



## Mehdi Razavifar

### Assistant Professor of Petroleum Engineering

Faculty of Chemical & Petroleum Engineering  
University of Tabriz, P.O. Box: 51666-16471  
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<https://scholar.google.com/citations?user=vCz-OSIAAAAJ&hl=en>



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Scopus

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*Date of birth: 1992/07/06*

*Marital status: Married*

*Nationality: Iranian*

*Tabriz – Iran*



## Education

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Postdoc	<b>Petroleum Engineering</b>	Shiraz University, Iran	2022-2023
		Hakim Sabzevari University, Iran	2022-2023
Ph.D.	Petroleum Engineering	Shiraz University, Iran	2017-2022
		Skoltech University, Russia (Visiting Student)	
M.Sc.	Petroleum Engineering	Shahid Bahonar University, Iran	2015-2017
B.Sc.	Petroleum Engineering	Sharif University of Technology, Iran	2010-2014

Pre-University and Diploma in Physics and Mathematics



## Awards and honors

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- Winner of the Alborz Foundation Award (*Iranian Nobel*)  
*Selected as a top scientific elite, Iran – 2021*
  - Exemplary and top student of Shiraz University, Iran – 2022
  - Silver medal winner  
*Khayyam International Innovation and Invention Festival – 2020*
  - Exemplary and top researcher of Fars Province, Iran- 2020



## Research Interests

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- ✓ Improved Oil Recovery (IOR) Methods
  - ✓ Ultrasonic Wave Irradiation (Well Stimulation Method)
  - ✓ Smart Water Injection (EOR)
  - ✓ Nano Particle (EOR)
  - ✓ Gas Storage in Underground Structures (CO<sub>2</sub> and H<sub>2</sub> Storage)
  - ✓ Renewable Energies



## Work Experiences

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- **Consultant of the scientific association**

*University of Tabriz, Faculty of Chemical and Petroleum* (2024 - Present)

- **Representative of Iranian Gas Institute**

*University of Tabriz, Iran* (2024 - Present)

**Lecturer**

*Tehran University, Fouman Faculty of Engineering, Iran* (2022 - 2023)

*Shiraz University, Shiraz, Iran* (2018 - 2022)

- **Managing Director**

*Karafarinan Iranian Company, Iran* (2021 - 2023)

- **Mentor of R&D Team**

*World Petroleum Council (WPC), Iran* (2020 - 2022)

- **R & D Manager**

*Petro Bamdad Kish (PBK) Company, Iran* (2014 - 2016)



## Patents

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- 1- Transparent Porous Medium set-up with Radiation Capability of Ultrasonic and Magnetic Waves  
*Razavifar.M, Qajar.J, Riazi.M - Acceptance number: 99155, Iran Patent Center.*
- 2- Transparent Porous Medium set-up with the Capability of Adjusting the Temperature of Injection Fluid and the Fluid within the Model  
*Razavifar, Riazi.M, Qajar.J - Acceptance number: 99596, Iran Patent Center.*
- 3- Three-dimensional transparent Porous Medium set-up  
*Acceptance number: 100364, Iran Patent Center.*
- 4- Transparent Porous Medium set-up with Capability of Pressure Measurement  
*Acceptance number: 102772, Iran Patent Center.*

## 5- Ultrasonic Transducer to improve oil recovery

Razavifar.M, Qajar.J, Riazi.M - Acceptance number: 105686, Iran Patent Center.



