

## MAHMOUD FARROKHI

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### Ph.D. in Chemical Engineering

Ferdowsi University of Mashhad, Mashhad, Iran

Dissertation: Decentralized Combined Heat & Power for Residential Buildings Using Natural Gas

### TEACHING COURSES LIST

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- Chemical Engineering Thermodynamics I & II
- Heat Transfer I & II
- Natural Gas Transmission & Distribution
- Chemical Engineering Software Workshop (Aspen-Hysys)
- Natural Gas Conditioning & Processing
- Advanced Thermodynamics
- Advanced Transport Phenomena

### JOURNAL PUBLICATIONS

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- A. Kazemi-Beydokhti, F. Neyestani, **M. Farrokhi**, “Simulation of flare gas recovery unit using liquid ring and centrifugal compressors”, Iranian Journal of Chemistry and Chemical Engineering, Article in Press, Published Online on 22 June 2021.
- A. Rahimi, **M. Farrokhi**, M.S. Hatamipour, M. Moradi, “Mathematical modeling and experimental study of a two-stage fixed-bed heat storage system for heat recovery of flue gases”, International Journal of Heat and Mass Transfer 159 (2020) 120125.
- A. Kazemi-Beydokhti, **M. Farrokhi**, E. Menna, “Carbon nanotube nanofluid for the efficiency improvement of a CHP system: simulation and experimental investigation”, Journal of Thermal Analysis and Calorimetry (2019), Published: 12 October 2019, doi:10.1007/s10973-019-08857-7.
- M. Kahani, M. Zamen, **M. Farrokhi**, “Thermal evaluation of using thermosyphon heat exchangers instead of Ljungstrom in boiler of Mashhad steam power plant”, Iranian Journal of Chemistry and Chemical Engineering 39 (2020) 273-289.
- H. Hedarzadeh Darzi, S. Gilani, **M. Farrokhi**, S.M.M. Nouri, G. Karimi, “Textural and structural characterizations of mesoporous chitosan beads for immobilization of alpha-amylase: diffusivity and sustainability of biocatalyst”, International Journal of Engineering (IJE), IJE TRANSACTIONS B: Applications, Vol. 32, No. 2 (2019) 284-291.
- **M. Farrokhi**, H. D. Heydarzadeh, S.M.M. Nouri, “CO<sub>2</sub> removal by Ca-based sorbents in a packed bed reactor: Kinetic study and Aspen Plus simulation”, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 39 (2017) 867-873.

- **M. Farrokhi**, S.H. Noie, A.A. Akbarzadeh, “Preliminary experimental investigation of a natural gas-fired ORC-based micro-CHP system for residential buildings”, *Applied Thermal Engineering* 69 (2014) 221-229.

## CONFERENCES & PRESENTATIONS

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- F. Mokarrami, S.M.M. Nouri, A. Khoshshima, **M. Farrokhi**, “Heat Analysis and Pinch Analysis of Khorasan Petrochemical Steam Power Plant”, The 10<sup>th</sup> International Congress of Chemical Engineering & Exhibition, May 6-9, 2018, Isfahan University, Isfahan, Iran.
- H. Hedarzadeh Darzi, S. Gilani, **M. Farrokhi**, S.M.M. Nouri, “Optimization of Immobilization Conditions of Porcine Pancreas Lipase on Amberlite XAD7”, The 10<sup>th</sup> International Congress of Chemical Engineering & Exhibition, May 6-9, 2018, Isfahan University, Isfahan, Iran.
- H. Hedarzadeh Darzi, S. Gilani, S.M.M. Nouri, **M. Farrokhi**, “Pectinase Immobilization on Chitosan Beads via Different Methods of Adsorption”, The 10<sup>th</sup> International Congress of Chemical Engineering & Exhibition, May 6-9, 2018, Isfahan University, Isfahan, Iran.
- A. Sohi, **M. Farrokhi**, S. M. Nowee, S. H. Noie, “Conversion of low-grade thermal energy into electricity using the trilateral flash cycle”, The 5<sup>th</sup> Conference of Thermodynamics, November 22-23, 2017, Faculty of Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.
- S. Faghani, **M. Farrokhi**, S. M. M. Nouri, “Dimethyl ether synthesis from syngas; Optimization and thermodynamic simulation”, The 5<sup>th</sup> Conference of Thermodynamics, November 22-23, 2017, Faculty of Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.
- A. Mosallanejad, S. B. Hosseini, **M. Farrokhi**, S. H. Hajiabadi, “Feasibility study of microemulsion enhanced oil recovery using non-ionic surfactant”, The 4<sup>th</sup> National Conference on Oil, Gas and Petrochemical and related Industries, October 18-19, 2017, Shahid Bahonar University, Kerman, Iran.
- R. Eizi, **M. Farrokhi**, S. M. M. Nouri, “Desalination of saline water by membrane distillation technology”, The 4<sup>th</sup> National Conference on Separation Science and Engineering, May 24-25, 2017, Babol Noushivani University of Technology, Babol, Iran.
- A. Nasiri, M. B. Karami, S. M. M. Nouri, **M. Farrokhi**, “Simulation of carbon dioxide capture from syngas at a GTL plant: A parametric Study”, The 4<sup>th</sup> National Conference on Separation Science and Engineering, May 24-25, 2017, Babol Noushivani University of Technology, Babol, Iran.
- M. Najafi, **M. Farrokhi**, H. D. Heydarzadeh, S. M. M. Nouri, “Comparative study of air pollutants emission models”, 4<sup>th</sup> National Conference on Chemistry, Chemical Engineering and Nanotechnology, December 14-15, 2016, Tehran University, Tehran, Iran.
- S. M. M. Nouri, **M. Farrokhi**, H. D. Heydarzadeh, “Investigation of carbon monoxide oxidation reaction catalysts in the car exhaust”, The 4<sup>th</sup> National Conference on Chemistry, Chemical Engineering and Nanotechnology, December 14-15, 2016, Tehran University, Tehran, Iran.
- H. D. Heydarzadeh, S. M. M. Nouri, **M. Farrokhi**, “Investigation of the biofuel production from the waste of dairy industry”, The 4<sup>th</sup> National Conference on Chemistry, Chemical Engineering and Nanotechnology, December 14-15, 2016, Tehran University, Tehran, Iran.
- H. D. Heydarzadeh, D. Charghani, **M. Farrokhi**, “Biological removal of phenol from the industrial wastes using the activated sludge”, The 3<sup>rd</sup> National Conference on Innovative Technologies in

