

RESUME

Amir Hossein Nikoo

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Personal information

Born on July 14th, 1991; Iranian citizen

Education

2026-Onward	Assistant Professor of Chemical Engineering, Shiraz University of Technology, Shiraz, Iran
2025-2026	Postdoctoral Researcher (Funded by the Ministry of Science, Research and Technology) at Shiraz University, Shiraz, Iran
2022-2023	Postdoctoral Researcher (Funded by the Iran National Science Foundation) at Shiraz University, Shiraz, Iran
2016-2021	Ph.D., Rock-fluid interfacial interactions from surface energy perspective, Shiraz University, Shiraz, Iran
2014-2016	M.Sc., Chemical Engineering – Investigation of modified heat transfer surfaces to reduce crystallization fouling, Shiraz University, Shiraz, Iran, Sep. 2016
2009-2013	B.Sc., Chemical Engineering – Investigation of polymer flooding in enhanced oil recovery (EOR), Shiraz University, Shiraz, Iran, Sep. 2013

Laboratory and industrial experience

Dynamic Light Scattering (zeta potential, particle size distribution), Surface Roughness Tester, Gas Chromatography-Mass Selective Detector (GC-MSD), Atomic Force Microscope (AFM), Scanning Electron Microscopy (SEM) analysis, Energy Dispersive X-ray Spectroscopy (EDS) analysis and dot map of elemental distribution, brine synthesizing for incompatibility mixing of formation and injection waters, Surface Energy Determination of solids, aqueous solutions, crude oil, organic and inorganic sediments, Recombining oil and gas in rocking cell, HPHT tests via microwell, formation damage system investigation (FDS), Asphaltene detection using flow assurance system (FLASS)

Language skills

Persian (native), English (Fluent)

MSRT (MCHE) English Language 68/100

Certificates

- The 1st Training Course on Quantitative Evaluation of SEM Images Using ImageJ Software, Shiraz University Central Laboratory (SUCL), June 15, 2022
- The 12th Training Course on the Principles and Application of Gas Chromatography-Mass Spectrometry (GC-MS), Shiraz University Central Laboratory (SUCL), June 8, 2022
- The 1st Training Course on Introduction to Nanostructured Materials, Properties, Synthesis, and Characterization, Shiraz University Central Laboratory (SUCL), April 27, 2022
- The 6th Training Course on the Principles and Application of Liquid Chromatography-Mass Spectrometry (LC-MS), Shiraz University Central Laboratory (SUCL), March 9, 2022
- The 6th Training Course on the Principles and Application of Rheometer, Shiraz University Central Laboratory (SUCL), March 9, 2022
- The 8th Training Course on the Principles and Application of Health, Safety and Environment (HSE), Shiraz University Central Laboratory (SUCL), March 2, 2022

Computer skills

Operating systems: Microsoft Windows, Linux

Programming languages: FORTRAN, MATLAB

Process simulators: Aspen HYSYS, Aspen Plus, HTRI, OLGA, PVTsim, PHREEQC

Content development

- Design of heat exchangers using HTRI software, Faradars platform, 2026
- Simulation of geochemical reactions using PHREEQC software, Faradars platform, 2023

Honors

- Ranked 2nd among 4 Chemical Engineering Ph.D. graduates, Shiraz University, Shiraz, Iran
- Ranked 2nd among 20 Chemical Engineering M.Sc. graduates, Shiraz University, Shiraz, Iran

Professional experiences

- Dec. 2024 Consultancy agreement with Perm National Research Polytechnic University (PNRPU), Russia, 2024, Issues of asphaltene, wax, and hydrate deposition in wells and pipelines.
- Oct. 2022 Postdoc mobility in ERASMUS+ mobility, TU Dresden, Germany

Public speaking

- Webinar Presentation: "Investigating the effect of geometry and surface texture in dealing with the formation of deposits on heat transfer surfaces"
Date: October 20, 2023
Role: Presenter
Hosted by: Mehrarvand institute of technology, Abadan, Iran
- Webinar Presentation: "The importance and role of surface engineering with an emphasis on surface energy in dealing with the formation of scales in heat exchangers"
Date: August 31, 2023
Role: Presenter
Hosted by: Mehrarvand institute of technology, Abadan, Iran

