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Date of the Last Modification: January 26th 2013

EDUCATION

- **Ph.D.** Thermo-Sciences Division, Mechanical Engineering Department, **Stanford University**, June, 1981, Stanford, Ca., USA
Major: Turbulence, CFD. Dissertation:" Mixing of a Passive Scalar in Isotropic and Sheared Homogeneous Turbulence"
- **M.Sc.** Thermo-Sciences Division, Mechanical Engineering Department, **Stanford University**, Sept., 1977, Stanford, Ca., USA
- **B.Sc.** Mechanical Engineering Department, **Sharif University of Technology**, Jan., 1976, Tehran, Iran

EMPLOYMENT HISTORY

2013 **Visiting Professor**, University of Valenciennes, Valenciennes, France

2012-present **Professor**, Foolad Institute of Technology, Fooladshahr, Isfahan, Iran

2000-2012 **Professor**, Isfahan University of Technology (**IUT**), Isfahan, Iran

2002-2003 **Visiting Professor**, University of Toronto, Toronto, Canada

1990-2000 **Associate Professor**, Isfahan University of Technology (**IUT**), Isfahan, Iran

1989-1990 **Visiting Scientist**, Univ. of California, Davis, Mech. Eng. Dept., Davis, Ca., USA

1981-1989 **Assistant Professor**, IUT, Mechanical Engineering Department, Isfahan, Iran

1977-1981 **Research Assistant**, Stanford University, M.E. Dept., Stanford, Ca., USA

HONORS AND PROFESSIONAL AFFILIATIONS

Outstanding Faculty Member of Universities in Iran, Honored by Ministry of Higher Edu. 2000

Outstanding Research Administrator in Iran, Honored by Ministry of Higher Education, 2007

Outstanding Faculty Member of Mechanical Engineering Departments in Iran, Iranian Society of Mechanical Engineering, Iran, 2008

Outstanding Figure of 30 years of IUT Activities, 2008

Outstanding Faculty Member of Isfahan University of Technology, in Academic activities, 2006

Outstanding Faculty Member of Isfahan University of Technology, in Research activities, 2008

Outstanding Faculty Member of Isfahan University of Technology, for producing hottest research paper, 2008

Best Author of the Book, Tehran University, Year 2005

Outstanding Translator of the Books, Isfahan Province, Year 2005

Outstanding Translator of the Books, Isfahan Province, Year 2007

Senior Associate Member of Int. Center for Theoretical Physics, Trieste, Italy, 2005-2012

Fellow of ME branch of Iranian Academy of Science of Iran, 2004-present

Associate Member of International Center for Theoretical Physics, Trieste, Italy, 1998-2004

Member of Asian Fluid Mechanics Committee, Asia, 1997-present

The Emerging Nations Science Foundation, Member of Prize Committee for M.A.B. Bég Prize in Physics, Italy, <http://www.ensf-ngo.org/>, 2009-present

Senior Associate Member of Int. Center for Theoretical Physics, Trieste, Italy, 2014-2019

EXPERIENCES AND ADMINISTRATION WORKS

- **Membership**

Member of Board of Trustees, Foolad Institute of Tech., Fooladshahr, Isfahan, Iran, 2005-present

Member of Board of Trustees, Isfahan Science and Tech. Town, Isfahan, Iran, 1998-2010

Member of Seikhbahaee Scientific Festival, Isfahan, Iran, 1999-2002

Member of Promotion Committee of IUT, 1997-2010

- **Research Organizations**

Member of Nano-Technology Council, Isfahan Province, 2005-2007

Member of Research and Technology Committee, Isfahan Province, Isfahan, Iran, 2000-2002

Head of Organizing Committee, Isfahan Science and Tech. Town, Isfahan, Iran, 1996-1998

Member of Organizing committee, Isfahan Science and Tech. Town, Isfahan, Iran, 1994-

1996

Member of M.E. Committee, Scientific and Tech. Org., Isfahan Branch, 1993- 1998

Member of Applied Statistics Research Center, Isfahan University of Technology, 2007- 2010

Member of R&D, Underwater Research Center, IUT, Isfahan, Iran, 1998-2001

Member of R&D, Underwater Research Center, IUT, Isfahan, Iran ۱۹۹۱-۱۹۹۵

Head of Tech. Transfer of Erection of Thermal Power Plant Group, Isfahan, Iran, 1981-1983