## Articles

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- 1- Razavifar, M., Khoshsima, A., Riazi, M., Sheng, J.J. and Esmailnezhad, E., 2024. Recent Developments, Challenges, and Prospects of Carbon Dots (CDs) for Fluid Flow Investigation in Porous Media. *Petroleum Research*.  
<https://doi.org/10.1016/j.ptlrs.2024.04.004>
- 2- Qajar, Jafar, Mehdi Razavifar, and Masoud Riazi. "A mechanistic study of the synergistic and counter effects of ultrasonic and solvent treatment on the rheology and asphaltene structure of heavy crude oil." *Chemical Engineering and Processing-Process Intensification* (2023): 109619.  
<https://doi.org/10.1016/j.cep.2023.109619>
- 3- Rahimi, A., Abedi, S., Baneh, S. S., Roozbahani, A., & Razavifar, M. (2023). Evaluation of a Novel Nanoclay-Surfactant-Stabilized CO<sub>2</sub> Foam for EOR Applications. *Arabian Journal for Science and Engineering*, 1-11.  
<https://doi.org/10.1007/s13369-023-07875-w>
- 4- Amraeiniya, A., Rahimi, A., Nikpour, N., Baneh, S. S., Arabzadeh, F., & Razavifar, M. (2023). Inhibition of asphaltene deposition by Al<sub>2</sub>O<sub>3</sub> nanoparticles during CO<sub>2</sub> injection. *Petroleum Research*.  
<https://doi.org/10.1016/j.ptlrs.2023.03.001>
- 5- Razavifar, M., Almasiyan, P., & Rezaei, A. (2023). EOR potentials in the poststeam-injected heavy oil reservoirs. In *Thermal Methods* (pp. 355-384). Gulf Professional Publishing.  
<https://doi.org/10.1016/B978-0-12-821933-1.00005-7>
- 6- Razavifar, M., Qajar, J., & Riazi, M. (2022). Experimental study on pore-scale mechanisms of ultrasonic-assisted heavy oil recovery with solvent effects. *Journal of Petroleum Science and Engineering*, 110553.  
<https://doi.org/10.1016/j.petrol.2022.110553>
- 7- Razavifar, M., Mukhametdinova, A., Nikoee, E. et al. Rock Porous Structure Characterization: A Critical Assessment of Various State-of-the-Art Techniques. *Transp Porous Med* 136, 431–456 (2021).  
<https://doi.org/10.1007/s11242-020-01518-6>

- 8- Rezaie.M, Khodabakhsi.M, Esmaeli.A, Razavifar.M, Effects of Initial Wettability and Different Surfactant-Silica Nanoparticles Flooding Scenarios on Oil-Recovery from Carbonate Rocks. Petroleum journal. (2021).  
<https://doi.org/10.1016/j.petlm.2021.03.009>
- 9- Razavifar. M, and Qajar. J. “Synergistic effects of ultrasonic irradiation and  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles on the viscosity and thermal properties of an asphaltenic crude oil and their application to in-situ combustion EOR”. Ultrasonics (2021).  
<https://doi.org/10.1016/j.ultras.2021.106655>
- 10- Hatami. M... Razavifar. M, “Effects of Initial Wettability and Different Surfactant-Silica Nanoparticles Flooding Scenarios on Oil-Recovery from Carbonate Rocks”. Petroleum journal. (2021).  
<https://doi.org/10.1016/j.petlm.2021.09.002>
- 11- Razavifar. M, and Qajar. J. "Experimental investigation of the ultrasonic wave effects on the viscosity and thermal behaviour of an asphaltenic crude oil." Chemical Engineering and Processing-Process Intensification 153 (2020): 107964.  
<https://doi.org/10.1016/j.cep.2020.107964>
- 12- Razavifar. M, Malayeri.M. (2019). Investigating effective factors in asphaltene deposition along with the results of case studies in oil reservoirs in southern Iran. Journal of Oil & Gas Exploration & Production, Iran (164).
- 13- Razavifar. M, Qajar. J. (2019). Investigating the mechanisms of improving oil recovery in low salinity water injection using the digital rock physics (DRP) method. Journal of Oil & Gas Exploration & Production, Iran (167).
- 14- Razavifar. M, Nikooee. E, Qajar. J (2018). Application of Nuclear Magnetic Resonance (NMR) in the Petroleum Industry. Journal of Oil & Gas Exploration & Production, Iran (158).
- 15- Razavifar. M, Qajar. J (2018). A Review on the Smart and Low Salinity Water Injection in Carbonate Rocks. Journal of Oil & Gas Exploration & Production, Iran (153).
- 16- Razavifar. M (2017). A Review on the Applications of Ultrasonic Waves on the Oil Industry. Journal of Oil & Gas Exploration & Production, Iran. (145).



