

# Jafar Ghazanfarian



Birth: Jan. 6, 1984, Married, 1 Child

Citizenship: Iranian

Tel: (+98) 24 3305 4142.

University Webpage: [http://www.znu.ac.ir/members/ghazanfarian\\_jafar](http://www.znu.ac.ir/members/ghazanfarian_jafar)

Personal Webpage: [ghazanfarian.ir](http://ghazanfarian.ir)

E-mail: [jafar.ghazanfarian@gmail.com](mailto:jafar.ghazanfarian@gmail.com), [j.ghazanfarian@znu.ac.ir](mailto:j.ghazanfarian@znu.ac.ir)

Last update: May 21<sup>st</sup>, 2017

---

## FACULTY MEMBER

**Associate Professor**, Mechanical Engineering Department, Faculty of Engineering, University of Zanjan, Room No. 210  
2016- Present

**Head of Mechanical and Industrial Engineering Department**, 2017-2019

Assistant Professor, Mechanical Engineering Department, Faculty of Engineering, University of Zanjan, 2011- 2016

Lecturer, Mechanical Engineering Department, Faculty of Engineering, University of Zanjan, 2007- 2011

## EDUCATIONS

- 2007-2011      **Ph.D. in Mechanical Engineering**  
**Amirkabir University of Technology (Tehran Polytechnic)**  
Major: Thermo-fluid engineering  
Overall GPA: 19.46/20 (Ranked 1<sup>st</sup> since the university foundation)  
Comprehensive Exam Mark: 17.17/20
- 2005-2007      **Master of Science in Mechanical Engineering**  
**Amirkabir University of Technology (Tehran Polytechnic)**  
Major: Thermo-fluid  
Overall GPA: 17.97/20 (Ranked 1<sup>st</sup>)
- 2001-2005      **Bachelor of Science in Mechanical Engineering**  
**Tehran University**  
Major: Thermo-fluid  
Overall GPA: 16.36/20 (Among Top-10 Students)
- 1997-2001      **Pre-University Certificate and High School Diploma**  
**Zanjan SAMPAD**  
Overall GPA: 19.20/20 (Ranked 2<sup>nd</sup>)

---

	Citations	h-index
<b>ResearchGate</b>	<b>289</b>	<b>10</b>
<b>GoogleScholar</b>	<b>330</b>	<b>11</b>
<b>Scopus</b>	<b>226</b>	<b>9</b>

---

## RESEARCH INTERESTS

- Nano/Micro-scale heat transport
- Convection and conduction heat transfer: Non-Fourier models
- CFD and numerical grid generation
- Numerical methods with Lagrangian point of view: SPH, MC, LBM

- Renewable energies
- Industrial and scientific Virtual/Augmented -reality

## HONORS

- 2016 Winner of **Sentinels of Science Award**, medal of Excellence in Peer Review, 2016
- 2016 **Outstanding Reviewer** of "Amirkabir Journal of Mechanical Engineering" Nomination of the translation of "Constructal Theory" for **the best book of the year**, selected among 5 final candidates.
- 2015 **Outstanding Reviewer** of "Applied Thermal Engineering" (IF=3.04)
- 2013 Winner of "**Prof. Kazemi Ashtiani's scholarship award**" from Iranian national elites' committee.
- 2012 Selected as the "**Professor of the Year**" by students in the Department of Mechanical Engineering, University of Zanjan.
- 2011 The "**Highest Overall GPA**" among all students of Ph.D. of mechanical engineering at Amirkabir University of Technology from the university foundation.
- 2011 Chosen as the "**Graduated Outstanding PhD Student**" at Amirkabir University of Technology.
- 2008-Present **Ranked 1<sup>st</sup>** among all PhD students of Mechanical Engineering at Amirkabir University of Technology.
- 2010 A member of **Iranian National Elites' Committee**.
- 2007 Chosen as the "**Graduated Outstanding MSc Student**" at Amirkabir University of Technology.
- 2007 **Ranked 1<sup>st</sup>** among all MSc students of thermo-fluid at Amirkabir University of Technology.
- 1999 Chosen at "**Computer Olympiad**".

