

# Resume

## Dr. MOHAMMAD MAHDI HEYHAT

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## Education

### ➤ Ph.D (Energy Conversion), 2012

School of Mechanical Engineering,  
University College of Engineering, University of Tehran, Tehran, Iran

**Ph.D Thesis:** “*Experimental and Numerical Study of Convective Heat Transfer and Pressure Drop of Nanofluid Through a Horizontal Tube with Theoretical Study of Particle Migration*”.

**Supervisor:** Prof. F. Kowsary, Faculty of Mechanical Eng., University of Tehran.

**Advisor:** Dr. A. Rashidi, Institute of Petroleum, Nano-technology Research Centre, Tehran

### ➤ Master of Science (Energy Conversion), 2007

School of Mechanical Engineering,  
University College of Engineering, University of Tehran, Tehran, Iran

**MS Thesis:** “*Numerical Study of Laminar Mist Impinging Jet onto a Flat Plate*”.

**Supervisor:** Prof. H. Shokouhmand, Faculty of Mechanical Eng., University of Tehran.

**Advisor:** Dr. M. Raisee Dehkordi

### ➤ Bachelor of Science (Mechanical Eng., Heat and Fluids), 2005

Faculty of Engineering,  
Ferdowsi University of Mashhad. , Mashhad, Iran.

**Bachelor Thesis:** “*Numerical Study of Cavitating Flow with Fluent*”.

**Supervisor:** Dr. M. Pasandideh Fard, Dep. of Mech. Eng., Ferdowsi University of Mashhad, Mashhad.

## Employment and Research Experience

Assistant Professor, Tarbiat Modares University, 2014-present

Assistant Professor, K. N. Toosi University of Technology, 2012-2014

Teacher in Islamic Azad University, 2009-2015

Researcher of Nano-technology Research Centre, Institute of Petroleum, 2010-2012

Referee of ISI international journals.

## Research Interest

- Experimental and Numerical Heat Transfer (conduction, convection, radiation)
- Heat transfer enhancement

- Nanofluid heat and fluid flow
- Inverse heat transfer
- Particulate flow
- Exergy analysis and thermo-dynamical design
- Microfluidics & Nanofluidics
- Two-phase flow heat transfer
- Heat Exchangers
- Optimization of Thermal Systems

### Honors and Achievements

- *Selected Ph.D Thesis from Iranian society of mechanical engineering in 2012.*
- *1st Rank among Fluid mechanic B.SC Students in 2005.*
- *1st Rank among energy conversion attendees of phd entrance exam in university of Tehran in 2007.*

### Publications (Selected Journal and Conference Papers)

#### Journals

- ✚ H. Shokouhmand, **M. M. Heyhat**, “A Numerical Study on Heat Transfer Enhancement in a Mist/Air Impingement Jet” J. Enhanced Heat Transfer, Vol. 17, Issue 3, 2010.
- ✚ S. Moaveninejad , **M. M. Heyhat**, “Study of a Variable Conductance Two-Phase Closed Thermosyphon with Two-Component Working Fluid”, Heat Transfer Engineering, vol. 31, No. 13, 2010.
- ✚ **M. M. Heyhat**, F. Kowsary, “Effect of Particle Migration on Flow and Convective Heat Transfer of Nanofluids Flowing through a Circular Pipe” ASME, Journal of Heat Transfer, Vol. 132, JUNE 2010.
- ✚ F. Kowsary, **M. M. Heyhat**, “Numerical Investigation into the Heat Transfer Enhancement of Nanofluids Using a Nonhomogeneous Model”, J. Enhanced Heat Transfer, Vol. 18, issue 1, 2011.
- ✚ **M. M. Heyhat**, F. Kowsary, “Numerical simulation of forced convection of nanofluids by a two-component non-homogenous model” International Journal of Engineering, Vol. 23, No. 1, January 2010.
- ✚ F. Kowsary, **M. M. Heyhat**, “Heat Conduction in a Nanofluid Layer Considering the Particle Migration due to Brownian Diffusion and Thermophoresis”, Nanomechanics Science and Technology: An International Journal, Vol. 1, issue 3, 2010.
- ✚ **M. M. Heyhat**, N. Khabazi, “Non-Isothermal Flow of Maxwell Fluids above Fixed Flat Plates Under the Influence of a Transverse Magnetic Field”, Proceedings of the institution of mechanical engineers: Part C- Journal of mechanical engineering science, Vol. 225, pp.909-916.
- ✚ M.H. Kayhani, H. Soltanzadeh, **M.M. Heyhat**, M. Nazari, and F. Kowsary, Experimental study of convective heat transfer and pressure drop of TiO<sub>2</sub>/water nanofluid, International Communications in Heat and Mass Transfer 39 (2012) 456-462.
- ✚ **M. M. Heyhat**, F. Kowsary, A.M. Rashidi, S. Alem Varzane Esfehiani, and A.