- **Administration**

Head of Mechanical Engineering Department, IUT, Isfahan, Iran, 2008-2010

Vice-President for Research, Isfahan University of Technology, Isfahan, Iran, 2004-2005

Vice-Chancellor for Research, Isfahan University of Technology, Isfahan, Iran, 1998-2002

Head of Mechanical Engineering Department, IUT, Isfahan, Iran, 1992-1996

Head of Mechanical Engineering Department, IUT, Isfahan, Iran, 1985-1987

Chairman of Underwater Research Center, IUT, Isfahan, Iran, 1998-2001

Executive Head of Nano-Technology Council, Isfahan Province, 2005-2005

Head of Center of Excellence for Environmental Nano-Technology, Isfahan University of Technology, Isfahan, Iran, 2005-2007

Director of Planning of Science and Technology Corridor, Isfahan Province, 2006-2010

Head of Engineering Section of Promotion Committee, IUT, Isfahan, Iran, 2003-2010

Head of Energy Group, Isfahan Science and Technology Town, Isfahan, Iran, 1996-1998

Head of Graduate Division, Mechanical Engineering Dept., IUT, Isfahan, Iran, 1990-1991

Head of Graduate Division, Mechanical Engineering Dept., IUT, Isfahan, Iran. 1986-1988

Vice Chairman for Research, Mechanical Engineering Dept., IUT, Isfahan, Iran. 1984-1986

Head of R&D and Training Center for Ministry of Power in Isfahan, Iran, 1981-1983

- **Scientific Journals**

Director and Editor-in-Chief, Journal of Applied Fluid Mechanics, 2004-present

Editor-in-Chief, Isteghlal Journal, IUT, Isfahan, Iran, 2004-2004

Member of International Advisory Board of International Journal of Manufacturing Technology and Research, India, 2004-present

Regional Editor, Journal of Applied Sciences, 2000-2003

Member of Editorial Board, Esteghlal Journal, 2001-2010

Member of Editorial Board, J. of Numerical Methods in Mechanical Engineering, 2009-present

Member of Editorial Board, Journal of Numerical Methods, 2009-present

Member of Editorial Board of Fani-Mohandesi Journal, Mazandaran University, 2004-present

Member of Editorial Advisory Board, Amirkabir Journal, 1994-present

Reviewer of International Journal of Engineering, -present

Reviewer of International Journal of Engineering Sciences, -present

Member of Editorial Advisory Board, J. of Iranian society of ME. Farsi, 2000-present

Member of Editorial Advisory Board, J. of Iranian society of M.E. English, 2000-present

Member of Editorial Board, Scientia Iranica, Trans. B: Mechanical Engineering, 2009-present

Member of Advisory Board, J. of Eng. Education, Academy of Science of Iran, 2009 -present

- **Scientific Conferences**

Chairman of the Ninth Asian Congress of Fluid mechanics, Isfahan, Iran, 2002

Member of Higher Committee of International Congress in 1997-2000

Chairman of Second Fluid Mechanics Conference, Iran, 1993

Member of Organizing Committee of Engineering Education Conf. Iran, 2008

Member of Organizing and Scientific Committee of Fluid Dynamics Conf. Iran, 1991-present

Member of Organizing and Scientific Committee of International Conference in Nano-Technology, 2000

Member of Organizing and Scientific Committee of the First Conference in Nano-Technology in Environment, IUT, Iran, 2007

Member of Scientific Committee of the First Conference on Rotating Equipment in Oil and Power Industries, Tehran, Iran, 2008

Member of Scientific Advisory Committee of the Second International Conference on Energy conversion and Conservation, Tunisia, 2009

Member of Scientific Committee of the Second Conference on Rotating Equipment in Oil and Power Industries, Tehran, Iran, 2010.