Teaching experiences

Lecturer

- Design of Experiments and Statistical Analysis of Results - Shiraz University of Technology (Fall 2025)

- Introduction to Petroleum Industrial Processes - Shiraz University (Spring 2024, Spring 2025)
- Chemical & Engineering Software Workshops - Shiraz University (Fall 2023, Spring 2025)
- Heat Transfer (I & II) - Technical and Vocational University, Shiraz (Fall 2022, Fall 2023)
- Heat Transfer and Thermodynamics - MehrArvand University, Abadan (Spring 2023)

Teaching Assistant

- Heat Transfer I — Shiraz University (Spring 2024)
- Heat Transfer II — Shiraz University (Fall 2022, Fall 2023)

Review Services

- Heat Transfer Engineering (Taylor & Francis Online)
- Journal of Dispersion Science and Technology (Taylor & Francis Online)
- Petroleum (Elsevier)

Supervisory Experience

M.Sc. Projects

- Karrabi, A., “Simulation of Asphaltene Formation in Well Columns,” Shiraz University.

B.Sc. Projects

- Mosaffa, F., “Underground Hydrogen Storage in Depleted Hydrocarbon Reservoirs,” Shiraz University.
- Masihi, F., “Simulation of Heat Transfer, Energy Consumption, and Scaling in a Thermal Desalination Process,” Shiraz University.
- Barbastegan, M.J., “Hydrocarbon Fouling Formation in Preheaters of Distillation Columns,” Shiraz University.
- Arabpour, A.H., “Investigation of Asphaltene Deposition and Removal Mechanisms in Well Columns,” Shiraz University.
- Ghasemi, H., “Experimental and Theoretical Study of Surface Energy Properties for Porous and Non-Porous Surfaces,” Shiraz University.
- Alipour, A.R., “Investigation of Interfacial Phenomena in Enhanced Oil Recovery,” Shiraz University.

Research projects

Internship

Fakhr Abadeh Chemical Company

13/20/09-13/20/04

Principle investigator	Azim Kalantariasl
Colleague	Amir Hossein Nikoo
Project title	Mixing incompatible waters for enhanced oil recovery
Sponsor	Research Institute of Petroleum Industry (RIPI)
Period	18/14/09-18/20/04

Principal investigator	Mohammad Reza Malayeri
Colleague	Amir Hossein Nikoo
Project title	Investigation of mineral scale formation in ammonia unit, Phase 9, South Pars, Iran (A preliminary investigation)
Sponsor	-
Period	09/23/15-03/19/16

Principal investigators	Mohammad Reza Malayeri, Masoud Riazi
Executive manager	Amir Hossein Nikoo, ...
Project number	98-41-0417
Project title	Use of innovative technologies to mitigate and remove asphaltene deposition in well column
Sponsor	National Iranian South Oil Company (NISOC)
Period	01/18/20-01/18/24

Patent

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- Industrial silicone projectile to remove heat exchangers fouling, Mohammad Reza Malayeri (50%)- Amir Hossein Nikoo (50%), Iran Patent No: 104201

Publications

Refereed journals

Tabaeh Hayavi, M., **Nikoo, A.H.**, Malayeri, M.R. Weigand, J.J., (2026). Development of new perikinetetic collision frequency model using Lifshitz theory and surface energy approach for asphaltene precipitation. *Langmuir*, 30, 42(5),3839. <https://doi.org/10.1021/acs.langmuir.5c04987>

Hadizadeh, S., **Nikoo, A.H.**, Malayeri, M. R., (2025). Asphaltene-asphaltene cohesion on roughened surfaces. *Chemical Engineering Science*, 31, 121757. <https://doi.org/10.1016/j.ces.2025.121757>