Amrollahi, Experimental investigation of turbulent flow and convective heat transfer characteristics of alumina water nanofluids in fully developed flow regime, *International Communications in Heat and Mass Transfer* 39 (2012) 1272–1278.

✚ **M. M. Heyhat**, F. Kowsary, A.M. Rashidi, M.H. Momenpour, A. Amrollahi, Experimental investigation of laminar convective heat transfer and pressure drop of water-based  $\text{Al}_2\text{O}_3$  nanofluids in fully developed flow regime, *Experimental Thermal and Fluid Science* 44 (2013) 483–489.

✚ A.H. Meghdadi Isfahani, **M.M. Heyhat**, Experimental study of nanofluids flow in a micromodel as Porous Medium, *International journal of nanoscience and nanotechnology*, accepted for publication.

✚ J. M. Salehi, **M. M. Heyhat** and A. Rajabpour, Enhancement of thermal conductivity of silver nanofluid synthesized by a one-step method with the effect of polyvinylpyrrolidone on thermal behavior, *Appl. Phys. Lett.* 102, (2013), DOI: 10.1063/1.4809998.

✚ M.H. Kayhani, M. Nazari, H. Soltanzadeh, **M.M. Heyhat**, F. Kowsary, Experimental analysis of turbulent convective heat transfer and pressure drop of  $\text{Al}_2\text{O}_3$ /water nanofluid in horizontal tube, *Micro & Nano Letters*, 2012, Vol. 7, Iss. 3, pp. 223–227.

✚ A. Ghasemi, M.Shams, **M.M.Heyhat**, Modeling Gas Liquid Cylindrical Cyclone Separator and Optimizing Effective Geometry Parameters, *Modares Mechanical Engineering*, Vol.15, No.4, pp.67–75, 2015 (In Persian)

✚ H. Imani, A. Cheraqi, A. Jafarian, **M. M. Heyhat**, Numerical simulation of  $\text{Al}_2\text{O}_3$ -water nanofluid mixed convection in an inclined annulus, *Energy Equipment and Systems*, Volume 3, Issue 2, Summer and Autumn 2015, Page 97–111.

✚ A. Behrangzade, **M. M. Heyhat**, The effect of using nano-silver dispersed water based nanofluid as a passive method for energy efficiency enhancement in a plate heat exchanger, *Applied Thermal Engineering* 102 (2016) 311–317.

✚ A. Ghasemi, M. Shams, M. M. Heyhat, A numerical scheme for optimizing gas liquid cylindrical cyclone separator, *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*, 2017.

✚ A. H. Nazari, M. M. Heyhat, A. Torabi Farsani, R. Maddahian, Investigating the Effecting Phenomena on the asphaltene Particle Deposition in Crude Oil Preheaters Using the Eulerian-Lagrangian approach, *Modares Mechanical Engineering*, 2018.

✚ M. M. Heyhat, A. Irannezhad, Experimental investigation on the competition between enhancement of electrical and thermal conductivities in water-based nanofluids, *Journal of Molecular Liquids*, 2018.