Member of Scientific Committee of the 5th BSME International Conference on Thermal Engineering Dhaka, Bangladesh, 21 – 23 December, 2012

- **Scientific Societies**

Member of Iranian Society of Mechanical Engineers, Iran, 1994 -present

Member of Physical Society of Iran, 1991-present

Member of Combustion Society of Iran, 1999 -present

Associate Member of Iranian Hydraulic Association, Iran, 1994 -present

Honored Member of Iranian Society of Iron and Steel, 2003-present

Associate Member of Society Engineering Education, Academy of Science of Iran, 2009 - present

- **Others**

Member of Board of Trustees of Alumni Association of Isfahan University of Technology, 2005-2009

Member of Alumni Association of Sharif University of Technology, Isfahan Branch, 2005-

present

RECENT PUBLICATIONS: I. Journal Papers (*resent papers*)

Submitted Papers

- Golozar, M., Razavi, M.S. and Shirani, E., "Optimal architecture of vascular system and its effect on energy loss and flow resistance," Submitted for Publication in Journal of Biomechanics Engineering, 2014.
- Razavi, M.S., Shirani, E., Salimpour, M.R. and Kassab, G.S., "A New Aspect of Constructal Design: The Evolution of Vascularized Structures For Fluid Flow," Submitted for Publication in Journal of The Royal Society Interface, 2014.
- Meghdadi, A.H., Tasdighi, I. and Shirani, E., "Numerical study of gas flow in porous media with nanoscale using LBM and MD," submitted for publication in Modares Journal of Mechanics, 2014.
- Darvishzadeh, M., and Shirani, E., "Investigation of Transient Heat Transfer Rate through Synthetic Nonwoven Layers by Feed Forward Propagation Network," Submitted for Publication in Journal of Applied Polymer Science, 2013.
- Nematollahi, A., Shirani, E., Mirzaee, I. and Sadeghi, M.R., "Effects of shear-dependent transport properties on lumen surface concentration of LDL particles in stenosed carotid artery," Submitted for Publication in Meccanica, 2013.
- Nili-Ahmadabadi, M., Safari, M., Ghaee, A., Shirani, E., "Inverse Design of Airfoils using a Novel Method of Elastic Skin in Viscous Subsonic and Transonic Flows," Submitted for Publication in Modares Journal of Mechanics, 2013.
- Ghadiri, F., Shirani and E., Kheradmand, S., "Study of Deformation and Drag of moving Droplets," Submitted for Publication in Journal of Computers and Fluid, 2013.
- Safari, M., Nili-Ahmadabadi, M., Gaei, A. and Shirani, E., "A Novel Inverse Design Method for Airfoil Shape Design in Subsonic and Transonic Flow Regimes," Submitted for Publication in Computers and Fluids, 2013.
- Razavi, S.M., Shirani, E., "Optimal architecture of vascular system and its effect on energy loss and flow resistance," Submitted for Publication in Annals of Biomedical Engineering, 2013.
- Karimipour, A., Hosseinnezhad, A.R., D'Orazio, A., Jafari, S. and Shirani, E., "Simulation of Copper-Water nanofluid in a microchannel in slip flow regime using lattice Boltzmann method," Submitted for Publication in European Journal of Mechanics - B/Fluids, 2013.
- Meghdadi Isfahani, A.H., Tasdighi, I. and Shirani, E., "A joint lattice Boltzmann and molecular dynamics investigation for thermohydraulic simulation of nano flows through porous media," Submitted for Publication in International Journal of Thermal Sciences, 2013.
- Zare, M., Daneshi, M., Shirani, E. and Salimpour, M.R., "A Novel Approach for Prediction of 3-D Skin Structure Burning with Embedded Branched Vasculature," Submitted for Publication in Journal of Heat and Mass Transfer, 2013.
- Goodarzi, V. and Shirani, E., "An Empirical Correlating for Thermal Conductivity of Nanofluids Based on Interfacial Nanolayer and Brownian Motion," Submitted for Publication

in International Communication in Heat and Mass Transfer, 2012.

