

**NAME: Riyaz Kharrat****ADDRESS:** Ghasemzadehian St.
Sattarkhan Ave., South
Khosrow St., Tehran, Iran**Email:** Kharrat@put.ac.ir**TEL:** 0098-21-44249751**Fax:** 0098-21-44239951**Cell No. :** 0098-9121593241**EDUCATION:**

Ph.D. in Chemical Engineering-**Enhanced Oil Recovery**, University of Kansas, U.S.A., 1989.

M.Sc. in Chemical Engineering-**Thermal Oil Recovery**, University of Kansas, U.S.A., 1984.

B.Sc. in Chemical Engineering, University of Kansas, U.S.A., 1981

PRESENT POSITION:

Professor of PUT (1990- present)

Dean of Tehran Petroleum Faculty (2014-present)

Advisor & Project Manager, Kish Petroleum Engineering Company (KPE) (2012-present)

SPE Vice Chairperson of Iran Section (2009-present)

INDUSRIAL EXPERIEMNCE

Kish Petroleum Engineering consultant (2012- present)

- Salman Full field Study & MDP preparation- Project Manager
- Kish development operation- Project Manager
- Azar Oil Full Field Study & In-house Special Services- Project Manager

Petroiran Development Company (2006- 2011)

- Azadeghan oil development – Reservoir Engineering& Simulation consultant
- Oil Layer of South Pars Field – Reservoir Engineering& Simulation consultant

Petran Research Company, Senior Reservoir Engineer (2000-2006)

- Foroozan oil field development - Reservoir Engineering

PREVIOUS POSITIONS:

Dean Adjunct of Innovation & monitoring of PUT center (2011- 2014)

Director of PUT Research Center-Tehran (2004-2010)

SPE Middle East region Vice Chairperson (2008-2011)

SPE Chairperson of Iran Section 2002-2009.

Dean of Research at Petroleum University of Technology, 2000-2004

Dean of Graduate Studies of Petroleum University of Technology, 2000-2004.

Dean of Ahwaz Faculty of Petroleum Engineering, PUT, 1995-1999.

Chairman of Chemical & Petroleum Eng. Dept., Ahwaz, PUT, 1992-1994.

Visiting Professor at Tehran University, 1994-1995.
Dean of Abadan Faculty of Chemical & Petrochemical Engineering, PUT, 1992-1993.
Teaching Assistance, Department of Mathematics, University of Kansas, 1987-1990.
Research Assistance, Tertiary Oil Recovery Project, Lawrence KS, U.S.A., 1984-1987.
Teaching Assistance, Department of CPE, Kansas University, 1983-1986.

International Teaching experience

Petroleum Laboratory I & II- Department of CPE, Kansas University-USA 1983-1986.
Calculus I & II- Department of Mathematics, University of Kansas –USA 1986-1989.
Advanced Mathematics in Petroleum Engineering - IFP France& PUT joint program, 2005-2008.
Advanced Mathematics in Petroleum Engineering - Curtin University Australia & PUT joint program, 2005-2008.
Advanced Enhanced Oil Recovery - Calgary University & PUT joint program, 2005-2008.
Advanced Petroleum Fluid Properties- Calgary University, Canada & PUT joint program, 2005-2008.

ACTIVITIES:

Improved Oil Recovery (IOR), Enhanced Oil Recovery (EOR), Wax & Asphaltene studies, and Reservoir Modeling & Simulation.

GRANTS:

