

Soleiman Mosleh



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Curriculum Vitae

Short Biography

Soleiman Mosleh is Assistant Professor of Chemical Engineering at the Yasouj University, Iran. He is author of numerous publications on process intensification (PI), carbon capture, environmental pollution control, wastewater treatment, and sustainable processing. The current research interests of Dr. Mosleh focus on the intensification of separation and reaction processes using green technologies. Currently, He is setting up a research lab called novel Separation Technologies at Department of Petroleum and Gas, Yasouj University, Gachsaran, Iran.

Skill Highlights

- Designing and fabrication of devices based on PI-technology
- Utilizing novel techniques to intensify processes
- Synthesis and production of novel materials
- Modeling and Simulation in Chemical Engineering

Work Experience

Academic: Assistant Professor of Chemical Engineering, Department of Gas and Petroleum, Yasouj University, Gachsaran 75918-74831, Iran. (Since 23/09/2017)

Contract Type: Full-Time Faculty

Educational Background

Degree: Ph.D.

Field: Chemical Engineering, Advanced.

College: Yasouj University

Year: 2017

Thesis: Process Intensification of Photocatalytic Degradation in Wastewater Treatment Using Rotating Packed Bed.

Degree: M.Sc. degree

Field: Chemical Engineering, Separation processes.

College: Yasouj University

Year: 2012

Thesis: Experimental study and simulation of carbon dioxide absorption process using rotating packed bed.

Degree: Bachelor's degree

Field: Chemical Engineering (Refinery, Petrochemical and Gas).

College: Yasouj University

Year: 2010

Thesis: Simulation of the phthalic anhydride production reactor using Comsol Multiphysic software.

Curriculum Vitae

Book

- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh**. Intensification of Sorption Processes: Active and Passive Mechanisms. Elsevier, (eBook ISBN: 9780128214121), 2021.
- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh**, Sahar Zamani, "Intensification of separation processes", Yasouj University Publications (2017), ISBN:9786009545285.

Book Chapters

- ❖ **Mosleh, Soleiman**, and Mehrorang Ghaedi. "Photocatalytic reactors: Technological status, opportunities, and challenges for development and industrial upscaling." Interface Science and Technology. Vol. 32. Elsevier, 2021. 761-790.
- ❖ **Mosleh, Soleiman**, Mahmood Reza Rahimi, and Mehrorang Ghaedi. "New materials and equipment for photocatalytic degradation processes." Interface Science and Technology. Vol. 32. Elsevier, 2021. 673-723.
- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh**. "Intensification of Textile Wastewater Treatment Processes." UI-Islam S, Butola BS (eds) Advanced textile engineering materials (Online ISBN:9781119488101). Scrivener, Salem, (2018) pp.329-387

Honours and awards

- ❖ Gain the first rank of the Competition for Outstanding PhD Thesis Award in the 6th period of this national competition which was held for expanding the fundamental and applied research in the area of quality, waste, and water recycling, on December 1, 2021.
- ❖ Ph.D. Thesis as a Superior Academic Advancement in Nanotechnology, Iran Nanotechnology Initiative Council, 9 October 2017.
- ❖ Outstanding Graduate Student of the Year (Degree: Bachelor), Awarded by Yasouj University, Chemical Engineering Department, 2010.
- ❖ Outstanding Graduate Student of the Year (Degree: M.Sc.), Awarded by Yasouj University, Chemical Engineering Department, 2012.
- ❖ Outstanding Graduate Student of the Year (Degree: Ph.D.), Awarded by Yasouj University, Chemical Engineering Department, 2017.
- ❖ Student top Researcher Award, Awarded by Yasouj University, Chemical Engineering Department, 2013.

Patents

- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh**, Photocatalytic rotating packed bed reactor for wastewater treatment, 10.22104/IROST.1396.145. (Iranian Research Organization for Science and Technology).
- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh**, Rotating packed bed device for absorption of carbon dioxide, state organization for registration of deeds and properties intellectual property Centre, No. 88825, 5 June 2016.