## COURSES

- Advanced Numerical Analysis
- Advanced Fluid Mechanics
- Advanced CFD II
- Gas dynamics
- Incompressible Turbo-machinery
- Fluid mechanics I and II
- Heat transfer I and II
- Fluid Mechanics, turbo-machinery, thermodynamics Labs

## SCIENTIFIC SEMINARS AND KEYNOTE PRESENTATIONS

- Complex Flow Simulations using SPH Method, **Keynote Speaker** for National Conference on Mechanical Engineering of Iran (NCMEI2014), Shiraz, Iran, February 27th, 2014.

## THESIS

- PhD: Finished: 1. Current: 2.
- MSc: Finished: 12. Current: 9.
- BSc: More than 50.

## SELECTED PEER-REVIEWING EXPERIENCE

### Referee of over 105 manuscripts for More than 43 Journals

Physical Review Letters | IEEE Transactions on Fuzzy Systems | Energy | Microfluidics and Nanofluidics | Applied Thermal Engineering | International Journal of Thermal Sciences | International Journal of Heat and Mass Transfer | Physical Review E | Renewable & Sustainable Energy Reviewers | Numerical Methods for Partial Differential Equations | Journal of Heat Transfer-ASME | International Journal of Hydrogen Energy | IEEE Trans. On Electron Devices | Physical Review Applied | Journal of Non-Crystalline Solids | Powder Technology | Journal of Fluids Engineering-Transactions of ASME | Heat and Mass Transfer | Journal of Scientific Computing | Journal of Thermophysics and Heat Transfer

### National Journals

#### Referee of more than 150 manuscripts

Journal of Solid and Fluid Mechanics | Modares Journal of Mechanical Engineering | International Journal of Engineering | Amirkabir Journal of Science & Research | Journal of Mechanical Engineering: University of Tabriz | Journal of Modeling in Engineering | Gas Processing Journal

## SELECTED TECHNICAL PROGRAM COMMITTEE

- International Conference on Nanomaterials and Nanochemistry, Atlanta, USA, 2017.
- International Conference on Architectural Research & Computer-Aided Design (ICARCAD'16), Rome, Italy, 2016
- International Conference on Mechanics and & Applied Physics (ICMAPH'15), Rome, Italy, 2015.
- 2<sup>nd</sup> International Conference on Partial differential Equations (ICPDE'16), Suzhou, China, 2016.
- International Conference on Partial Differential Equations (ICPDE 2015), Shanghai, China, 2015.
- 10<sup>th</sup> International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2014), Orlando, Florida, USA, 14-16 July, 2014.

## MEMBERSHIP OF INTERNATIONAL SOCIETIES

- Member "Iranian Society of Mechanical Engineering" (ISME)
- Member of "American Society of Thermal Fluids Engineering" (ASTFE)
- Member of "SPH European Research Interest Community" (SPHERIC)

## EXPIRIENCES

- 2017-2019**     **Head** of Mechanical and Industrial Engineering Department, **University of Zanzan**
- 2016**             One of Founders of the SIMICO company located at the science and technology park, IASBS.
- 2013-Present**    Member of team of "**Council of Evaluation and Regulation of High-Education Institutes and Universities of Zanzan**", **University of Zanzan**
- 2011-2013**        Leader of "**Optimization of Solar chimney power plant project, University of Zanzan**
- 2011-2012**        Leader of Research project: "**Simulation of flow in gear pumps**".
- 2003**                Designing and manufacturing of an AC Dynamometer for Engine Testing, **Iran Vehicle-Fuel-Environment Research Center**, Tehran University.
- 2004-2005**        Thermal design of transformers, **Iran Transformer Research Center**, Iran-Transfo Company, Zanzan, Iran.

## PUBLICATIONS

### Books

2- **Jafar Ghazanfarian**, Ehsan Khavasi, Hamid Yousefi, Mojtaba Amiraslanpour, Saba Teymouri, Reza Bayat, "Modern Online Learning Tools over the Platform of Virtual/Augmented Reality", IGI Global Press, Pennsylvania, USA, 2018.