1. Experimental study of Asphaltene of Sarvak reservoir-Azadeghan Field, PEDEC, Principle investigator, 2011-2014.
2. Investigation of Asphaltene precipitation in Dorood oil field and suggestion some solution methods, Principle investigator. 2009-2011.
3. Feasibility study of EOR method for Naftshar field, NIOC Central, Principle investigator, 2009-2010
4. Experimental Study of Miscible Solvent Injection Process in Azadeghan, Yadavaran & Koh-e-Mond Heavy Oils and Investigation of Effective Parameters on Oil Recovery Efficiency Using Glass Micro model, Principle investigator, 2008-2009.
5. Experimental and theoretical study of Asphaltene study of Azadeghan Field, PEDEC, Principle investigator, 2007-2008.
6. Experimental and theoretical study of the Vapex process for Iranian heavy oil reservoir, PEDEC, Principle investigator, 2007-2008.
7. Reservoir Evaluation Diagnosis and Remedies of Sirri-A Field, ONIOC R&D, Principle Investigator, 2003-2004.
8. Cold and Thermal recovery methods for Iranian Heavy Oil Reservoirs, NIOC R&D, Principle Investigator, 2003-2005.
9. Lost Circulation in Maroon field, NIOCS R&D, Principle Investigator, 2002-2005.
10. The study of mud additive (Malas, Polymer, Salt, etc.) on the physical and Rheological properties of Drilling Mud, Grant Award, University of Petroleum Industry; Principle Investigator, 1998-2000.
11. Computer Simulation of the Ammonia Cooling System of Razi Petrochemical Plant Principle Investigator, 1999-2000.
12. Evaluation of Chemical Additives in the Razi Petrochemical Cooling System-Principle Investigator, 1999-2000.
13. Fouling Computation of Bandar Imam Super Critical Heat Exchangers- Principle Investigator, 1999-2000.
14. Technical & Economical Evaluation of using Bandar Imam excess H₂ for the Ammonia plant of Razi Petrochemical Company. Principle Investigator, 2001-2002.

AWARD AND HONORS:

1. National Distinguished Researcher Award, 2014
2. Petroleum Ministry Distinguished Researcher Award, 2014
3. Khuzestan Providence Scientific Research Distinguished Award, 2013
4. Petroleum University of Technology Distinguished researcher award, 2013
5. 25th Khwarizmi International Award, 2012
6. Petroleum University of Technology Distinguished researcher award, 2012
7. Regional SPE Honors Award, 2011
8. National Distinguished Book Referee Award, 2011
9. National Distinguished researcher Award, 2010.
10. Petroleum Ministry Distinguished Researcher Award, 2010.
11. Khuzestan Technical University Research Award, 2010
12. Petroleum University of Technology Distinguished Researcher Award, 2010.
13. Petroleum University of Technology Distinguished Researcher Award, 2009.
14. Petroleum University of Technology Distinguished Researcher Award, 2008.
15. SPE regional (Middle East) service award, 2009
16. Technical Book of the year author in chemical engineering, 2007.
17. PUT Research distinguish award of the year, 2004-2005
18. Student Award for Excellence in Administration, Petroleum University of Technology, 1997-1998
19. Student Petroleum Engineering Award for Excellence in Teaching, University of Petroleum Industry, 1996-1997.
20. Florence Black Award for Excellence in Teaching, Dept. of Mathematics, University of Kansas, USA, 1987-1988.
21. Summer Fellowship, University of Kansas, USA, Academic Excellence, 1987-1988.

PROFESSIONAL:

1. Director of Journal of Iranian Gas & Petroleum Engineering (2013 – present)
2. Editor J. of Gas Technology, JGT (2015-present)
3. Editor Scientia Iranica Journal (2008-present)
4. Editor Iranian Chemical & Petroleum Engineering (2008-2013)
5. Acting Secretary of SPE Iran section (2010-present)
6. Secretary of SPE Iran section (2001-2010)
7. SPE MEOS Committees member (2005-2013)
8. IPTC-SPE 2008 Committees member.
9. Member of Society of Petroleum Engineering.
10. Member of Iranian Chemistry and Chemical Society.
11. Member of Iranian Chemical Engineering Institute.
12. Member of Iranian Petroleum Institute.
13. Member of Petroleum Committee, Higher Education Ministry of IRI, (1998-2005)
14. Secretary of the First Petroleum & Petrochemical Corrosion Symposium, Haves, 1993.
15. Secretary of the Third National Chemical Engineering Congress, 1998.
16. Secretary of the First Reservoir Simulation Seminar, Ahwaz, 1999.

