



CURRICULUM VITAE
Mohammad Hassan Kayhani
Associate Professor
Faculty of Mechanical Engineering
Shahrood University of Technology
Shahrood, Iran
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EDUCATION:

- Ph.D. Mechanical Engineering, Czech Technical University in Prague, Czech, 1999.
Concentration: Combustion, Heat transfer, CFD
Dissertation: Numerical Simulation of Pulverized Coal Combustion in 3-D Geometry.
- M.S. Mechanical Engineering, Isfahan University of Technology, Iran, 1988
Concentration: Heat transfer, Two Phase Flow Heat Transfer, Natural Convection.
Thesis: Analytical and Experimental Study of Surface Condenser with Variable Temperature.
- B.Sc. Mechanical Engineering, Tabriz University, Iran, 1985
Concentration: Heat transfer, Fluid Mechanics, Thermodynamics.

PROFESSIONAL EXPERIENCE:

Associate Prof. and Assistant Prof. of Mechanical Engineering, Shahrood University of Technology, Iran, 1999 - present
Visiting Assistant Professor, Semnan University, Iran, 2001-2003
Head of Department of Heat and Fluids, Shahrood University of Technology, Shahrood, Iran, 2000-2002 and 2006-2011
Teaching Graduate and Undergraduate Courses for 20 Years at Shahrood University of Technology and Semnan University.

RESEARCH INTERESTS:

Heat transfer, Heat transfer and fluid flow with phase change, Computational and experimental fluid dynamics, Transport phenomena through porous media, Combustion, Reacting flow.

GRADUATED Ph.D. STUDENTS:

Mahmood Norouzi(October.2005-2009)
 Ali Jalali (October. 2007 – 2011)
 Rasul Mohebbi (October. 2009 – 2013)
 Amin Amiri Delouei (October. 2010 – 2015)
 Esmail Shakerinejad (October 2011-2016)
 Hosna Shokri(October.2013-2017)
 Atena Ghaderi(October.2012-2016)
 Habib Kolahdooz(October.2014-2018)

THESIS SUPERVISION: Ph.D. STUDENTS:

	NAMES	TOPIC	YEAR
1	Mahmood Norouzi	<i>Investigation of the Viscoelastic Flow and Heat Transfer in Stationary and Rotating Curved Ducts With Square and Rectangular Cross Section</i>	2010
2	Ali Jalali	<i>Numerical simulation of 3D viscoelastic developing flow and heat transfer in the rectangular ducts</i>	2012
3	Rasul Mohebbi	<i>Pore Level Simulation of Heat Transfer in a Channel Occupied by Porous Medium Using the Lattice Boltzmann Method</i>	2013
4	Amin Amiri Delouei	<i>Thermal Non-Newtonian Fluid Flow Subjected to Moving Body in Channel Using the Immersed Boundary-Lattice Boltzmann Method</i>	2015
5	Atena Ghaderi	<i>Investigation on Falling Ferrofluid Droplet and Rising Bubble in Magnetic Fields Using Lattice Boltzmann Method</i>	2017
6	Esmail Shakerinejad	<i>Numerical Investigation on Two-Phase Flow in the Gas Diffusion Layer of a Polymer Electrolyte Fuel Cell</i>	2018
7	Hosna Shokri	<i>Numerical Simulation of Fingering Instability for Viscoelastic Fluids Used in Enhanced-Oil-Recovery Operations</i>	2018
8	Habib Kolahdooz	<i>Experimental study of the Effect of Porous Obstacle on Premixed Methane-Air Flame Propagation in a Closed Duct</i>	2019

CURRENT Ph.D. STUDENTS:

Mansoreh Shariatmadar-tehrani
 Mohammadmahdi Zolfagharian
 Mojtaba Ashouri
 Karim Jafarian
 Hashem Ahmadi-tighchi
 Yaser Taghipour
 Mohammadkazem Sheikhan
 Hooman Dorostkar

Journal Publication:

1. H Kolahdooz, M Nazari, **MH Kayhani**, R Ebrahimi, O Askari, Effect of Obstacle Type on Methane–Air Flame Propagation in a Closed Duct: An Experimental Study, Journal of Energy Resources Technology, 141 (11), 112208-2019
2. H Shokri, **MH Kayhani**, M Norouzi, Nonlinear Simulation of Viscoelastic Fingering Instability in Miscible Displacement through Homogeneous and Heterogeneous Porous Media, Journal of Engineering Mechanics, 145 (12), 04019098-2019
3. M Mohammadi, M Nazari, **MH Kayhani**, Experimental Study and Visualization of Particle/Bubble Collision in the Presence of Fluid, Modares Mechanical Engineering 19 (7), 1601-1611-2019