Chemistry, Petrochemical and Nanotechnology, May 30-31, 2016, Shahid Beheshti University of Tehran, Tehran, Iran.

- **M. Farrokhi**, M. Kahani, “Power generation from waste heat using the trilateral flash cycle”, The 9<sup>th</sup> International Chemical Engineering Congress and Exhibition (ICChEC 2015), December 26-28, 2015, Shiraz University, Shiraz, Iran.
- M. Kahani, **M. Farrokhi**, S. H. Zeinali, “Numerical investigation of Al<sub>2</sub>O<sub>3</sub>/water nanofluid laminar convective heat transfer through a helical pipe”, The 9<sup>th</sup> International Chemical Engineering Congress and Exhibition (ICChEC 2015), December 26-28, 2015, Shiraz University, Shiraz, Iran.
- F. Saremi, S. M. M. Nouri, **M. Farrokhi**, “Investigation of convective heat transfer in a two layer system of water-benzene”, The 4<sup>th</sup> National Conference of Chemistry and Chemical Engineering (with Nano Industry Development Approach), December 15-16, 2015, Azad University of Quchan, Quchan, Iran.
- J. Abbasnia, **M. Farrokhi**, “Performance simulation of different working fluids in Rankine cycle”, The 4<sup>th</sup> Conference of Thermodynamics, October 28-29, 2015, Semnan University, Semnan, Iran.
- **M. Farrokhi**, S. M. M. Nouri, “Performance assessment of an Organic Rankine cycle and a trilateral flash cycle in utilizing low grade heat”, The 2<sup>nd</sup> National Conference on Innovative Technologies in Chemistry and Petrochemical, May 14, 2015, Shahid Beheshti University of Tehran, Tehran, Iran.
- **M. Farrokhi**, S. M. M. Nouri, “Thermodynamic study of carbon dioxide reaction with calcium oxide”, The 2<sup>nd</sup> National Conference on Innovative Technologies in Chemistry and Petrochemical, May 14, 2015, Shahid Beheshti University of Tehran, Tehran, Iran.
- **M. Farrokhi**, “Thermodynamic and environmental performance study of some dry and isentropic fluids in the organic Rankine cycle”, International Conference on Environmental Science, Engineering and Technologies (CESET), May 5-6, 2015, Tehran University, Tehran, Iran.
- **M. Farrokhi**, M. Kahani, “Optimization of energy consumption through combined production of heat and power”, International Conference on Environmental Science, Engineering and Technologies (CESET), May 5-6, 2015, Tehran University, Tehran, Iran.
- **M. Farrokhi**, S. H. Noie, A. A. Akbarzadeh, “ORC-based power generation from low-grade heat sources”, The 3<sup>rd</sup> National Conference of Fuel, Energy & Environment, September 17-18, 2013, Materials and Energy Research Center, Karaj, Iran.
- **M. Farrokhi**, M. A. S. Fanaei, H. M. Rajabi, “Natural gas demand modeling for the province of Khorasan”, The 1<sup>st</sup> National Conference on Oil, Gas and Petrochemical, May 31 - June 2, 2008, Azad University of Gachsaran, Gachsaran, Iran.

## RESEARCH PROJECTS

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- Industrial research project entitled “Feasibility study of salt fortification with iron and folic acid”; Faculty of Petroleum and Petrochemical Engineering, Hakim Sabzevari University; the project was supervised by NAMAKAL Company; September 2020 – June 2021.
- Research project entitled “Design and manufacture of dual - purpose hydrothermal reactor for core aging and nanomaterial synthesis at high temperature and pressure”; Faculty of Petroleum and Petrochemical Engineering, Hakim Sabzevari University; the project was supervised by the Research Deputy of Hakim Sabzevari University; January 2019 – May 2019.
- Industrial research project entitled “Preparation of technical knowledge of masterbatch production with improved antioxidant and lubrication properties”; Faculty of Petroleum and Petrochemical

Engineering, Hakim Sabzevari University; the project was supervised by ERAM SANAT RAZAVI Company; February 2018 – December 2018.

- Collaborated in natural gas committee of a comprehensive research project entitled “Comprehensive energy project of the Khorasan province”; Research Center of Energy Consumption Optimization, Ferdowsi University of Mashhad; the project was supervised by the provincial governor and gas company of Khorasan province; January 2006 – September 2007.

## **ACADEMIC EXPERIENCE**

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- **Dean of Faculty** August 2017 – January 2020  
Faculty of Petroleum and Petrochemical Engineering, Hakim Sabzevari University, Sabzevar, Iran
- **Head of the Department** May 2015 – March 2017  
Department of Chemical Engineering, Hakim Sabzevari University, Sabzevar, Iran
- **Assistant Professor** September 2014 – Present  
Faculty of Petroleum and Petrochemical Engineering, Department of Chemical Engineering, Hakim Sabzevari University, Sabzevar, Iran