Journals reviewer

- ❖ Ultrasonics Sonochemistry journal, ISSN: 1350-4177.
- ❖ Chemical and Biochemical Engineering Quarterly Journal, ISSN: 0352-9568.
- ❖ Journal of Selected Topics in Energy, ISSN: 2588-4905.
- ❖ Journal of Environmental Science and Technology, ISSN: 2008-3516.
- ❖ Advances in Environmental Technology Journal, ISSN: 2476-4779.
- ❖ Journal of Modeling in Engineering, ISSN: 2008-4854.
- ❖ Journal of Applied Research in Water and Wastewater, Online ISSN: 2476-6283.

Teaching Experience

- ❖ Mass Transfer

Curriculum Vitae

- ❖ Heat Transfer
- ❖ Unit Operation
- ❖ Thermodynamics
- ❖ Basic Principles and Calculation in Chemical Engineering
- ❖ Kinetics and Reactor Design (Chemical Reaction Engineering)
- ❖ Control Process
- ❖ The fundamentals of design and integration of processes

Projects

- ❖ Process Intensification of AOPs in wastewater treatment.

Students Projects

- ❖ Smart polymers for drug delivery, Narges Aghaei, 2019.
- ❖ Smart polymers: Energy storage, Mina Zohrabi, 2019.
- ❖ Smart polymers: Oil enhance recovery, Atefe Samimi, 2019.
- ❖ Simulation of PVDC production reactor, Shriin Heidari, Alireza Ghaffari Baay, Reza Doosti, 2018.
- ❖ Super hydrophobic nanofibers, Afshin Khoubejad, 2017.
- ❖ Polymeric Gas Separation Membranes, Ghaem Khodabakhshlo, 2017.
- ❖ Self-cleaning composite coatings, Pedram Fasihi, 2017.
- ❖ Nano-Fibres for water and wastewater treatment, Mohammad Falahzadeh, 2017.
- ❖ Nanocomposites: Antimicrobial and anti-corrosion properties, Saeid Gashtasebi, 2017.
- ❖ Biodegradable polymers, Yasin Fereidouni, 2016.
- ❖ Self-cleaning polymer coatings, Seraj-addin Sajadikhah, 2016

Research Interest

- ❖ Process Intensification
- ❖ Separation processes
- ❖ Nanotechnology
- ❖ Advanced Oxidation Processes (AOPs)
- ❖ Wastewater Treatment
- ❖ Carbon Capture
- ❖ Environmental pollution control
- ❖ Degradation processes

PUBLICATIONS

- ❖ Mosleh, Soleiman, et al. "Ce/Eu redox couple functionalized HKUST-1 MOF insight to sono-photodegradation of malathion." Journal of Hazardous Materials 409 (2021): 124478.
- ❖ Moshkriz, Ali, Reza Darvishi, Abolfazl Barati, Mahdi Askari, and Soleiman Mosleh. "Preparation and evaluation of thermoplastic vulcanizate/organo-modified layered double hydroxide nanocomposite: Statistical modelling and optimization." Materials Today Communications 26 (2021): 102046.
- ❖ Mosleh, Soleiman, Ali Hosseini, and Zahra Alipour. "Simulation-based optimization for multi-stage crude oil production units: Economic evaluation and decision-making process." Journal of Chemical and Petroleum Engineering (2022).
- ❖ Jaber, Hassan, Soleiman Mosleh, Kheibar Dashtian, and Zaker Salehi. "Fluid based cigarette carbonaceous hydrochar supported ZIF-8 MOF for CO₂ capture process: the engineering parameters determination for the packed bed column design." Chemical Engineering and Processing-Process Intensification, 2020, 153,108001.
- ❖ Jaber, Hassan, Soleiman Mosleh, and Kheibar Dashtian. "Development of Cigarette Carbonaceous

Curriculum Vitae

Hydrochar/ZIF-67-Based Fluids for CO₂ Capture from a Gas Stream in a Packed Column: Mass-Transfer Performance Evaluation.", *Energy Fuels* 2020, 34, 6, 7295–7306.