Refereed by 4 referees, with no publication fee.

1- Abbas Abbassi, Jafar Ghazanfarian, Translation of “**Design with Constructal Theory**” to Persian, by: A. Bejan, S. Lorente, Amirkabir University of Technology Press, 2014.

Nominated for **the best book of the year award**, selected among 5 candidates.

### Publications in International Refereed Journals

24- Mojtaba Amiraslanpour, Jafar Ghazanfarian, S.E. Razavi, "**Drag Suppression for 2D Oscillating Cylinder with Various Arrangement of Splitters at Re=100: A High-Amplitude Study with OpenFOAM**", Journal of Wind Engineering and Industrial Aerodynamics, 164,128-137, 2017.

23- Zahra Shomali, Behrad Pedar, Jafar Ghazanfarian, Abbas Abbassi, "**Monte-Carlo Parallel Simulation of Phonon Transport for 3D Silicon Nano-Devices**", International Journal of Thermal Sciences, 114, 139-154, 2017.

22- Sajjad Bouzari, Jafar Ghazanfarian, **Unsteady Forced Convection over Cylinder with Radial Fins in Cross Flow**, Applied Thermal Engineering, 112, 214-225, 2017.

21- Jafar Ghazanfarian, Roozbeh Saghatchi, Mofid Gorji-Bandpy, "**SPH simulation of Turbulent Flow past a High-Frequency In-line Oscillating Cylinder near Free-Surface**", International Journal of Modern Physics C, 27(11), 1650152, 2016.

20- Zahra Shomali, Abbas Abbassi, Jafar Ghazanfarian, "**Development of Non-Fourier Thermal Attitude for Three-Dimensional and Graphene-Based MOS Devices**", Applied Thermal Engineering, 104, 616-627, 2016.

19- Jafar Ghazanfarian, Zahra Shomali, Abbas Abbassi, "**Macro- to Nanoscale Heat and Mass Transfer: The Lagging Behavior**", International Journal of Thermophysics, 36, 1416-1467, 2015.

18- Zahra Shomali, Jafar Ghazanfarian, Abbas Abbassi, "**Effect of film properties for non-linear DPL model in a nanoscale MOSFET with high-k material:  $ZrO_2/HfO_2/La_2O_3$** ", Superlattices and Microstructures, 83, 699-718, 2015.

17- J. Ghazanfarian, R. Saghatchi, D.V. Patil, "**Implementation of Smoothed-Particle Hydrodynamics for Non-linear Pennes' Bioheat Transfer Equation**", Applied Mathematics and Computation, 259, 21-31, 2015.

16- Jafar Ghazanfarian, Roozbeh Saghatchi, Mofid Gorji-Bandpy, "**Turbulent Fluid-Structure Interaction of Water-Entry/Exit of a Rotating Circular Cylinder using SPH Method**", International Journal of Modern Physics C, 26(8), 1550088, 2015.

15- Jafar Ghazanfarian, D. Ghanbari "**Computational fluid dynamics investigation of turbulent flow inside a rotary double external gear pump**", Journal of Fluids Engineering-Transactions of ASME, 137(2), 021101, 2015.