- Rahmati, A.R., Ashrafizaadeh, M. and Shirani, E., " An Incompressible Lattice Boltzmann Method on Non-Uniform Grids for Fluid Flow Simulation," Submitted for Publication in Journal of Fluids Engineering, 2012
- Hajmohammadi, M.R., Shirani, E. and Salimpour, M.R., "Optimal Distribution of Adiabatic Sections on a Pipe Wall Based on Constructal Theory," Submitted for Publication in ICHMT, 2011.
- Shirani, E., "Role and Necessity to Proceed Engineering Ethics Education in Iran," Submitted for Publication in Iranian Journal of Engineering Education, Academy of Science publication, Iran, 2011
- Zohravi, E., Shirani, E. and Sadeghi, M.R., "Numerical simulation of pulsatile blood flow in a complete bypass graft with occluded host artery and different anastomosis angles," Submitted for Publication in Medical Engineering & Physics, 2011.
- Shamshiri, M., Ashrafizaadeh, M. and Shirani, E., "Viscous Dissipation and Joule Heating Effects on Thermal Transport Characteristics of Mixed Pressure-driven and Electroosmotic Non-Newtonian Flows through Microannular Geometries," Submitted for Publication in International Journal of Thermal Sciences, 2012.
- Shamshiri, M., Ashrafizaadeh, M. and Shirani, E., "Numerical Investigation of Combined Pressure-driven and Electroosmotic Non-Newtonian Flows through a Typical Microannulus," Submitted for Publication in Journal of Colloid and Interface Science, 2012.
- Daneshi, M., Shirani, E., Salimpour, H.R., Ostad, "Conductive Heat Trees at Micro and Nano Scale for Cooling a heat Generating Rectangular Body," Submitted for Publication in Heat Transfer Engineering, 2012.
- Kolahdooz, E. Mohammadzade and Shirani, E., "Design, Simulation and Construction of a Piezoelectric Micropump with Modified-Type Microvalves," Submitted for Publication in Sensors & Actuators: A. Physical, 2012.
- Zohravi, E., Shirani, E. Sadeghi, M.R., "Hemodynamic analysis of pulsatile blood flow in a complete bypass graft with different anastomosis angles", Submitted for Publication in Scientia Iranica B, 2012.

Accepted/Published Papers

- Karami, M., Jarrahi, M., Shirani, E. and Peerhossaini, H., "Mixing enhancement in a chaotic micromixer using pulsating flow," Accepted for Publication in Journal of Fluid Engineering, 2014.
- Saghafian, M., Rajabi, R., Saberian I. and Shirani, E., "A Numerical Study on Slip Flow Heat Transfer in Micro-Poiseuille Flow Using Perturbation Method," Accepted for Publication in Journal of Applied Fluid Mechanics, 2014.
- Sayed Razavi, M., Shirani, E. and Salimpour, M.R., "Development of a general method for obtaining the geometry of microfluidic networks," Accepted for Publication in American Institute of Physics, 2013.