Reviewed Papers for the Following Journals and Meetings (1995-present)

1. Journal of Iranian Gas & Petroleum Engineering
2. Iranian Journal of Science & Technology
3. Chemistry and Chemical Engineering Journal
4. First National Iranian Chemical Engineering Congress, 1996.
5. Second National Iranian Chemical Engineering Congress, 1997.
6. Third National Iranian Chemical Engineering Congress, 1998.
7. Fourth National Iranian Chemical Engineering Congress, 1999.
8. Fifth National & 4th International Iranian Chemical Engineering Congress, 2000.
9. Sixth National Iranian Chemical Engineering Congress, 2001.
10. Seventh National Iranian Chemical Engineering Congress, 2003.

11. Eighth National Iranian Chemical Engineering Congress, 2005.
12. Ninth National Iranian Chemical Engineering Congress, 2006.
13. Tenth National & 5th International Chemical Engineering Congress, 2007.
14. Programme Committee member of MEOS-SPE 2007.
15. Eleventh National Iranian Chemical Engineering Congress, 2008.
16. IPTC-SPE 2008.
17. MEOS-SPE 2005-2011
18. Journal of Petroleum Science and Technology

PUBLICATION:

BOOKS:

1. Applied Mathematics in Chemical Engineering- Mathematical Formulation & Analytical Methods, Vol. I, Published by Amir Kabir University, 2001.
2. Description of Problem Solution of Applied Mathematic in Chemical Engineering, Vol. I, Published by Amir Kabir University, 2001.
3. Applied Mathematics in Chemical Engineering – Numerical Solution, Vol. II, Published by Mir Kabir University, 2002.
4. Mathematical Modeling in Chemical & Petroleum Engineering, Published by Amir Kabir University, 2002.
5. Description of Problem Solution of Applied Mathematic in Chemical Engineering, Vol. II, Published by Amir Kabir University, 2008.
6. Enhanced oil recovery, Published by Nehr Danish Institute, 2008.
7. Material & Energy balances in Chemical engineering, Published by Kerman University, 2009.
8. Asphaltene & Wax in Oil Field: Remedy and Solution, published by Setayesh Institute, 2012.
9. Geomechanical theory and practice, publication by Setayesh Institute, 2014.

PATENTS:

1. Construction of VAPEX Apparatus for Enhanced oil recovery application, 2007.
2. Micromodel pattern design- Five spot pattern, 2008
3. Micro model design using Laser approach for the fluid flow through porous media, 2009.
4. Asphaltene Inhibitor manufacturing for oil reservoir, 2011
5. Wax Inhibitor Agent for Oil Reservoir, 2011
6. Polymer solution based on Nano Silca for enhanced oil recovery, 2012
7. Sludge Removal agent for oil reservoir, 2012.
8. Asphaltene Inhibitor for oil reservoirs process, 2013.
9. Artificial sandstone and carbonate cores, 2015
10. Synthetic fractured porous media, 2015

TECHNICAL WORKSHOP PRESENTED BY KHARRAT

- Heavy Oil from Exploration to Refinery, NIOC, Tehran, August 2005.
- Recent Development in Enhanced Oil Recovery, NIOC, Tehran, June 2006.
- Challenges of production form mature fields, PAU, France, 2008.
- Enhanced Oil Recovery, NIOC, Tehran, October, 2012

TECHNICAL PROFESSIONAL

- MDP of Salman gas reservoirs, KPE, Tehran, 2015

- MDP of Salman Oil reservoirs, KPE, Tehran, 2015
- MDP of Azar field, KPE, Tehran, 2014
- Basic reservoir engineering study of Salman field, project manager, 2013
- MDT Analysis of SPOL field, senior reservoir engineering, Tehran 2008.
- Temperature Analysis of SPOL field, senior reservoir engineering, Tehran 2008.
- Azadeghan Rock Typing, senior reservoir engineering, Tehran 2006-2007.
- Azadeghan PVT Analysis, senior reservoir engineering, Tehran 2007.
- Foroozan full field study, senior reservoir engineering, Tehran 2003-2005.
- Kuh-e-Mond appraisal study and development, Tehran, 2004.
- Feasibility Study of In-situ combustion process for Kansan oil reservoirs, Tertiary Oil Recovery Project, Lawrence KS, U.S.A., 1984-1987.

