
5. **S. Rashidi**, M. Bovand, I. Pop, M.S. Valipour, "Numerical simulation of forced convective heat transfer past a square diamond-shaped porous cylinder." **Transport in Porous Media**, 102 (2014) 207-225.
6. **S. Rashidi**, R. Masoodi, M. Bovand, M.S. Valipour, "Numerical study of flow around and through a porous diamond cylinder in different apex angles." **International Journal of Numerical Methods for Heat and Fluid Flow**, 24 (2014) 1504-1518.
7. M. Dehghan, M. Tajik Jamal-Abad, **S. Rashidi**, "Analytical interpretation of the local thermal non-equilibrium condition of porous media imbedded in tube heat exchangers." **Energy Conversion and Management**, 85 (2014) 264-271.
8. M.S. Valipour, **S. Rashidi**, M. Bovand, R. Masoodi, "Numerical modeling of flow around and through a porous cylinder with diamond cross section." **European Journal of Mechanics B/Fluids**, 46 (2014) 74-81.
9. **S. Rashidi**, A. Tamayol, M.S. Valipour, N. Shokri, "Fluid flow and forced convection heat transfer around a solid cylinder wrapped with a porous ring." **International Journal of Heat and Mass Transfer**, 63 (2013) 91–100.

Field of control of flow

1. **S. Rashidi**, M. Bovand, J.A. Esfahani, "Application of magnetohydrodynamics for suppressing the fluctuations in the unsteady flow around two side-by-side circular obstacles.'' **The European Physical Journal Plus**, 131 (2016) 423.
2. M. Bovand, **S. Rashidi**, J.A. Esfahani, R. Masoodi, "Control of wake destructive behavior for different bluff bodies in channel flow by magnetohydrodynamics.'' **The European Physical Journal Plus**, 131 (2016) 194.
3. **S. Rashidi**, J.A. Esfahani, "The effect of magnetic field on instabilities of heat transfer from an obstacle in a channel." **Journal of Magnetism and Magnetic Materials**, 391 (2015) 5-11.
4. **S. Rashidi**, M. Bovand, J.A. Esfahani, H.F. Öztop, R. Masoodi, "Control of wake structure behind a square cylinder by Magnetohydrodynamics." **ASME Journal of Fluids Engineering**, 137 (2015) 061102-8.

Field of DPM model for simulating particulate flows

1. M. Maskaniyan, **S. Rashidi**, J.A. Esfahani, "A two-way couple of Eulerian-Lagrangian model for particle transport with different sizes in an obstructed channel.'' **Powder Technology**, 312 (2017) 260-269.
2. **S. Rashidi**, J.A. Esfahani, R. Ellahi, "Convective heat transfer and particle motion in an obstructed duct with two side by side obstacles by means of DPM model.'' **Applied Sciences**, 7 (2017) 1-14.
3. **S. Rashidi**, M. Bovand, J.A. Esfahani, G. Ahmadi, "Discrete particle model for convective Al_2O_3-water nanofluid around a triangular obstacle.'' **Applied Thermal Engineering**, 100 (2016) 39-54.
4. M. Bovand, **S. Rashidi**, G. Ahmadi, J.A. Esfahani, "Effects of trap and reflect particle boundary conditions on particle transport and convective heat transfer for duct flow-A two-way coupling of Eulerian-Lagrangian Model.'' **Applied Thermal Engineering**, 108 (2016) 368-377.