- 1- Mehdi Razavifar, Jafar Qajar, Masoud Riazi (24 September 2024). "Investigation of the effect of ultrasonic waves on the deposition of asphaltenes in porous media". 1th Iran Interpore Conference. Tehran University, Tehran, Iran.
- 2- Kimiya Karimi, Mehdi Razavifar. (22-23 October 2024). "Investigation and evaluation of the flue gas storage in the underground structures", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 3- Roya Panahi, Mehdi Razavifar. (22-23 October 2024). "Investigation and evaluation of the application of salt caverns in gas storage operation", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 4- Maedeh Jalilpour, Mehdi Razavifar. (22-23 October 2024). "Investigation and evaluation of hydrogen gas storage in depleted hydrocarbon reservoirs", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 5- Salar Marivani, Mehdi Razavifar. (22-23 October 2024). "Investigation and evaluation of hydrogen gas storage in salt domes", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 6- Sanaz Saeedpour, Mehdi Razavifar. (22-23 October 2024). "An overview of the application of surfactant and polymer in the operation of enhanced oil recovery from reservoirs", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 7- Soheil Salehpour Karimi, Mehdi Razavifar. (22-23 October 2024). "Investigation and evaluation of different methods of carbon dioxide gas injection in oil reservoirs to enhance oil recovery", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 8- Amirhooesin Salimi, Mehdi Razavifar. (22-23 October 2024). "Investigation of the methods of removing heavy metals from industrial wastewater", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 9- Reza Seyyednezhad, Mehdi Razavifar. (22-23 October 2024). "Investigation on the application of nanoparticles to improve production from hydrocarbon reservoirs", 5th International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries, Tehran, Iran.
- 10- Negar Shahedali, Zahra Amiri, Faezeh Barzegari, Mehdi Razavifar. (19 June 2024). "Application of Artificial Intelligence (AI) in Improving Oil Recovery from Hydrocarbon Reservoirs". 8th International Conference on Technology Development in Oil, Gas, Refining and Petrochemicals, Tehran, Iran.
- 11- Mobina Hasanzadeh, Mehdi Razavifar. (19 June 2024). "Investigation and Evaluation of Hydrogen Gas Storage in Underground Structures". 8th International Conference on Technology Development in Oil, Gas, Refining and Petrochemicals, Tehran, Iran.
- 12- Alireza Akbarzadeh, Majid Ahmadlouy darab Mehdi Razavifar. (19 June 2024). "Investigation on the application of nanoparticles on the enhanced oil recovery". 8th International Conference on Technology Development in Oil, Gas, Refining and Petrochemicals, Tehran, Iran.
- 13- Mehdi Razavifar, Qajar, Jafar, and Masoud Riazi. "The Effect of Simultaneous Use of Ultrasonic Waves and Solvents on the Crude Oil Viscosity", International DICLE Scientific Reserach and Innovation Congress, Turkey (2023).
- 14- Khodarahmi.S, Razavifar.M, Mohammadzade Shirazi. M. (2022). "The effect of well locations on the efficiency of water injection in one of the oil reservoirs in south of Iran". The 6th International Conference on Applied Research in Science and Engineering, Aachen, Germany.