- ❖ Amiri, Maryam, Kheibar Dashtian, Mehrorang Ghaedi, and **Soleiman Mosleh**. "A dual surface inorganic molecularly imprinted Bi₂WO₆-CuO/Ag₂O heterostructure with enhanced activity-selectivity towards the photocatalytic degradation of target contaminants." *Photochem. Photobiol. Sci.*, 2020,19, 943-955.
- ❖ Amiri, M., Dashtian, K., Ghaedi, M., **Mosleh, S.** and Jannesar, R., 2019. Bi₂WO₆/Ag₃PO₄-Ag Z-scheme heterojunction as a new plasmonic visible-light-driven photocatalyst: performance evaluation and mechanism study. *New Journal of Chemistry*, 43(3), pp.1275-1284.
- ❖ Jalali, S., Rahimi, M.R., Dashtian, K., Ghaedi, M. and **Mosleh, S.**, 2019. One step integration of plasmonic Ag₂CrO₄/Ag/AgCl into HKUST-1-MOF as novel visible-light driven photocatalyst for highly efficient degradation of mixture dyes pollutants: Its photocatalytic mechanism and modeling. *Polyhedron*, 166, pp.217-225.
- ❖ **Mosleh, S.**, Dashtian, K., Ghaedi, M. and Amiri, M., 2019. A Bi₂WO₆/Ag₂S/ZnS Z-scheme heterojunction photocatalyst with enhanced visible-light photoactivity towards the degradation of multiple dye pollutants. *RSC Advances*, 9(52), pp.30100-30111.
- ❖ Amiri, M., Dashtian, K., Ghaedi, M. and **Mosleh, S.**, 2020. A dual surface inorganic molecularly imprinted Bi₂WO₆-CuO/Ag₂O heterostructure with enhanced activity-selectivity towards the photocatalytic degradation of target contaminants. *Photochemical & Photobiological Sciences*.
- ❖ Amiri, Maryam, Kheibar Dashtian, Mehrorang Ghaedi, **Soleiman Mosleh**, and Ramin Jannesar. "Bi₂WO₆-Ag Z-scheme heterojunction as a new plasmonic visible-light-driven photocatalyst: performance evaluation and mechanism study." *New Journal of Chemistry* 43, no. 3 (2019): 1275-1284.
- ❖ Jalali, S., M. R. Rahimi, K. Dashtian, M. Ghaedi, and **S. Mosleh**. "One step integration of plasmonic Ag₂CrO₄/Ag/AgCl into HKUST-1-MOF as novel visible-light driven photocatalyst for highly efficient degradation of mixture dyes pollutants: Its photocatalytic mechanism and modeling." *Polyhedron* 166 (2019): 217-225.
- ❖ **Soleiman Mosleh**, Mahmood Reza Rahimi, Mehrorang Ghaedi, Kheibar Dashtian, and Shaaker Hajati. "Sonochemical-assisted synthesis of CuO/Cu₂O/Cu nanoparticles as efficient photocatalyst for simultaneous degradation of pollutant dyes in rotating packed bed reactor: LED illumination and central composite design optimization." *Ultrasonics sonochemistry* 40 (2018): 601-610.
- ❖ Jafari, Behnam, Mahmood Reza Rahimi, Mehrorang Ghaedi, Kheibar Dashtian, and **Soleiman Mosleh**. "CO₂ capture by amine-based aqueous solution containing atorvastatin functionalized mesocellular silica foam in a counter-current rotating packed bed: Central composite design modeling." *Chemical Engineering Research and Design* 129 (2018): 64-74.
- ❖ **Soleiman Mosleh**, Mahmood Reza Rahimi, Mehrorang Ghaedi, Arash Asfaram, Ramin Jannesar, and Fardin Sadeghfar. "A rapid and efficient sonophotocatalytic process for degradation of pollutants: Statistical modeling and kinetics study." *Journal of Molecular Liquids* (2018).
- ❖ Taghipour, T., G. R. Karimipour, M. Ghaedi, M. R. Rahimi, and **S. Mosleh**. "Sonophotocatalytic treatment of diazinon using visible light-driven Ce: Cu-1, 4-BDOAH2 photocatalyst in a batch-mode process: Response surface methodology and optimization." *Applied Organometallic Chemistry* 32, no. 1 (2018).
- ❖ **Mosleh, S.**, M. R. Rahimi, M. Ghaedi, K. Dashtian, S. Hajati, and Shaobin Wang. "Ag₃PO₄/AgBr/Ag-HKUST-1-MOF composites as novel blue LED light active photocatalyst for enhanced degradation of ternary mixture of dyes in a rotating packed bed reactor." *Chemical Engineering and Processing: Process Intensification* 114 (2017): 24-38.
- ❖ **Soleiman Mosleh**, and Mahmood Reza Rahimi. "Intensification of abamectin pesticide degradation using the combination of ultrasonic cavitation and visible-light driven photocatalytic process: Synergistic effect and optimization study." *Ultrasonics sonochemistry* 35 (2017): 449-457.