4. M Afra, M Nazari, **MH Kayhani**, M Sharifpur, JP Meyer, 3D experimental visualization of water flooding in proton exchange membrane fuel cell, *Energy* 175, 967-977-2019
5. MM Zolfagharian, **MH Kayhani**, M Norouzi, A Jalali, Parametric investigation of twin tube magnetorheological dampers using a new unsteady theoretical analysis, *Journal of Intelligent Material Systems and Structures* 30 (6), 878-895-2019
6. A Ghaderi, **MH Kayhani**, M Nazari, SIMULATION OF THE CO-AXIAL FERROFLUID DROPLETS INTERACTION UNDER UNIFORM MAGNETIC FIELD, *THERMAL SCIENCE* 23 (2B), 1027-1042-2019
7. H Shokri, **MH Kayhani**, M Norouzi, Nonlinear simulation of viscoelastic viscous fingering instability in heterogeneous media, *Modares Mechanical Engineering* 18 (8), 122-132-2018
8. M Nazari, E Shakerinejad, **MH Kayhani**, Tailored Surface Wettability of Gas Diffusion Layer in Polymer Electrolyte Membrane Fuel Cells: Proposing a Pore Scale-Two Phase Design, *Fuel Cells* 18 (6), 698-710-2018
9. B Afra, M Nazari, **MH Kayhani**, G Ahmadi, Direct numerical simulation of freely falling particles by hybrid immersed boundary–Lattice Boltzmann–discrete element method, *Particulate Science and Technology*, 1-13-2018
10. A Ghaderi, **MH Kayhani**, M Nazari, Numerical investigation on falling ferrofluid droplet under uniform magnetic field, *European Journal of Mechanics-B/Fluids* 72, 1-11-2018
11. M Nazari, HM Sani, **MH Kayhani**, Y Daghighi, DIFFERENT STAGES OF LIQUID FILM GROWTH IN A MICROCHANNEL: TWO-PHASE LATTICE BOLTZMANN STUDY, *Brazilian Journal of Chemical Engineering* 35 (3), 977-994-2018
12. M Nazari, H Salehabadi, **MH Kayhani**, Y Daghighi, PREDICTING THE PENETRATION AND NAVIGATING THE MOTION OF A LIQUID DROP IN A LAYERED POROUS MEDIUM: VISCOUS FINGERING VS. CAPILLARY FINGERING, *Brazilian Journal of Chemical Engineering* 35 (2), 731-744-2018
13. B Afra, M Nazari, **MH Kayhani**, AA Delouei, G Ahmadi, An immersed boundary-lattice Boltzmann method combined with a robust lattice spring model for solving flow–structure interaction problems, *Applied Mathematical Modelling* 55, 502-521-2018
14. E Shakerinejad, **MH Kayhani**, M Nazari, A Tamayol, Increasing the performance of gas diffusion layer by insertion of small hydrophilic layer in proton-exchange membrane fuel cells, *International Journal of Hydrogen Energy* 43 (4), 2410-2428-2018
15. H Shokri, **MH Kayhani**, M Norouzi, Saffman–Taylor instability of viscoelastic fluids in anisotropic porous media, *International Journal of Mechanical Sciences* 135, 1-13-2018
16. A Ghaderi, **MH Kayhani**, M Nazari, K Fallah, Drop formation of ferrofluid at co-flowing microchannel under uniform magnetic field, *European Journal of Mechanics-B/Fluids* 67, 87-96-2018
17. AK Birjandi, M Norouzi, **MH Kayhani**, A numerical study on drop formation of viscoelastic liquids using a nonlinear constitutive equation, *Meccanica* 52 (15), 3593-3613-2017
18. H Shokri, **MH Kayhani**, M Norouzi, Nonlinear simulation and linear stability analysis of viscous fingering instability of viscoelastic liquids, *Physics of Fluids* 29 (3), 033101-2017
19. AA Delouei, M Nazari, **MH Kayhani**, G Ahmadi, Direct-forcing immersed boundary–non-Newtonian lattice Boltzmann method for transient non-isothermal sedimentation, *Journal of Aerosol Science* 104, 106-122-2017
20. AA Delouei, **MH Kayhani**, M Nazari, Simulation of Particle Motion in Non-Newtonian fluids by Immersed Boundary-Lattice Boltzmann Method, *Journal of Applied and Computational Sciences in Mechanics* 28 (1)-2017