✚ M. M. Heyhat, A. Abdi, A. Jafarad, Performance evaluation and exergy analysis of a double pipe heat exchanger under air bubble injection, *Applied Thermal Engineering*, 2018.

M. M. Heyhat, A Rajabpour, M Abbasi, S Arabha, Importance of nanolayer formation in nanofluid properties: Equilibrium molecular dynamic simulations for Ag-water nanofluid, *Journal of Molecular Liquids*, 2018.

### **Conference**

✚ H. Shokouhmand, **M. M. Heyhat**, “Numerical study of heat transfer in a laminar mist/air confined jet impingement.”, *The 5th IASME/WSEAS International Conference on Heat transfer, Thermal Engineering and Environment (HTE’07)*, 2007, Athens, Greece.

- ✚ H. Shokouhmand, **M. M. Heyhat**, A. Ahmadzadegan, “Buoyancy Effects on a Mist/Air Impingement Jet”, Proceeding of the World Congress on Engineering (WCE), U.K., 2–4 July, 2008.
- ✚ **M. M. Heyhat**, M. Moghiman, Sh. Mahjoub, "Comparison of Mist Effect on the Heat Transfer Coefficient and Skin Friction Factor in an Impinging Jet," iccsa, pp. 245–251, 2008 International Conference on Computational Sciences and Its Applications, 2008.
- ✚ **M. M. Heyhat** and N. Khabazi, “MAGNETOHYDRODYNAMIC (MHD) BLASIIUS FLOW OF AN UPPER–CONVECTED MAXWELL FLUID”, 17<sup>th</sup> Annual (International) Conference on Mechanical Engineering–ISME2009, May, 2009, University of Tehran, Iran.
- ✚ H. Shokouhmand, S. Moaveninejad, **M. M. Heyhat** “Flow Fields in a two fluids component closed thermosyphon” Proceedings of the Third International Conference on Modeling, Simulation and Applied Optimization Sharjah, U.A.E, January 20–22, 2009.
- ✚ S. Moaveninejad, **M. M. Heyhat** “PRESSURE GRADIENT VARIATIONS DURING REFLUX CONDENSATION IN A CLOSED THERMOSYPHON” Proceedings of HT2009, 2009 ASME Summer Heat Transfer Conference, July 19–23, 2009, San Francisco, California USA.
- ✚ **M. M. Heyhat**, F. Kowsary, S. Alem, “Effect of thermophysical properties models on the predicting of convective heat transfer of nanofluids with considering nanoparticles migration” HEFAT 2010.
- ✚ **M. M. Heyhat**, F. Kowsary, M. Emami, S. Alem, “Prediction of Heat Transfer due to presence of Al<sub>2</sub>O<sub>3</sub>/Water Nanofluid in a Circular Tube Using an Artificial Neural Network” HEFAT 2010.
- ✚ SH. Mahjoub, **M. M. Heyhat**, “Interfacial shear stress modeling by mass transfer condensation on condensation in inclined channel” HEFAT 2010.
- ✚ **M. M. Heyhat**, F. Kowsary, A. M. Rashidi, M.H. Momenpour, A. Amrollahi, Experimental determination of thermophysical properties of nanofluids containing spherical alumina nanoparticles, 20th Annual International Conference on Mechanical Engineering–ISME2012, 16–18 May, 2012, Shiraz University, Shiraz, Iran.
- ✚ **M. M. Heyhat**, A.M. Rashidi, F. Kowsary, Experimental investigation on thermophysical properties of TiO<sub>2</sub>–water nanofluids, 15th Iranian Physical Chemistry Conference, University of Tehran, 3–6 September, 2012.
- ✚ A Rajabpour, **M. M. Heyhat**, Temperature Effect on the Viscosity of Silver Nanofluid A Molecular Dynamics Study, 25th annual international conference on mechanical engineering, 2017.
- ✚ **M. M. Heyhat**, A Rajabpour, M Abbasi, S Arabha, Interfacial Nanolayer Effects on Density and Viscosity of Nanofluids A Molecular Dynamic Study, 2018, Hot Colloids, Ecole Normale de Lyon, France.