- Kolaheidouz, M.E., Mohammadzadeh, K., Shirani, E. and Ziaie-Rad, S., "Performance of piezoelectrically actuated micropump with different driving voltage shapes and frequencies," Accepted for Publication in Scientia Iranica B, 2013.
- Sayed-Razavi, M. and Shirani, E., "Development of a general method for designing microvascular networks using distribution of wall shear stress," Journal of Biomechanics, V. 46, pp. 2303-2309, 2013.
- Rahmati, A.R., Ashrafizaadeh, M. and Shirani, E., "Multi-Relaxation-Time Lattice Boltzmann Method on Non-Uniform Grids for Large Eddy Simulation of Rayleigh-Bénard Convection Using Two Sub-Grid Scale Models," Accepted for Publication in Journal of Applied Fluid Mechanics, 2013
- Mohammadzadeh, K., Kolaheidouz, E. and Shirani, E., "Numerical Study on the Performance of Tesla Type Microvalve in a Valveless Micropump in the Range of Low Frequencies," Accepted for Publication in Journal of Micro-Bio Robotics, 2013.
- Mohammadzadeh, K., Kolaheidouz, M.E., Shirani, E. and Shafii, M.B., "Numerical study on the effect of the number of stages on the performance of Tesla microvalve and comparison with nozzle/diffuser microvalve," Modares Journal of Mechanics, V. 12, N. 6, pp. 124-135, 2013.
- Mohammadzadeh, K., Kolaheidouz, M.E., Shirani, E. and Shafii, M.B., "Numerical Investigation on the effect of the size and number of stages on the Tesla microvalve efficiency," Journal of Mechanics, V. 29, No. 3, pp. 527-534, 2013.
- Karimipour A., Nezhad A.H., D'Orazio A., Shirani E., "The Effects of Inclination Angle and Prandtl Number on the Mixed Convection in the Inclined Lid Driven Cavity Using Lattice Boltzmann Method," Journal of Theoretical and Applied Mechanics, V. 51, No. 2, pp. 447-462, 2013.
- Salimpour, M.R., Sharifhassan, M. and Shirani, E., "Constructal Optimization of Microchannel Heat sinks with Non-Singular Cross Sections," Accepted for Publication in the International Journal of Heat Transfer Engineering, 2012.
- Karami, M., Shirani, E. and Avara, A., "Analysis of Entropy Generation, Pumping Power and Tube Wall Temperature in Aqueous Suspensions of Alumina Particles", Heat Transfer Research, V. 43, N. 4, pp.327-342, 2012.
- Hajmohammadi, M.R., Shirani, E. and Salimpour, M.R., "Constructal Placement of Unequal Heat Sources on a Plate Cooled by Laminar Forced Convection," International Journal of Thermal Sciences, V. 60, pp. 13-22, 2012.
- Nematollahi, A. Shirani, E. Mirzaee I. and Sadeghi, M. R., "Numerical Simulation of LDL Particles Mass Transport in Human Carotid Artery under Steady State Conditions," Scientia Iranica B, V. 19, No. 3, pp. 519-524, 2012.
- Nabi, S. and Shirani, E., "Simultaneous effects of Brownian Motion and Clustering of Nanoparticles on Heat Conductivity of Nanofluids," Iranian Journal of Science and Technology, V. 36, M1, pp. 53-68, 2012
- Darvishzadeh, M, Semnani, D, Shirani, E and Sheikhzadeh, M, "Improvement Modelling of Heat Transfer by Using Complex Neural Net in Fibrous Structures," Fibers and Polymers, V. 13, Issue 4, pp. 542-548, 2012
- Shamshiri, M., Ashrafizaadeh, M. and Shirani, E., "Rarefaction and dissipation effects on

transport phenomena associated with an immiscible two-phase flow within a shaft-housing micro configuration," International Journal of Heat and Mass Transfer, V. 55, issue 19-20, pp. 4996 – 5006, 2012.

- Karimipour A., Hossein Nezhad, A. and Shirani, E., "Investigation of the Gravity Effects on the Mixed Convection Heat Transfer in a Microchannel Using Lattice Boltzmann Method" International Journal of Thermal Sciences, V. 54, pp. 262-275, 2012.
- Shamshiri, M., Ashrafizaadeh, M. and Shirani, E., "Advantages and Disadvantages Associated with Introducing an Extra Rarefied Gas Layer into a Rotating Microsystem Filled with a Liquid Lubricant: First and Second Law Analyses," Energy, V. 45, Issue 1, pp. 716-728, 2012.
- Shamshiri, M., Ashrafizaadeh, M. and Shirani, E., " Effect of Rarefaction, Viscous Dissipation and Rotation Mode on the First and Second-Law Analysis of Rarefied Gaseous Slip Flows Confined between a Rotating Shaft and Its Concentric Housing," Energy, 37, pp. 359-370, 2012.
- Shamshiri, M., Ashrafizaadeh, M. and Shirani, E., "Investigation of Flow and Heat Transfer Characteristics of Rarefied Gaseous Slip Flow in Nonplanar Micro-Couette Configuration," International Journal of Thermal Sciences, 54, pp. 262-275, 2012.
- Rashidi, V., Mirdamadi, H.R. and Shirani, E., "A Novel Model for Vibrations of Nanotubes Conveying Nanoflow," Computational Materials Science, 51 (1), pp. 347-352, 2012.
- Sohrabpour, S., Yaghobi, M., Ghafari, M.M., Shakeri, M., Eslami, M.R., Shirani, E. and Pakpour, M., "Analysis of the Position of Think Tanks on Policy Making in Iran and Several Other Countries," Sharif Journal, Industrial Engineering and Management, V. 28-1, No. 1, 2012.
- Karimipour, A., Nezhad, A.H. , Shirani, E. and Safaei, A., "Simulation of fluid flow and heat transfer in inclined cavity using Lattice Boltzmann method," Proceedings of World Academy of Science, Engineering and Technology, 76, pp. 649-656, 2011.
- Sadeghi, M.R., Shirani, E., M. Tafazzoli-Shadpour and M. Samaee "The Effects of Stenosis Growth on the Hemodynamic Forces and Stress Phase Angle and Vice Versa," Journal of Biomechanics 44, 2614–2626, 2011.
- Homayoon, A. Meghdadi Isfahani, A.H., Shirani, E. and Ashrafizadeh, M., "A novel modified lattice Boltzmann method for simulation of gas flows in wide range of Knudsen number," International Communication in Heat and Mass Transfer, Vol. 38, pp. 827–832, 2011.
- Razavi, R., Shirani, E. and Sadeghi, M.R., "Numerical Simulation of Blood Pulsatile Flow in a Stenosed Carotid Artery Using Different Rheological Models," Journal of Biomechanics, Volume 44, No. 11, pp. 2021–2030, 2011.
- Shirani, E., Ghadiri, F. and Ahmadi, A., "Modeling and Simulation of Interfacial Turbulent Flows", Journal of Applied Fluid Mechanics, Special Issue, July, 2011.
- Ghadiri, F., Ahmed, D.H., Sung, H.J. And Shirani, E., 'Non-Newtonian Ink Transfer in Gravure-Offset Printing,' International Journal of Heat and Fluid Flow, Vol. 32, No. 1, pp. 308-317, Feb. 2011.
- Fazli, S., Shirani, E. and Sadeghi, M.R., "Numerical Simulation of LDL Mass Transfer in a Common Carotid Artery under Pulsatile Flows," Journal of Biomechanics, Volume 44, No. 1,