- 15- Khodadahi. M, Razavifar.M. (2021). "Application of polymer injection for enhanced oil recovery". 9th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 16- Behmanesh Zad .M, Razavifar.M. (2021). "Review on chemical enhanced oil recovery methods". 9th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 17- Tayyebi.A, Razavifar.M. (2020)." The Effect of Emulsion Formation on Production of Oil Reservoirs". 6th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 18- Naghiei.A, Riahi.Sh, Razavifar.M. (2020). "Investigation and evaluation of Enhanced oil Recovery by Smart Water Injection in Carbonate Reservoirs". 7th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 19- Ebrahimi. M, Mousavi.M, Zare.A, Razavifar.M. (2020). "Application of Artificial Intelligence in Oil Industry". 13th international Conference on Engineering and Technology. Norway.
- 20- Mohammadi.A, Farahi.M, Razavifar.M. (2020). "Gas Hydrates and Prevention Methods". 13th International Conference on Engineering and Technology. Norway.
- 21- Razavifar.M. (2020). "Application of Magnetic Waves to Improve Production of Oil Reservoirs". 13th International Conference on Engineering and Technology. Norway.
- 22- EbayiHasani.P, Razavifar.M. (2020). "Application Of Transparent Porous Medium in The Oil Industry". 2nd International Congress on Science and Engineering. Paris (France).
- 23- Taam.S, Razavifar.M. (2020). "Factors Affecting the VAPEX Process in Heavy Oil Reservoirs". 5th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 24- Zare.A, Mousavi.M, Ebrahimi.M, Razavifar.M. (2020). "The Application of Carbon Dioxide Injection to Enhanced Oil Recovery". 13th International Conference on Engineering and Technology. Norway.
- 25- Hayatzadeh.E, Razavifar.M. (2020). "Evaluation and Analysis of the Type of Damage in the Oil Reservoirs". 13th International Conference on Engineering and Technology. Norway.
- 26- Farahi. M, Mohammadi.A, Razavifar.M. (2020). "Sand Production Control Methods in the Oil Fields". 13th International Conference on Engineering and Technology. Norway.
- 27- M. Farahi, A. Rahimian, Razavifar. M. (2019). "Application of Nanomaterials in Improving Properties of Drilling Mud". 4th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 28- Mohammadi. A, Konani. O, Razavifar. M. (2019). "Application of Magnetic Waves to Improve Production from Oil Reservoirs". 4th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 29- Sisakht M, Razavifar. M. (2019). "Investigation and Evaluation of Well Stimulation Methods in Oil Reservoirs". 4th International Conference on Innovation and Research in Engineering Sciences.
- 30- Kalteh. Sh, Razavifar. M, (2019). "Determination of reservoir rock properties by the imaging method". 4th International Conference on Innovation and Research in Engineering Sciences. Georgia.
- 31- Razavifar. M, Hatamizadeh.A, Qajar.J. (2019). "The application of ultrasonic waves assisted with other enhancing oil recovery methods". The 8<sup>th</sup> International Conference on Oil, Gas, Refining & petrochemical with focus relationship between government, university and industry, Shiraz, Iran.
- 32- Razavifar. M, Mahdiyar. H (2018). "Investigation of High Temperature Water Injection to Enhance the Oil Recovery with Simulation by MATLAB and ECLIPSE". The 8<sup>th</sup> International Conference on Oil, Gas, Refining & petrochemical with focus relationship between government, university and industry, Shiraz, Iran.

- 33- Razavifar. M, Jafari. S (2017). "Experimental Evaluation on the Effect of Ultrasonic on the Viscosity of Maroon Oil". The 4th international conference on Oil, Gas and petrochemical, Tehran University, Iran.
- 34- Razavifar. M, Ranjbar. M, Schaffie. M (2017). "Influence of Ultrasonic and Nano Catalysts on the Crude Oil Thermal Behavior in Relation to Thermal Oil Recovery". The 4th National conference on Oil, Gas and petrochemical, Kerman University, Iran. (ISC)
- 35- Razavifar. M, Ranjbar. M, schaffie. M (2017). "Influence of Nano catalysts and ultrasonic on the Viscosity of Maroon oil". The 5th international conference on Oil, Gas, Refining & petrochemical with focus relationship between government, university and industry, Iran.
- 36- Razavifar. M, Ranjbar. M, Schaffie. M (2017). "Effect of Ultrasonic Frequency and Power on the Viscosity of Maroon oil". The 1th National conference on Iranian Chemical and Chemical Engineering, Kish, Iran.
- 37- Mousavi. M, Razavifar. M, Ranjbar. M. Schaffie. M (2017). "Influence of Ultrasonic and Nano Catalysts on the Water – Oil Emulsion Stability:.". The 4th National conference on Oil, Gas and petrochemical, Kerman University, Iran. (ISC)
- 38- Mousavi. M, Razavifar. (2017). "Experimental investigation of the effect of ultrasonic Waves on the production of crude oil in the transparent micro-model". 1st International Conference on Oil, Gas, Petrochemical and HSE. Jun 14, 2017.