Curriculum Vitae

- ❖ Mosleh, S., M. R. Rahimi, M. Ghaedi, K. Dashtian, and S. Hajati. "Photocatalytic degradation of binary mixture of toxic dyes by HKUST-1 MOF and HKUST-1-SBA-15 in a rotating packed bed reactor under blue LED illumination: central composite design optimization." RSC Advances 6, no. 21 (2016): 17204-17214.
- ❖ Mosleh, S., M. R. Rahimi, M. Ghaedi, and K. Dashtian. "Sonophotocatalytic degradation of trypan blue and vesuvine dyes in the presence of blue light active photocatalyst of Ag₃PO₄/Bi₂S₃-HKUST-1-MOF: central composite optimization and synergistic effect study." Ultrasonics sonochemistry 32 (2016): 387-397.
- ❖ Mosleh, S., M. R. Rahimi, M. Ghaedi, K. Dashtian, and S. Hajati. "BiPO₄/Bi₂S₃-HKUST-1-MOF as a novel blue light-driven photocatalyst for simultaneous degradation of toluidine blue and auramine-O dyes in a new rotating packed bed reactor: optimization and comparison to a conventional reactor." RSC Advances 6, no. 68 (2016): 63667-63680.
- ❖ Mosleh, S., M. R. Rahimi, M. Ghaedi, K. Dashtian, S. Hajati, and Shaobin Wang. "Ag₃PO₄/AgBr/Ag-HKUST-1-MOF composites as novel blue LED light active photocatalyst for enhanced degradation of ternary mixture of dyes in a rotating packed bed reactor." Chemical Engineering and Processing: Process Intensification 114 (2017): 24-38.
- ❖ Mosleh, S., M. R. Rahimi, M. Ghaedi, and K. Dashtian. "HKUST-1-MOF-BiVO₄ hybrid as a new Sonophotocatalyst for simultaneous degradation of disulfine blue and rose bengal dyes: optimization and statistical modelling." RSC Advances 6, no. 66 (2016): 61516-61527.
- ❖ Fariba Zarei, Mahmood Reza Rahimi, Soleiman Mosleh, Experimental Study of Height and Number of Transfer Unit in Rotating Packed Bed and Conventional Column, DOI:10.22103/JSSE.2017.1557.
- ❖ Mahmood Reza Rahimi, Soleiman Mosleh, Experimental Study of Carbon Dioxide Absorption from Air Stream in Rotating Packed Bed, DOI: 10.22103/JSSE.2013.543.
- ❖ Mahmood Reza Rahimi, Soleiman Mosleh, Mass Transfer Modelling for Volatile Organic Compounds Absorption in Rotating Packed Beds, DOI: 10.22103/JSSE.2013.537.
- ❖ Mahmood Reza Rahimi, Soleiman Mosleh, CO₂ Removal from Air in a Counter Current Rotating Packed Bed, Experimental Determination of Height of Transfer Unit, DOI: 10.22104/AET.2015.113