TECHNICAL PAPERS

More than 250 Technical papers have been presented and or published or submitted for publication see attached list of publications; four major confidential reports have been prepared to the National Oil Company and National Petrochemical Company.

ISI International Journals

1. **Kharrat R.** and Vossoughi S.: Feasibility Study of the In-Situ Combustion Process Using TGA/DSC Techniques, *J. Pet. Tech.*, Vol. 37, No. 9, August 1985, pp. 1141-1445, *Trans. Soc. Pet Eng.*, Vol. 279.
2. **Kharrat, R.** and Vossoughi S.: Rheological Behavior of the Gel Systems Used in Enhanced Oil Recovery, *Theoretical and Applied Rheology*, Vol. 1, Edited by P. Moldenaers and R. Kenning, Elsevier Science Publishers, 1992, p. 478-480.
3. **Kharrat R.** Vossoughi S.: Numerical Simulation of Viscoelastic Fluid Flow Past a Cylinder, *J. Scientia Iranica, International Journal of Science and Technology*, Vol. 1, No. 3, 1994, pp. 205-218.
4. **Kharrat, R.**, Hamid, J. and Vossoughi S.: Development of a Fully Implicit Two Dimensional in-Situ Combustion Simulation Model, *Transport Phenomena in Thermal-Fluids Engineering*, Vol. 1, 1996, pp. 238-243.
5. Salarieh, M., **Kharrat, R.** and Vossoughi S.: Heavy Oil Deposits in Southern Region of Iran and Steam Assisted Gravity Drainage as a Recovery Technique, *Transport Phenomena in Thermal-Fluids Engineering*, Vol. 2, 1996, pp. 1134-1139.
6. Ghazanfari M. H., Rachtchian D., **Kharrat R.**, S. Vossoughi, Capillary Pressure Estimation Using Statistical Pore Size Functions, *Chem. Eng. Technology.*, 2007, 30, No. 7, 862-869.
7. Azin R., **Kharrat R.** , Ghotbi S., Vossoughi S., Improved Heavy Oil Recovery by VAPEX Process in the Presence of Vertical and Horizontal Fractures, *J. Japan Petroleum Inst.*, Vol. 50 No. 6, November 2007.
8. Azin R., **Kharrat R.** , Vossoughi S., S. Ghotbi, Rostami B., Investigation of the VAPEX Performance in High Pressure Oil Reservoirs, *NSMSI*, Vol. 26, No. 3, 2007.
9. Azin R., **Kharrat R.**, Ghotbi C., Vossoughi S., Effect of Fracture Spacing in VAPEX Performance in Heavy Oil Fractured System, Iran. *J. Chem. & Chem. Eng.* Vol. 27, No. 1, Spring 2008.
10. Azin R., **Kharrat R.**, Rostami B., Vossoughi S., Theoretical Investigation of the VAPEX Process in Fractured Heavy Oil System at Reservoir Conditions, *Journal of Petroleum Science and Engineering*, 2008, 60(1), pp 51-66.
11. **Kharrat R.**, S.M. Razavi," Determination of Reservoir Model from Well Test Data, Using an Artificial Neural Network, *Scientia Iranica*, Vol 15, No. 4, pp 487-493., 2008.