pp. 68–76, 2011.

- Salimpour, M.R., Sharifhassan, M. and Shirani, E., “Constructal Optimization of the Geometry of an Array in Microchannels,” *International Communication in Heat and Mass Transfer*, Vol. 38, No. 1, pp. 93-99, 2011.
- Nabavitatabayyi, M.R., Shirani, E., Rahimian, M.H., “Investigation Heat Transfer Enhancement Investigation in an Enclosure Filled with Nanofluids Using Multiple Relaxation Time Lattice Boltzmann Modeling,” (**Science Direct 12th Hottest Article of ICHMT, Jan-March, 2011**) *International Communication in Heat and Mass Transfer*, V. 38, No. 1, pp. 128-138, January 2011.
- Fathi, A.R., Jalilvand, R., and Shirani, E. “A New Analytical Relation for Pressure-Flow Rate Relationship in Small Regenerative Turbine Pumps,” Accepted for Publication in *Energy Sources*, 2010
- Alaei, A. R., Edris, H. and Shirani, E., “Upward Molten Flow for Optimization of Fluid flow in Continuous Casting Tundish,” *Iron and Steel Research*, Vol. 17, No. 11, pp. 29-33, 2010.
- Shokouhmand, H., Meghdadi Isfahani, A.H., Raisi Dehkordi, M. and Shirani, E., “Friction and heat transfer coefficient in micro channel filled with porous media for wide range of Knudsen number,” *Int. Comm. in Heat and Mass Transfer*, Volume 37, Issue 7, Pages 890-894, August 2010.
- Rahmati, A.R., Ashrafizaadeh, M. and Shirani, E., " Novel Hybrid Finite-Difference Thermal Lattice Boltzmann Models for Convective Flows," *Heat Transfer Research*, Vol. 40, No. 8, pp. 747-775, 2009
- Seifollahi, M., Shirani, E. and Ashgriz, N., “An Improved Method for Calculation of Interface Pressure Force in PLIC-VOF Methods,” (**Science Direct 23th Hottest Article of EJM-B, Academic Year 2009-2010**) *European Journal of Mechanics B/Fluids* V27, No. 1, pp 1-23, 2008.
- Ahmadi, A. and Shirani, E., “Interface Pressure Model for Surface Tension Force for VOF-Based Methods in Interfacial Flows,” *Engineering Applications of Computational Fluid Mechanics Journal*, Vol. 2, No. 4, pp. 496-513, 2008.
- Shirani, E. and Masoomi, S., "Deformation of a Droplet in a Channel Flow," *Journal of Fuel Cell Science and Technology*, VOL. 5, No. 4, ASME, 2008.
- Ahmadi, A. and Shirani, E., “Generalization of SGIP Surface Tension Force Model in Three-Dimensional Flows and Compare to Other Models in Interfacial Flows,” *International Journal of Mechanical Systems Science and Engineering* Vol. 2 No. 1, 2008
- Ahmadi, A. and Shirani, E., “Numerical Simulation of a Single Air Bubble Rising in Water with Various Models of Surface Tension Force,” *International Journal of Mechanical Systems Science and Engineering* Vol. 2 No. 1, 2008
- Maarooft, K., Nobari, M.R.H. and Shirani, E., “A Numerical Simulation of External Heat Transfer around Turbine Blades,” *Journal of Heat and Mass Transfer*, Volume 44, No.1, pp. 61-70, 2007.
- Jafari, A., Shirani, E. and Ashgriz, N., “An Improved Three-Dimensional Model for Interface Pressure Calculations in Free-Surface Flows,” *International Journal of Computational Fluid Dynamics* Vol. 21, No. 2, pp. 87-97 2007.