Conference Presentations

- ❖ Mosleh, Soleiman and Khaksar, Hadis, CFD simulation of CO₂ capture using graphene-oxide/MDEA nanofluid in a packed bed column, The 10th National Conference on CFD Application in Chemical and Petroleum Industries, 2021, Kermanshah, Iran.
- ❖ Mosleh, Soleiman and Khaksar, Hadis, CFD simulation of a Fixed-bed photocatalytic reactor for degradation of Naproxen, 17th Iranian National Congress of Chemical Engineering, 2021, Ferdowsi University of Mashhad, Iran.
- ❖ Mosleh, Soleiman and Heidari, Shirin, Thin-film fixed-bed photocatalytic reactor with immobilized copper oxide nanoparticles for degradation of amoxicillin, 2nd International Conference on Nanotechnology & Nanoscience, 2021, Tehran, Iran.
- ❖ Mosleh, Soleiman and Pasrsa Ravanshad, Design, evaluation and optimization of a static mixer photocatalytic reactor with immobilized Cu₂(OH)PO₄- HKUST-1 MOF composite for degradation of the Chlorpyrifos pesticide, 8th International Conference on Nanostructures (ICNS8), 2020, Tehran, Iran.

Curriculum Vitae

- ❖ **Mosleh, Soleiman** and Maryam Hoshmandia , Development of an intensified immobilized static mixer reactor for photocatalytic degradation of ibuprofen: Statistical modelling and optimization, The 11th International Chemical Engineering Congress & Exhibition (IChEC 2020) ,2020, Fouman, Guilan, Iran.
- ❖ **Soleiman Mosleh**, Mahmood Reza Rahimi, Intensification of CO₂ Capture Process Using Rotating Packed Bed in the Presence of Nanofluid: Optimization Through the Desirability Function, 16th Iranian National Chemical Engineering Congress, 22 January 2019, Tehran, Iran.
- ❖ M. R. Rahimi, M. Ghaedi, and S. Hajati, **Mosleh, S.**, Simultaneous Sonophotocatalytic Degradation of Methylene Blue and Auramine-O in the presence of CuO Nanoparticles, The 6th International Conference on Nanostructure, 7-10 March 2016, Kish Island, Iran.
- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh**, Study of the phthalic anhydride conversion in fixed and fluidized bed reactor using Computational Fluid Dynamics, 14th Iranian National Chemical Engineering Congress, Sharif University of Technology, Tehran, 16 October 2012.
- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh** Process intensification of Carbon Dioxide Absorption from Air using Rotating Packed Bed, Second National Conference on New Technologies in Environmental Pollution Control, Sharif University of Technology, Tehran, 11 November 2013.
- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh** sleh, Modeling of process intensification of absorption in a rotating packed bed, predicting of height Transfer of unit using Stefan-Maxwell equations, 5th Iranian National Chemical Engineering Congress, University of Tehran, 2 February 2015.
- ❖ M. R. Rahimi, M. Ghaedi, and S. Hajati, **Mosleh, S.**, Simultaneous Photocatalytic Degradation of Binary Mixture of Dyes Using Rotating Packed Bed Reactor Under LED Irradiation, 68th Annual Session of Indian Institute of Chemical Engineers, 27-30 December | Guwahati, India.
- ❖ Mahmood Reza Rahimi, **Soleiman Mosleh**, Intensification of water deoxygenation process using rotating packed bed, Fourth National Conference on Separation Science and Engineering, Noshirvani Industrial University of Babol, 25 May 2017.
- ❖ Parviz Darvishi, **Soleiman Mosleh**, Simulation of propane dehydrogenation catalytic reactor to determine optimal operating temperature using computational fluid dynamics, 15th Iranian National