12. Etminan S R, Maini B. B., **Kharrat R.**, The Role of Connate Water Saturation in VAPEX Process, *Journal of Canadian Petroleum Technology*, Vol. 47, No. 2, pp8-12, 2008.
13. Razzaghi S., **Kharrat R.**, Rashtchian D., Vossoughi S., Saraji S., Investigation of Auto Ignition Condition Under Different Parameters, *Iran. J. Chem. & Chem. Eng.* 2008.
14. Behrouz T. **Kharrat R.** and M.H. Ghazanfari, Experimental study of miscible injection process to crude oil using glass micro model, *Iran. J. Chem. & Chem. Eng.*, 2008.
15. Razzaghi S., **Kharrat R.**, Vossoughi S., Rashtchian D., In-situ Combustion Validation of Simulation Model by Using Experimental Data, *J. Japan Petroleum Inst.*, 2008.
16. Ghazanfari, M.H., Rashtchian, D., **Kharrat, R.** and S. Vossoughi, Transport Property Estimation of Non-Uniform Porous Media, *Iran. J. Chem. & Chem. Eng.*, 2008.
17. Azin R., **Kharrat R.**, Vossoughi S., Ghotbi C., Study of The VAPEX Process in Fractured Physical Systems Using Different Solvent Mixtures, *Oil and Gas Science and Technology*, 2008.
18. Etminan S R, Maini B. B., **Kharrat R.**, The Role of Connate Water Saturation in VAPEX Process, *Journal of Canadian Petroleum Technology*, Vol. 47, No. 2, pp8-12, 2008.
19. Fatemi S.M. and **Kharrat R.**, "Feasibility Study of Top-Down In-Situ Combustion in Fractured Carbonate Systems", *Brazilian Journal of Petroleum and Gas*, Vol. 2, Issue 3, pp. 96-105, 2008.
20. Fatemi S.M. and Kharrat R., "3D Simulation Study on the Performance of Toe-to-Heel Air Injection (THAI) Process in Fractured Carbonate Systems", *Brazilian Journal of Petroleum and Gas*, Vol. 2, Issue 4, pp. 180-190, 2008.
21. Jahanshahi E., Salahshoor K., **Kharrat R.**, Online LQG stabilization of unstable gas-lifted oil wells, *Computer Aided Chemical Engineering*, Vol. 25, pp. 381-386. 2008.
22. Yadali Jamaloei, B., **Kharrat, R.**: Fundamental Study of Pore Morphology Effect in Low Tension Polymer Flooding or Polymer-Assisted Dilute Surfactant Flooding, *Transport in Porous Media*, 76, pp. 199–218, 2009.
23. Ghazanfari, M., Rashtchian, D., **Kharrat, R.**, Vossoughi, sh.: Transport property estimation of non uniform porous media, published in *J. chemistry & chemical engineering*, Vol. 28, No. 2, 2009.
24. Fatemi S.M., Ghotbi C., **Kharrat R.**, a, "Effect of Wells Arrangement on the performance of Toe-To-Heel Air Injection", *Brazilian Journal of Petroleum and Gas*, Vol.3., Issue 1, pp. 011-028, 2009.
25. Ghaderi S. M. , **Kharrat R.** , Tahmasebi H. A., Experimental and Theoretical Study of Calcium Sulphate Precipitation in Porous Media Using Glass Micromodel, *Oil & Gas Science and Technology-Revue de l'IFP*, 2009.
26. Yadali Jamaloei, B., **Kharrat, R.**: Analysis of Microscopic Displacement Mechanisms of Dilute Surfactant Flooding in Oil-wet and Water-wet Porous Media, *Transport in Porous Media*, 81:1–19, April 2009.
27. Fatemi S.M., **Kharrat R.**, Vossoughi S., d, "Simulation of the SAGD Process in a Laboratory-Scale Fractured Model", *World Heavy Oil Congress*, Paper 2009-303, Venezuela, 2009.
28. Fatemi, S.M., **Kharrat, R.**: Operational and reservoir parameters influencing the efficiency of stem-assisted gravity drainage (SAGD) process in fractured reservoirs, published in *Brazilian journal of petroleum and gas*, vol. 3, No. 4. P. 125-137, ISSN 1982-0953, 2009.
29. Alizadeh, A., Nakhli, H., **Kharrat, R.**, Ghazanfari, M., Aghajani, M.: Experimental Study of Asphaltene Precipitation Behavior during Miscible Carbon Dioxide Injection, *J. Energy Sources*, Part A, in print, 2009.
30. Mahdavi S., **Kharrat R.**: Thermodynamic Modeling of Asphaltene Precipitation in South Iranian Oil Reservoir, published in *J. Technical & Professional of exploration & Production*, 60 (2009).
31. Nakhli, H., Alizadeh, A., Afshari, S., **Kharrat, R.**, Ghazanfari, M.: Experimental and Modelling Investigations of Asphaltene Precipitation during Pressure Depletion and Gas Injection Operations, *J. Petroleum Science and Technology*, in print 2009.