## Books

- 1- EOR potentials in the poststeam-injected heavy oil reservoirs.  
*Razavifar, M., Almasiyan, P., & Rezaei, A. (2023).*  
*In Thermal Methods (pp. 355-384). Gulf Professional Publishing.*  
<https://doi.org/10.1016/B978-0-12-821933-1.00005-7>
- 2- Geostatistical Analysis of Hydrocarbon Reservoirs  
*Jul 24, 2019 - Nebeshteh Publication – Iran.*
- 3- Application of Ultrasonic Waves to Improve Hydrocarbon Recovery  
*Jul 30, 2019 - Nebeshteh Publication – Iran .*
- 4- Chemical Enhanced Oil Recovery Methods  
*Jan 22, 2021 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 5- *Proper Management of Flare Gas in Iran*  
*Jul 8, 2020 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 6- Application of Nanotechnology in the Oil Industry  
*Jun 17, 2020 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 7- Application of Transparent Porous Media in the Oil Industry  
*May 5, 2020 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 8- Fundamental of Fluid Flow and Geomechanics Modeling and Simulation in Porous Media  
*Apr 11, 2020 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*



- 9- Application of Imaging Methods in the Identification of Rock Properties  
*Apr 6, 2020 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 10- *Production improvement methods in oil reservoirs*  
*Dec 5, 2020 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 11- Step-by-step PVTi software Learning  
*2021- Department of Petroleum Engineering - Iran.*
- 12- Step-by-step Saphir software Learning  
*2021- Department of Petroleum Engineering - Iran.*
- 13- Wellhead and Christmas tree Technology  
*Jan 20, 2022 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 14- Well Stimulation Methods  
*May 2, 2022 - IOI WPC (Iran Oil Industry World Petroleum Council) – Iran.*
- 15- The World of Petroleum Engineering  
*2022- Department of Petroleum Engineering- Iran.*
- 16- Eclipse Reservoir Simulator Software Learning  
*2024- Department of Petroleum Engineering- Iran.*
- 17- Engineering Mathematics for chemical and petroleum engineering students  
*June 10, 2024 – Zar Nevesht Publication – Iran.*



## Language Proficiency

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English: Fluent  
Turkish: Fluent  
Persian: Native  
Azerbaijani: Native



## Software and Coding

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- **Eclipse: Professional**

*Hydrocarbon reservoir simulation, Enhanced oil recovery methods, Production optimization*

- **Saphir: Professional**

*Well-test design and analysis*

- **MATLAB: Professional**

*Programming, optimization*

- **Python: Professional**

*Programming, optimization*

- **PVTi: Professional**

*Reservoir fluid simulation*



## International Associations and Memberships

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- *Representative of Iranian Gas Institute, University of Tabriz  
Member ID:10941*



World  
Petroleum  
Council

- ✓ **Mentor of R&D (Project) Team - Iran (2020 – 2022)**
- ✓ **Key Speaker At the WPC Expert Workshop on HC Increasing Recovery Efficiency in the Mature Fields:Methods & Technology for Cooperation (Bucharest, **Romania**- 21 & 22 October 2019)**



*Member ID:5091805*

**EAGE**

EUROPEAN  
ASSOCIATION OF  
GEOLOGISTS &  
ENGINEERS

*Member ID:M2022-104633*



## Teaching Experiences

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- *Production Engineering*
- *Reservoir Simulation*
- *Enhanced Oil Recovery Methods*
- *Well Test*
- *Reservoir Engineering*
- *Reservoir Rock Properties*
- *Reservoir Fluid Properties*
- *Fluid Flow in Porous Media*
- *Engineering mathematics*
- *Fundamentals of Petroleum Engineering*
- *Multi-phase flow in pipelines*
- *English language for chemical and petroleum engineering*
- *Python programming*