- 14- Roozbeh Saghatchi, Jafar Ghazanfarian, "A Novel SPH Method for the Solution of Dual-Phase-Lag Model with Temperature-Jump Boundary Condition in Nanoscale", Applied Mathematical Modelling, Vol. 39(3), 1063-1073, 2015.
- 13- Masood Moghaddam, Jafar Ghazanfarian, Abbas Abbassi, "Implementation of DPL-DD model for the simulation of nanoscale MOS devices", IEEE Transactions on Electron Devices, Vol. 61(9), P. 3131-3138, 2014.
- 12- Roozbeh Saghatchi, Jafar Ghazanfarian, Mofid Gorji-Bandpy, "Numerical Simulation of Water-Entry and Sedimentation of an Elliptic Cylinder using Smoothed-Particle Hydrodynamics Method", Journal of Offshore Mechanics and Arctic Engineering-Transactions of ASME, 136(3), 031801, 2014.
- 11- R.S. Samian, A. Abbassi, J. Ghazanfarian, "Transient Conduction Simulation of a Nanoscale Hotspot using Finite Volume Lattice Boltzmann Method", International Journal of Modern Physics C, Vol. 25(3), 1350103, 2014.
- 10- R.S. Samian, A. Abbassi, J. Ghazanfarian, "Thermal Investigation of Common 2D FETs and New Generation of 3D FETs using Boltzmann Transport Equation in Nanoscale", International Journal of Modern Physics C, Vol. 24(9), 1350064, 2013.
- 9- J. Ghazanfarian and Z. Shomali, "Investigation of Dual-Phase-Lag Heat Conduction Model in a Nanoscale Metal-Oxide-Semiconductor Field-Effect Transistor", International Journal of Heat and Mass Transfer, Vol. 55, P. 6231-6237, 2012
- 8- J. Ghazanfarian and A. Abbassi, "Investigation of 2-D Transient Heat Transfer under the Effect of Dual-Phase-Lag Model in a Nanoscale Geometry", International Journal of Thermophysics, Vol. 33, P. 552-566, 2012
- 7- J. Ghazanfarian and A. Abbassi, "Reply to 'Comment on 'Heat transfer and fluid flow in microchannels and nanochannels at high Knudsen number using thermal lattice-Boltzmann method''", Physical Review E, Vol. 84, 048302, 2011
- 6- J. Ghazanfarian and A. Abbassi, "Heat transfer and fluid flow in microchannels and nanochannels at high Knudsen number using thermal lattice-Boltzmann method", Physical Review E, Vol. 82, 026307, 2010.  
Selected for Virtual Journal of Nanoscale Science & Technology.  
Published in the book: "Advances in Nanotechnology Research and Application: 2011 Edition" ScholarlyEditions.
- 5- M.R.H. Nobari, J. Ghazanfarian, "Convective heat transfer from a rotating cylinder with inline oscillation", International Journal of Thermal Science, Vol. 49, P. 2026-2036, 2010
- 4- J. Ghazanfarian and M.R.H. Nobari, "A numerical study of convective heat transfer from a rotating cylinder with cross-flow oscillation", International Journal of Heat and Mass Transfer, Vol. 52, P. 5402-5411, 2009.  
Published in the book: "Issues in Mechanical Engineering: 2011 Edition", ScholarlyEditions.
- 3- M.R.H. Nobari and J. Ghazanfarian, "A numerical investigation of fluid flow over a rotating cylinder with cross flow oscillation", Computers & Fluids, Vol. 38, 2026-2036, 2009,  
Selected among 25 hottest articles (No. 10), 2013.

2- J. Ghazanfarian and A. Abbassi, "**Effect of boundary phonon scattering on Dual-Phase-Lag model to simulate micro- and nano-scale heat conduction**", International Journal of Heat and Mass Transfer, Vol. 52, P. 3706–3711, 2009.

1- J. Ghazanfarian and A. Abbassi, "**Mixed Convection in a Square Cavity Filled with a Porous Medium and Different Exit Port Position**", Journal of porous media, Vol. 10, P. 701-718, 2007.

### ISC Articles

3- Nazila Nematzadeh, Jafar Ghazanfarian, "**3D modeling of blood flow in artificial heart with double volute using dynamic mesh**", Iranian Journal of Mechanical Engineering-Transactions of ISME, Vol. 19, P. 6-12, 2017 (In Persian).

2- J. Ghazanfarian, D. Jamshideasli, A. Abbassi, "**Thermal Lattice Boltzmann Method for Curved Boundaries in the Transition Regime**", Amirkabir Mechanical Engineering Journal, Accepted in Press (In Persian).

1- J. Ghazanfarian, R. Hoseini Abardeh, "**A Glance at the Application of Cryogenics in the Space Science and Biology**", Mechanical Engineering Magazine, Year. 16, No. 55, Aban 1386, P. 62-68, (In Persian).