32. EftekhariFar, M., Ali Riahi, M., **Kharrat, R.**: Investigation of Gustafson-Kessel Algorithm and Kohonen's Self-Organizing Maps for unsupervised Clustering of Seismic Attributes, *J. Seismic exploration* 18, 315-328 (2009).
33. Nasirahmadi, E., **Kharrat, R.**, Ghazanfari, M., Rashtchian, D.: Experimental Investigation of Constant and Concentration-Dependent Diffusivity of Hydrocarbon Solvents-Heavy Oil System: A Comparative Study, accepted for publication in journal of: *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 2009.
34. Dennis, P., Razzaghi, S., **Kharrat, R.**, Rashtchian, D. and Vossoughi, S., Studies of Iranian Heavy Oils Pertinent to Reservoir Conditions For Auto-Ignition to Initiate Fire Flooding. *Journal of Chemical Engineering Communications*, 2009.
35. Ghazanfari, M.H., **Kharrat, R.**, Rashtchian, and Vossoughi S." Details Model of Dispersion in Porous Media". *SPEJ*, in print, 2009.
36. Rostami, B., **Kharrat, R.**, Ghotbi, C., Alipour Tabrizy, V." Relationship between Wetting Properties and Macro scale Hydrodynamics during Forced Gravity Drainage and Secondary Waterflood ." *Journal of petroleum Science and Technology*, 28: 8, 804 - 815, 2009, April 2010.
37. Farzaneh S.A., **Kharrat R.**, Ghazanfari M.H., Experimental Study of Solvent Flooding to Heavy Oil in Fractured, 5-Spot Micro models: The Role of Fracture Geometrical Characteristics, *Journal of Canadian Petroleum Technology*, Vol. 49, No. 3, March 2010.
38. Yadali Jamaloei, B., **Kharrat, R.**: Analysis of Pore-level Phenomena of Dilute Surfactant Flooding in Presence and Absence of Connate Water Saturation, *Journal of Porous Media*, 2010, Volume 13, Issue 8, pp. 671-690.
39. Tavakkoli M., **Kharrat R.**, Masihi M. and Ghazanfari M. G., Prediction of Asphaltene Precipitation during Pressure Depletion and CO₂ Injection for Heavy Crude. *Journal of Petroleum Science and Technology*, 28: 9, 892 - 902, April 2010.
40. Mashayekhizadeh, V., **Kharrat, R.**, Ghazanfari, M.: Pore-level Investigation of Free Fall Gravity Drainage in Fractured Porous Media: The Role of Aperture Size and Tilt Angle, *J. Transport in Porous Media*, 87:561–584, January 2011, 2010.
41. Bagheri, M.B, **Kharrat, R.**, Hemattfar T .V, Ghotbi, C: Experimental investigation and genetic algorithm assisted optimization of asphaltene deposition process through porous media, *Journal of oil & gas European Magazine*, 8, 2010.
42. Bagheri, M.B, **Kharrat, R.**, Ghotbi, C.: Experimental investigation of asphaltene deposition process during different production schemes, *Oil & Gas Science and Technology-Revue de l'IFP*, Vol. 66 (2010), No. 3, pp. 507-519.
43. Bagheri, M.B, **Kharrat, R.**, Ghotbi, C.: Developing a new scaling equation for modeling of asphaltene precipitation, *Journal of Canadian Petroleum Technology (JCPT)*, awaiting final decision, 2010.
44. Bagheri, M.B, **Kharrat, R.** ., Ghotbi, C: Simulation study of permeability impairment due to asphaltene deposition in one of the Iranian oil fractured reservoirs, *Journal of Canadian Petroleum Technology (JCPT)*, Accepted for publication, 2010.
45. Yadali Jamaloei, B., Asghari, K., **Kharrat, R.**, Ahmadloo, R.: Pore-scale two-phase filtration in imbibition process through porous media at high- and low-interfacial tension flow conditions, Accepted for publication in *Journal of petroleum science and technology*, 2010.
46. Pourabdollah K., A. Zarringharam A., **Kharrat R.** ,Mokhtari B., Experimental feasibility study of in-situ nano-particles enhanced oil recovery and heavy oil production, *Energy Sources, part A: Recovery, Utilization, and Environmental Effects*, Accepted in October 2010.
47. Yadali Jamaloei, B., **Kharrat R.**, Asghari K. Pore-scale events in drainage process through porous media at high- and low-interfacial tension flow conditions, *Journal of petroleum science and Engineering* Vol 75, 2010, pp223-233.
48. Rostami B.; **Kharrat R.**; Pooladi-Darvish M.; Ghotbi C., the Dependency of Relative Permeability on Dominated Flow Regimes under Gas Gravity Assisted Flow, *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects* 33: 2, 101 — 113, October 2010.
49. Maghzi A., Mohebbi A., **Kharrat R.**, Ghazanfari M.H.: Pore-Scale Monitoring of Wettability Alteration by Silica Nanoparticles during Polymer Flooding to Heavy Oil in a Five-Spot Glass Micromodel, *journal of Transp Porous Med*, 87:653–664, December 2010.
50. Yadali J.B., **Kharrat, R.**, Asghari K., Ahmadloo F.: Pore-scale two-phase filtration in imbibition process through porous media at high- and low-interfacial tension flow