Other fields

1. J.A. Esfahani, S. Safaiyan, **S. Rashidi**, "Heat transfer in an eight-pass oscillating loop heat pipe equipped with cooling tower." **Journal of Thermal Analysis and Calorimetry**, (2018), https://doi.org/10.1007/s10973-018-7835-1.
2. S. Akar, **S. Rashidi**, J.A. Esfahani, N. Karimi, "Targeting a channel coating by using magnetic field and magnetic nanofluids." **Journal of Thermal Analysis and Calorimetry,** (2018), https://doi.org/10.1007/s10973-018-7975-3.
3. Y. Kazemian, J.A. Esfahani, **S. Rashidi**, "Enhancing the convergence speed of numerical solution using the flow rate control in a novel lattice Boltzmann method." **The European Physical Journal Plus,** 133 (2018) 555.
4. A. Asadollahi, **S. Rashidi**, A.A. Mohamad, "Removal of the liquid from a micro-object and controlling the surface wettability by using a rotating shell - Numerical simulation by Lattice–Boltzmann method." **Journal of Molecular Liquids,** 272 (2018) 645-655.
5. A. Asadollahi, **S. Rashidi**, J.A. Esfahani, "Simulation of liquid reaction and droplet formation on a moving micro-object by lattice Boltzmann method." **Meccanica**, 53 (2018) 803–815.
6. A. Asadollahi, **S. Rashidi**, J.A. Esfahani, R. Ellahi, "Simulating phase change during the droplet deformation and impact on a wet surface in a square microchannel: An application of oil drops collision." **The European Physical Journal Plus,** 133 (2018) 306.

7. Z. Kazemi, **S. Rashidi**, J.A. Esfahani, "Effect of flap installation on improving the homogeneity of the mixture in an induced-charge electrokinetic micro-mixer." **Chemical Engineering and Processing: Process Intensification**, 121 (2017) 188-197.

8. A. Asadollahi, **S. Rashidi**, J.A. Esfahani, "Condensation process and phase-change in the presence of obstacles inside a minichannel." **Meccanica**, 52 (2017) 2265-2274.

9. R. Hosseini, **S. Rashidi**, J.A. Esfahani, "A lattice Boltzmann method to simulate combined radiation–force convection heat transfer mode.'' **Journal of the Brazilian Society of Mechanical Sciences and Engineering,** 39 (2017) 3695–3706.

10. M. Bovand, **S. Rashidi**, J.A. Esfahani, "New design of Ranque–Hilsch vortex tube: Helical multi-intake vortex generator.'' **Journal of Thermophysics and Heat Transfer**, 30 (2016) 608-613.

CITATION INDEX

Citations	H-index	I10-index
2049	27	55

TEACHING EXPERIENCE

- Lecturer (Part-time) 2018
  Department of energy systems engineering
  Semnan University
  I have taught "Exergy flow" in this university
- Lecturer (Part-time) 2016
  Department of Electrical Engineering
  Ferdowsi University of Mashhad
  I have taught "Engineering Thermodynamics" in this university
- Lecturer (Part-time) 2016
  Department of Mechanical Engineering
  Khayam University
  I have taught "Turbomachinery" in this university
- Teaching assistant 2011
  Department of Mechanical Engineering
  Semnan University
  I have taught "Engineering mathematics" in this university

EDITORSHIP OF JOURNALS

- Entropy, Guest Editor, 2018-Present, Impact Factor: 2.305

- Journal of Thermal Analysis and Calorimetry, Guest Editor, 2019-Present, Impact Factor: 2.209

REVIEWER FOR TECHNICAL JOURNALS

- Renewable & sustainable energy reviews
- Applied Energy
- Energy Conversion and Management
- Renewable Energy
- International Journal of Heat and Mass Transfer
- International Journal of Thermal Sciences
- Journal of the Taiwan Institute of Chemical Engineers
- International Journal of Mechanical Sciences
- Applied Thermal Engineering
- Desalination
- Transport in Porous Media
- Journal of Molecular Liquids
- Journal of Thermal Analysis and Calorimetry
- Journal of Thermophysics and Heat Transfer
- Journal of the Brazilian Society of Mechanical Sciences and Engineering

SOFTWARE EXPERIENCE

- Matlab (Proficient)
- Fluent (Advanced)
- Gambit (Advanced)
- Ansys (Proficient)
- Minitab (Proficient)

HONORS

- Best researcher award, Ferdowsi University of Mashhad, 2016
- Admitted to PhD program in the Ferdowsi University of Mashhad as an exceptionally talented student without taking the entrance exam, 2014

REFERENCES

Dr. Javad Abolfazli Esfahani, Professor
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Dr. Goodarz Ahmadi, Professor
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