### Contributions to Conference Proceedings

23- Ehsan Khavasi, Zahra Mashhadi, Jafar Ghazanfarian, "**LES Investigation of 3D turbidity flow with 2 set of particles with various diameters in an experimental setup with a bump using OpenFOAM**", 25<sup>th</sup> Annular International Conference on Mechanical Engineering, May 2<sup>nd</sup>, Tehran, Iran, 2017.

22- Behrad Zeinali, Jafar Ghazanfarian, "**LES simulation of 3D flow over cylinder with superhydrophobic surfaces**", 25<sup>th</sup> Annular International Conference on Mechanical Engineering, May 2<sup>nd</sup>, Tehran, Iran, 2017.

21- Jafar Ghazanfarian, Mostafa Mostafavi, "**Aeroacoustic analysis of flow over cylinder with splitter plate using FWH model**", 25<sup>th</sup> Annular International Conference on Mechanical Engineering, May 2<sup>nd</sup>, Tehran, Iran, 2017.

20- Zahra Shomali, Jafar Ghazanfarian, "**3-D Atomistic Investigation of silicon MOSFETs**", International Symposium on Advances in Computational Heat Transfer, May 28<sup>th</sup>, Napoli, Italy, 2017.

19- Mohammad Jamshidi, Jafar Ghazanfarian, "**Development of DPL-Based Heat Conduction Solver for Multi-Layered Arbitrary Shapes: Nano- and Bio- Case Studies**", International Symposium on Advances in Computational Heat Transfer, May 28<sup>th</sup>, Napoli, Italy, 2017.

18- Zahra Shomali, Abbas Abbassi, Jafar Ghazanfarian, "**Development of Non-Fourier Thermal Attitude for Three-Dimensional and Graphene-Based MOS Devices**", Autumn Meeting of the Physics Society of Iran, November 10<sup>th</sup>, Tehran, Iran, 2016.

17- Z. Shomali, A. Abbassi, J. Ghazanfarian, "**Non-Fourier investigation of the Tri-Gate MOSFET with a graphene heat spreader**", 6<sup>th</sup> International Advances in Applied Physics and Materials Science Congress & Exhibition (APMAS2016), June 1-3, Istanbul, Turkey, 2016.

- 16- J. Ghazanfarian, Z. Shomali, A. Abbassi, "**Non-Fourier behaviours in different three-dimensional MOSFET transistors**", 6<sup>th</sup> International Advances in Applied Physics and Materials Science Congress & Exhibition (APMAS2016), June 1-3, Istanbul, Turkey, 2016.
- 15- Reza Sepahi Samian, Abbas Abbassi, Jafar Ghazanfarian, "**High-Knudsen Conjugate Heat Transfer in Micro/Nano-Channels for use in microelectronic devices: Thermal Lattice Boltzmann Study**", Proceedings of Sixth International Conference on Nanostructures (ICNS6), March 7-10, Kish Island, Iran, 2016.
- 14- Sajad Bouzari, Jafar Ghazanfarian, "**Heat Transfer Augmentation for Flow over Finned Cylinder using OpenFOAM**", Proceedings of 24<sup>th</sup> Annular International Conference on Mechanical Engineering (ISME16), April 26-28, Yazd, Iran, 2016.
- 13- Jafar Ghazanfarian, Masood Moghaddam, "**Dual-Phase-Lag Investigation of High-k Material in Novel Generation of Nanoscale MOS Devices**", Proceedings of 23<sup>rd</sup> Annual International Conference on Mechanical Engineering (ISME2015), 12-14 May, Tehran, Iran, 2015.
- 12- Dourna Jamshideasli, Abbas Abbassi, Jafar Ghazanfarian, "**Thermal Lattice Boltzmann Method for Curved Boundaries in the Transition Regime**", Proceedings of 23<sup>rd</sup> Annual International Conference on Mechanical Engineering (ISME2015), 12-14 May, Tehran, Iran, 2015.  
Selected as "top paper" of conference.
- 11- Jafar Ghazanfarian, Masood Moghaddam, Abbas Abbassi, "**Development of Dual-Phase-Lag model for Conjugate Heat Transfer in Nanoscale MOS Devices**", Proceedings of 23<sup>rd</sup> Annual International Conference on Mechanical Engineering (ISME2015), 12-14 May, Tehran, Iran, 2015.  
Selected as "top paper" of conference.
- 10- Nazila Nematzade, Jafar Ghazanfarian, "Numerical Simulation of blood flow in radial artificial heart with splitter", Proceedings of 1<sup>st</sup> Conference on Novel Approaches of Biomedical Engineering in Cardiovascular Diseases (NABICAD2015), January 22-23, Tehran, Iran, 2015.
- 9- Mojtaba Amiraslanpour, Jafar Ghazanfarian, "**Impact of LAF system design factors on contaminant removal and thermal comfort in the operating room HVAC system: CFD approach**", Proceedings of International Conference on Heating Ventilation and Air Conditioning (ICHVAC22014), June 10-12, Tehran, Iran, 2014.
- 8- Zahra Shomali, Jafar Ghazanfarian, Abbas Abbassi, "**Investigation of solid argon film with temperature-dependent properties under the framework of highly non-linear Dual-Phase-Lag Model in a nanoscale geometry**", Proceedings of National Conference on Mechanical Engineering of Iran (NCMEI2014), February 27, Shiraz, Iran, 2014.
- 7- Jafar Ghazanfarian, Roozbeh Saghatchi, "**SPH Simulation of Fluid-Structure Interaction of Flow past a Water-Leaving Rotating Circular Cylinder**", Proceedings of