- Nikoo, A.H.**, Ghaedi, M., Malayeri, M.R., (2024). Impact of various aggregation kinetics on thermophoretic velocity of asphaltene deposition. *Scientific Reports*, 14, 18430. <https://doi.org/10.1038/s41598-024-69503-3>
- Barbastegan M.J., **Nikoo, A.H.**, Malayeri, M.R., (2023). Comparison of threshold models of hydrocarbon fouling formation in preheaters of distillation columns. *Journal of Farayandno*, 18, 83, 74-89, In Persian. https://www.farayandno.ir/article_710456.html
- Nikoo, A.H.**, Mahmoodi, L., Malayeri, M.R., Riazi, M., (2023). Removal of asphaltene deposition from well columns: Impact of casing composition. *Journal of Oil, Gas, and Petrochemical Technology*, 10(1):51-59. DOI:10.22034/jogpt.2023.387809.1115
- Nikoo, A.H.**, Ghaedi, M., Malayeri, M.R., Riazi, M., (2023). Analysis of wellbore clogging by asphaltene deposition using interaction energies. *Fuel* 352, 129111. <https://doi.org/10.1016/J.FUEL.2023.129111>
- Esawy, M., **Nikoo, A. H.**, & Malayeri, M. R. (2023). Crystallization fouling of turbo-structured tubes during nucleate pool boiling. *Applied Thermal Engineering*, 228, 120484. <https://doi.org/10.1016/J.APPLTHERMALENG.2023.120484>
- Mahmoodi, L., **Nikoo, A. H.**, Malayeri, M. R., & Riazi, M. (2023). Characterization of asphaltene removal mechanisms from well columns using surface energy. *Geoenergy Science and Engineering*, 225, 211679. <https://doi.org/10.1016/J.GEOEN.2023.211679>
- Nategh, M., **Nikoo, A. H.**, & Malayeri, M. R. (2020). Impact of surface temperature on CaSO₄ deposition from surface energy perspective. *Chemical Engineering Research and Design*, 164, 373–384. <https://doi.org/10.1016/j.cherd.2020.10.007>
- Nikoo, A.H.**, & Malayeri, M. R. (2020). Incorporation of surface energy properties into general crystallization fouling model for heat transfer surfaces. *Chemical Engineering Science*, 215. <https://doi.org/10.1016/j.ces.2019.115461>
- Nikoo, Amir Hossein**, Kalantariasl, A., & Malayeri, M. R. (2020). Propensity of gypsum precipitation using surface energy approach. *Journal of Molecular Liquids*, 300, 112320. <https://doi.org/10.1016/j.molliq.2019.112320>
- Nikoo, Amir Hossein**, Mahmoodi, L., Malayeri, M. R., & Kalantariasl, A. (2020). Gypsum-brine-dolomite interfacial interactions in the presence of scale inhibitor. *Chemical Engineering Science*, 222, 115718. <https://doi.org/10.1016/j.ces.2020.115718>
- Nikoo, Amir Hossein**, & Malayeri, M. R. (2021a). On the affinity of carbonate and sandstone reservoir rocks to scale formation – Impact of rock roughness. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 610, 125699. <https://doi.org/10.1016/j.colsurfa.2020.125699>
- Nikoo, Amir Hossein**, & Malayeri, M. R. (2021b). Interfacial interactions between scale-brine and various reservoir rocks. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 611, 125840. <https://doi.org/10.1016/j.colsurfa.2020.125840>
- Nikoo, Amir Hossein**, & Malayeri, M. R. (2021c). Impact of hydrodynamic and interfacial interactions on scale formation in a capillary microchannel. *Langmuir*. <https://doi.org/10.1021/ACS.LANGMUIR.1C02514>
- Nikoo, Amir Hossein**, & Malayeri, M. R. (2022). Incorporation of geochemical, geometrical and intermolecular interactions into modelling of scale removal in a capillary microchannel. *Journal of*

Petroleum Science and Engineering, 208, 109311. <https://doi.org/10.1016/J.PETROL.2021.109311>

Nikoo, Amir Hossein, Malayeri, M. R., & Al-Janabi, A. (2020). Fouling propensity of modified heat transfer surfaces. *Heat Transfer Engineering*, 41(11), 919–933. <https://doi.org/10.1080/01457632.2019.1589982>