- Shirani, E. and Jafari, S., "Application of LBM in Simulation of Flow in Simple Micro-Geometries and Micro Porous Media," African Physical Review, No. 1, 2007.
- Talebi, M., Shirani, E. and Ashrafizade, M., "Large Eddy Simulations of Turbulent Flow across Tube Bundle Using a Hybrid LES Model and Parallel Coupled Multiblock Solver", Esteghlal Journal, V25, No.2, 2007.
- Shirani, E. "Novel Education in Mechanical Engineering", Iranian Journal of Engineering Education, No. 33, Volume 9, pp 14-23, Academy of Science publication, Iran, 2007
- Shirani, E., Jafari, A., and Ashgriz, N., "Turbulence Models for Flows with Free Surface and Interfaces," AIAA Journal, V44, No. 7, pp 1454-1462, 2006
- Ahmadikia, H. and Shirani, E., "Transonic and Supersonic Overtaking of a Projectile Preceding a Shock Wave", JAST, Vol. 2, No. 4, pp 47-55, 2005
- Talebi, M., Shirani, E. and Ashrafizade, M., "Large Eddy Simulations of Turbulent Flow across Tube Bundle Using Parallel Coupled Multiblock Navier-Stokes Solver", Journal of Applied Sciences, Asian Network for Scientific Information, 5(9): 1674-1687, 2005
- Shirani, E., Ashgriz, N. and Mostaghimi, J., "Interface Pressure Calculation Based on Conservation of Momentum for Front Capturing Methods", J. of Comp. Phys., 203, pp153-175, (**Science Direct 7th Hottest Article of JCP, Oct-Dec., 2004 and Science Direct 8th Hottest Article of JCP, Jan-March, 2005**), 2005
- Ghasemi, S. and Shirani, E., and Hajilouy, A., "Performance Prediction of Twin-Entry Turbocharger Turbines", Iranian Journal of Science and Technology, Transaction B, Engineering, Vol. 29, No. B2, pp. 145-155,, 2005
- Ameri, M. and Shirani, E., "Combination of Adaptive Grid Redistribution and Embedding Methods", Communication in Numerical Methods in Engineering, Vol. 20, No. 3, pp.229-240, John Wiley, 2004
- Ahmadikia, H. and Shirani, E., "Numerical Simulation of Thermo-Chemical Non-Equilibrium Hypervelocity Flows", Journal of Applied Sciences, Asian Network for Scientific Information, 4(1): 110-117, 2004.
- Sefollahi, M. and Shirani, E., "An Improved Method for Calculation of Interface Pressure Force in PLIC-VOF Methods", IC/2004/80.ICTP Publication, Italy, 2004
- Shirani, E., Ahmadikia, H., Talebi, F. and Mojib, J., "Use of Wind to Produce Energy in Kurdistan Province, Part One: Statistical Analysis and Wind Turbine Design" International Journal of Engineering Science, Iran Science and Technology University, Vol. 15, No. 4, 2003
- Ameri, M. and Shirani, E., "Effects of Directional Subdividing on Adaptive Grid Embedding," International Journal of Engineering, Vol. 16, No. 1, pp 71-78, 2003
- Ahmadikia, H. and Shirani, E., "Diffraction of a Moving Waves over Stationary and Moving Bodies," Iranian Journal of Science and Technology, Transaction B, Mechanical Engineering, V. 27, No. B3, pp. 563-572, Shiraz, 2003.
- Shirani, E., Daneshkhah, K., "Rotor-Stator interaction in Turbomachines," Journal of Applied