21. H Shokri, **MH Kayhani**, M Norouzi, A Numerical Study on Miscible Viscoelastic Fingering Instability-2017
22. M Nazari, A Ghaderi, **MH Kayhani**, Numerical simulation of falling droplet under uniform magnetic field, using a hybrid lattice-Boltzmann and finite-volume method, *Modares Mechanical Engineering* 16 (9), 65-76-2016
23. **MH Kayhani**, H Shokri, M Norouzi, Nonlinear simulation of viscoelastic fingering instability, *Modares Mechanical Engineering* 16 (8), 47-54-2016
24. MS Nazari, **MH Kayhani**, A Comparative Solution of Natural Convection in an Open Cavity using Different Boundary Conditions via Lattice Boltzmann Method, *Journal of Heat and Mass Transfer Research* 3 (2), 115-129-2016
25. AA Delouei, M Nazari, **MH Kayhani**, SK Kang, S Succi, Non-Newtonian particulate flow simulation: A direct-forcing immersed boundary–lattice Boltzmann approach, *Physica A: Statistical Mechanics and its Applications* 447, 1-20-2016
26. AA Delouei, M Nazari, **MH Kayhani**, G Ahmadi, A non-Newtonian direct numerical study for stationary and moving objects with various shapes: An immersed boundary–Lattice Boltzmann approach, *Journal of Aerosol Science* 93, 45-62-2016
27. H Abadi, A Ghaderi, M Nazari, **MH Kayhani**, Simulation of fluid penetration with high density ratio in layered porous media with Lattice Boltzmann model by using equations of state, *Mechanical Engineering* 48 (1)-2016
28. H SALEHABADI, A Ghaderi, M Nazari, **MH Kayhani**, Simulation of Fluid Penetration with High Density Ratio in Layered Porous Media with Lattice Boltzmann Model by Using Equations of State, *JOURNAL OF MECHANICAL ENGINEERING AMIRKABIR (AMIRKABIR)* 48 (1), 21-24-2016
29. R Mohebbi, M Nazari, **MH Kayhani**, Comparative study of forced convection of a power-law fluid in a channel with a built-in square cylinder, *Journal of Applied Mechanics and Technical Physics* 57 (1), 55-68-2016
30. **MH KAYHANI**, DA AMIRI, Analytical Efficiency Comparison of Multi-Layer Composite Pin Fins under the Different Thermal Boundary Conditions, *JOURNAL OF MODELING IN ENGINEERING* 13 (43), 67-77-2016
31. AA Delouei, M Nazari, **MH Kayhani**, S Succi, *Communications in Computational Physics*-2015
32. AA Delouei, M Nazari, **MH Kayhani**, S Succi, Immersed boundary–thermal lattice Boltzmann methods for non-Newtonian flows over a heated cylinder: a comparative study, *Communications in Computational Physics* 18 (2), 489-515-2015
33. M Nazari, M Ashouri, **MH Kayhani**, A Tamayol, Experimental study of convective heat transfer of a nanofluid through a pipe filled with metal foam, *International Journal of Thermal Sciences* 88, 33-39-2015
34. M Nazari, H Shokri, **MH Kayhani**, Control of convective heat transfer by changing the right-angle position and the base angle of triangular storages: lattice Boltzmann simulation, *Journal of the Brazilian Society of Mechanical Sciences and Engineering* 2015
35. AA Delouei, M Nazari, **MH Kayhani**, Non-Newtonian unconfined flow and heat transfer over a heated cylinder using the direct-forcing immersed boundary–thermal lattice Boltzmann method., S Succi *Physical Review E* 89 (5), 053312-2014
36. M Nazari, R Mohebbi, **MH Kayhani**, Power-law fluid flow and heat transfer in a channel with a built-in porous square cylinder: Lattice Boltzmann simulation, *Journal of Non-Newtonian Fluid Mechanics* 204, 38-49-2014
37. M Nazari, **MH Kayhani**, R Mohebbi, Heat transfer enhancement in a channel partially filled with a porous block: lattice Boltzmann method, *International Journal of Modern Physics C* 24 (09)-2013