Sanati, A., Rahmani, S., **Nikoo, A. H.**, Malayeri, M. R., Busse, O., & Weigand, J. J. (2021). Comparative study of an acidic deep eutectic solvent and an ionic liquid as chemical agents for enhanced oil recovery. *Journal of Molecular Liquids*, 329. <https://doi.org/10.1016/j.molliq.2021.115527>

Abbasi, A., **Nikoo, A. H.**, & Malayeri, M. R. (2019). Challenges in measurement and determination of dust deposition on various surfaces, *Nashrieh Shimi va Mohandesi Shimi Iran*, 38, in press. http://www.nsmsi.ir/article_31586_0.html

Nikoo, A. H. & Malayeri, M. R. (2017). Influence of surface characteristics on intensity of deposit formation onto modified surfaces, *Iranian Journal of Chemical Engineering*, 90, 86-104. http://www.ijche.ir/article_112561_5037def701ca68c348866371271b7e89.pdf

Nikoo, A. H. & Malayeri, M. R., & Al-Janabi, A. (2016). Modification of heat transfer surfaces to reduce crystallization fouling based on polar component of surface energy, *Iranian Journal of Chemical Engineering*, 88, 48-58. http://www.ijche.ir/article_112539.html

Book chapter

- [1] Rahimpour, M. R. & **Nikoo, A. H.** (2018). 'CO₂ Capture From Coal-Fired Power Plants', In *Current Trends and Future Developments on (Bio-) Membranes* (pp. 309-328). Elsevier. <https://doi.org/10.1016/B978-0-12-813645-4.00011-8>

Conference paper

Nikoo, A. H., Mahmoodi, L., Malayeri, M. R. & Riazi, M. (2022). Removal of asphaltene deposition from well column: Impact of casing composition. *4th International Biennial Oil, Gas, and Petrochemical Conference (OGPC)*, Bushehr, Iran.

Mahmoodi, L., **Nikoo, A. H.**, Malayeri, M. R. (2022). Improvement of cohesive interactions between calcium carbonate particles using a green scale inhibitor. *4th International Biennial Oil, Gas, and Petrochemical Conference (OGPC)*, Bushehr, Iran.

Nikoo A. H. & Malayeri M. R. (2016). Treatment of heat transfer surfaces to mitigate fouling. In *National conference on innovative technologies in chemical engineering*. Shahreza, Isfahan, Iran.

Mahmoodi, L., **Nikoo, A.H.**, Malayeri, M. R., & Kalantariasl, A. (2020). Interfacial interactions between dolomite/brine/gypsum using surface energy approach. *9th International Geoscience Conference*, 2020(1), 1–5. <https://doi.org/10.3997/2214-4609.202053111>

Nikoo, A. H., Binazadeh, M., Kalantariasl, A., & Malayeri, M. R. (2021). Impact of surface energy sub-components on dispersive and polar interaction forces between calcium carbonate particles in aqueous media. *The 7th International Conference on Chemical and Petroleum Engineering*. <https://civilica.com/doc/1257335/>

Nikoo, A. H., & Malayeri, M. R. (2021). On the impact of surface energy in rock-fluid interfacial interactions in porous media. *The 7th International Conference on Chemical and Petroleum Engineering*. <https://civilica.com/doc/1257336/>

Nikoo, A. H., Mahmoodi, L., & Malayeri, M. R. (2021). Performance of a commercial scale inhibitor to thwart mineral precipitation. *The 7th International Conference on Chemical and Petroleum Engineering*. <https://civilica.com/doc/1257337/>

Brief profiles

<https://www.researchgate.net/profile/Amir-Hossein-Nikoo>

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<https://scholar.google.com/citations?user=cHx4vJMAAAAJ&hl=en>

<https://ipm.ssaa.ir/Search-Result?page=1&DecNo=139850140003007897&RN=104201>

References

- Prof. Dr. Mohammad Reza Malayeri (Supervisor), School of Chemical and Petroleum Eng., Shiraz University, Shiraz, Iran, (malayeri@shirazu.ac.ir) , +98 713-471-3680 (office)