National Conference on Mechanical Engineering of Iran (NCMEI2014), February 27, Shiraz, Iran, 2014.

- 6- R. Saghatchi, M Gorji-Bandpy, J. Ghazanfarian, "**Water Impact and Sedimentation of Solid Bodies in a Newtonian Fluid using SPH Method**", Proceedings of International Conference on Mechanical Engineering and Advanced Technologies (ICMEAT2012), October 10-12, Isfahan, Iran, 2012.
- 5- J. Ghazanfarian, D. Ghanbari, "**2D Numerical Simulation of a Double Gear Pump using Dynamic Mesh**", Proceedings of International Conference on Mechanical Engineering and Advanced Technologies (ICMEAT2012), October 10-12, Isfahan, Iran, 2012.
- 4- J. Ghazanfarian, A. Abbassi, "**Numerical Investigation of Flow over Square Cylinder with Moving Walls and Incident Angle by CBS Method**", Proceedings of the 16<sup>th</sup> International Conference on Finite Elements in Flow Problems (FEF 2011), March 23-25, Munich, Germany, 2011.
- 3- I. Tasdighi, J. Ghazanfarian, "**Evaluation and Simulation of Surgery Room Air Conditioning System Using Fluent**", Proceedings of the 2nd Conference on Heating, Ventilating and Air Conditioning, June 1-3, Tehran, Iran, 2010.
- 2- J. Ghazanfariana, A. Abbassi, "**Simulation of Nano-scale Heat Conduction Using Dual-Phase-Lag Model and Introducing a General Time Dependent 1-D Model**", Proceedings of the 3rd Conference on Nanostructures (NS2010), March 10-12, Kish Island, Iran, 2010.
- 1- H. Basirat, J. Ghazanfarian, P. Forooghi, "**Implementation of Dual-Phase-Lag Model at Different Knudsen Numbers within Slab Heat Transfer**", Proceedings of the International Conference on Modeling and Simulation (MS'06), Aug 28-30, Konia, Turkey, 2006.

## LANGUAGES

- Persian (Mother tongue)
- English
- Turkish (Azari)
- French

## EXTRACURRICULAR ACTIVITIES

**Piano, Harmonica, and Melodica,**

**Basketball:** Bronze medal of interuniversity Olympiad games with the faculty basketball team (2009).

**Futsal:** Gold medal of interuniversity games for faculty members and staffs (2015).

Silver medal of interuniversity games for faculty members and staffs (2016).

Bronze medal of interuniversity games for faculty members and staffs (2016).