38. A Molavi, **MH Kayhani**, Experimental study on the effects of wind break walls on top of the natural dry draft cooling towers, *Mechanics* 19 (3), 283-287-2013
39. A Jalali, MA Hulsen, M Norouzi, **MH Kayhani**, Numerical simulation of 3D viscoelastic developing flow and heat transfer in a rectangular duct with a nonlinear constitutive equation, *Korea-Australia Rheology Journal* 25 (2), 95-105-2013
40. M Nazari, **MH Kayhani**, AAH Bagheri, Comparison of heat transfer in a cavity between vertical and horizontal porous layers using LBM, *Modares Mech Eng J* 13 (8), 93-107-2013
41. E Khaje, **MH Kayhani**, M Sadi, Effect of heat generation on natural convection from an impermeable inclined surface embedded in a porous medium, *Journal of Porous Media* 16 (5)-2013
42. M Norouzi, SMR Niya, **MH Kayhani**, M Shariati, MK Demneh, MS Naghavi, Exact solution of unsteady conductive heat transfer in cylindrical composite laminates, *Journal of Heat Transfer* 134 (10), 101301-2012
43. MM Shahmardan, M Norouzi, **MH Kayhani**, AA Delouei, An exact analytical solution for convective heat transfer in rectangular ducts, *Journal of Zhejiang University SCIENCE A* 13 (10), 768-781-2012
44. AA Delouei, **MH Kayhani**, M Norouzi, Exact analytical solution of unsteady axi-symmetric conductive heat transfer in cylindrical orthotropic composite laminates, *International Journal of Heat and Mass Transfer* 55 (15-16), 4427-4436-2012
45. E Shakeri, M Nazari, **MH Kayhani**, Free Convection heat transfer over a vertical cylinder in a saturated porous medium using a local thermal non-equilibrium model, *Transport in porous media* 93 (3), 453-460-2012
46. **MH Kayhani**, M Nazari, H Soltanzadeh, MM Heyhat, F Kowsary, Experimental analysis of turbulent convective heat transfer and pressure drop of Al₂O₃/water nanofluid in horizontal tube, *Micro & Nano Letters* 7 (3), 223-227-2012
47. **MH Kayhani**, H Soltanzadeh, MM Heyhat, M Nazari, F Kowsary, Experimental study of convective heat transfer and pressure drop of TiO₂/water nanofluid, *International Communications in Heat and Mass Transfer* 39 (3), 456-462-2012
48. **MH Kayhani**, M Norouzi, AA Delouei, A general analytical solution for heat conduction in cylindrical multilayer composite laminates, *International Journal of Thermal Sciences* 52, 73-82-2012
49. **MH Kayhani**, M Nazari, E Shakeri, NATURAL CONVECTION HEAT TRANSFER IN A POROUS CAVITY IN THE PRESENCE OF A BIOCHEMICAL HEAT SOURCE WHICH IS DEPENDENT ON SOLUTE CONCENTRATION GENERATION RATE, *Journal of Porous Media* 15 (4)-2012
50. A Aghaie, **MH Kayhani**, M Razavi, Investigation of thermodynamics properties effects on spray tip penetration, *International journal of multidisciplinary sciences and engineering* 3 (10)-2012
51. **MH Kayhani**, M Norouzi, A Amiri-Delouei, Analytical Investigation of Heat Conduction in Graphite-Epoxy Cylindrical Composite Laminates, *Mech. & Aerospace Eng. J* 8 (2), 31-44-2012
52. M Norouzi, MRH Nobari, **MH Kayhani**, F Talebi, Instability investigation of creeping viscoelastic flow in a curved duct with rectangular cross-section, *International Journal of Non-Linear Mechanics* 47 (1), 14-25-2012
53. HZ Mahmood-Abadi, **MH Kayhani**, M Rabi, MR Mohammadi, A survey of knowledge and attitude of non-psychiatrists (medical specialists) treating major depression, *Thrita* 1 (1), 30-3-2012
54. N Samkhaniani, A Ajami, **MH Kayhani**, AS Dari, Direct numerical simulation of single bubble rising in viscous stagnant liquid, *International Conference on Mechanical, Automobile and Robotics Engineering*-2012
55. **MH Kayhani**, M Norouzi, AA Delouei, ANALYTICAL INVESTIGATION OF ORTHOTROPIC UNSTEADY HEAT TRANSFER IN COMPOSITE PIN FINNS, *MODARES MECHANICAL ENGINEERING* 11 (4), 21-32-2012

EXTERNALLY FUNDED PROJECTS:

COMPANY	TITLE	AUTHORS	DURATION
Bargh-E-Mantaghehei (Local Electricity Company)	Combustion Chamber Modeling for Re-powering Power Plant Cycle	Ameri,A., Kayhani,M.H.	2002-2004
Turbo -Generator	I.P. Index Improvement of Electro Motors Using Closed Cooling System	Kayhani,M.H.	2004-2005
Semnan Gas Company	Gas Leakage Modeling and Test of Gas Transfer Lines	Kayhani,M.H., Sedaghat, H.	2005-2006
Tavanir	Gas Turbine Manufacturing	Kayhani,M.H.,Norouzi,M	2018-present