Sciences, 2002

- Shirani, E., Ahmadikia, H., "Evaluation of Roe's Method Using Different Limiters to Numerically Simulate Supersonic Axisymmetric and 2-D Viscous Flows," *Isteghlal Journal, IUT*, Vol. 19, No. 2, pp. 111-124, 2001
- Shirani, E., Zirak, S., "Numerical Analysis of Compressible Viscous Steady/Unsteady Flows in Cascades," Vol. 12, No. 47, pp. 254-262, *Amirkabir Journal*, 2001
- Shirani, E. and Ahmadikia, H., "Adaptation of Structured Grid for Supersonic and Transonic Flows," *International Journal of Engineering*, Vol. 14, No. 4, pp. 385-394, 2001
- Shirani, E. and Nasibi, H., "Numerical Simulation of Low-Reynolds Number Flow in In-line Tube Banks," *Journal of Applied Sciences*, Vol. 1, No. 3, pp. 275-282,, 2001
- Shirani, E., "Compressible Flow around a Circular Cylinder," *Journal of Applied Sciences*, Vol. 1, No. 4, pp. 472-476, 2001
- Talebi, S. and Shirani, E., "Numerical Simulation of Supersonic Over/Under Expanded Jets Using Adaptive Grid," *ICTP Publication, IC-2001-40*, pp. 1-19, *ICTP, Italy*, 2001.
- Ahmadikia, H. and Shirani, E., "Modified k-l Model and Its Ability to Simulate Supersonic Axisymmetric Turbulent Flows," *ICTP Publication, IC-2001-41*, pp. 1-8, *ICTP, Italy*, 2001.
- Shirani, E., Ahmadikia, H and Talebi, S., "Turbulence Models in Supersonic Flows", *ICTP Publication, IC-2001-44*, *ICTP*, pp. 1-19, *Italy*, 2001
- Ahmadikia, H. and Shirani, E., "Transonic and Supersonic Overtaking of a Projectile Preceding a Shock Wave," *ICTP Publication, IC-2001-48*, pp. 1-12, *ICTP, Italy*, 2001
- Daneshkhah, K. and Shirani, E., "Flow Interaction of Rotor-Stator Blades of Turbomachines," *Daneshkade Mohandesi Journal*, Vol. 13, No. 2, *Mashad*, 2001
- Shirani, E., Ashrafizade, M. and Saeedi, M.R., "Numerical Simulation of Viscous Flow in Mixed Flow Francis Turbine," *Journal of Daneshkade Fani, Tabriz University*, Vol. 27, pp57-66, *Tabriz*, 2001
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RECENT PUBLICATIONS: II. Conference Papers (*resent papers*)

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CFD

Undergraduate courses

Fluid Mechanics I & II
Thermodynamics
Heat Transfer
Thermal Power Plants
Introduction to CFD
Turbomachinery

Ph. D. Students

- Nili, Ongoing thesis.
- Zohravi, Elnazo-Sadat, Ongoing thesis.
- Alafzade, Ongoing thesis.

- Somaye-Yaghoobi, Ongoing thesis.
- Gadirai, F., Numerical Simulation of Droplet Deformation including the Effects of Surface Tension, 2012.
- Sadeghi, Experimental and numerical investigation of pulsatile flow through the models of stenotic arteries, 2012.
- Ahmadi, A., Study of interfacial incompressible flows using LES technique: Surface tension and turbulence modeling, 2009.
- Alaei, A.R, Optimization of melted Steel in Tandish for reduction of Aluminum Particles, 2010.
- Talebi, M., Parallel Computing of Large Eddy Simulation for Turbulent Flow around Tube Bundles, 2005
- Talebi, S., Numerical Simulation of supersonic plums, 2001
- Ahmadikia, H., A Turbulence Model Based on Length Scale for Compressible High Speed Flows, 2000
- Ameri, M., The Combination of Adaptive-Grid Redistribution and Embedding Methods, 1999
- Zirak, S., Numerical Solution of Compressible Flows in Turbomachinery, 1999