- conditions, *Journal of Petroleum Science and Engineering*, Volume 72, Issues 3-4, June 2010, Pages 251-269.
51. Ghazvini G., M., **Kharrat, R.**, Masihi, M., A new mathematical model for force gravity drainage in fractured porous media, *Transport Porous Media*, 2010, Vol. 83, pp711-724.
 52. Tahmasebi, H.A., **Kharrat, R.**, Soltanieh, M.: Dimensionless correlation for prediction of permeability reduction rate due to calcium sulfate scale deposition in carbonate grain packed column, *J. of the Taiwan Institute of Chemical Engineers*, Vol. 4 No. 3 may 2010, pp268-278.
 53. Ghazanfari M. H., **Kharrat R.**, Rashtchian D. Vossoughi S., Statistical Model for Dispersion in a 2D Glass Micromodel, *SPE Journal*, Vol. 15, No. 2, June 2010, pp301-312.
 54. Rostami B., **Kharrat R.**, Ghotbi S., Darvish F., Gas-Oil Relative Permeability and Residual Oil Saturation as Related to Displacement Instability and Dimensionless numbers, *Oil & Gas Science and Technology-Revue de l'IFP*, Vol. 65 (2010), No. 2, pp. 299-313.
 55. Dehghan, A.A., Farzaneh, S.A., **Kharrat, R.**, Ghazanfari, M.: Pore level investigation of heavy oil recovery during water alternating solvent injection processes, accepted for published in *journal of Trans. Porous media*, Aug, DOI 10.1007/11242-009-9463-5, (2010) 83:653–666.
 56. Dehghan A.A., **Kharrat R.**, Ghazanfari M.H.: Visualization and quantification of asphaltene heavy oil displacement by co-solvents at different wettability conditions, *Petroleum Science and Technology*, Vol. 28 (2010), pp 176-189.
 57. Dehghan, A.A., **Kharrat, R.**, Ghazanfari, M., Vossoughi, Sh.: Quantifying the role of pore geometry and medium heterogeneity on heavy oil recovery during solvent/co solvent flooding in water wet systems, accepted for publication in *journal of porous media*, 14(4):363–373(2011).
 58. Mahdavi S., **Kharrat R.**: Asphaltene Precipitation Prediction Using Micellization Model Based on Experimental Data, published in *J. petroleum science and technology*, 29: 11, 1133-1146, April 2011.
 59. Alizadeh, A., Nakhli, H., **Kharrat, R.**, Ghazanfari, M.: Experimental Investigation of Asphaltene Precipitation during Natural Production of Heavy and Light Oil Reservoirs: The Role of Pressure and Temperature, *J. Petroleum Science and Technology*, 29: 10, 1054 — 1065, March, 2011.
 60. Shahvar M.B., **Kharrat R.**, Badounak N. D.: A new approach for compressional slowness modeling using wavelet coefficients, *Energy Sources Part A Recovery Utilization and Environmental Effects* 01 (2011); 36(19).
 61. Nikpoor, M.H., **Kharrat, R.**, Zhangxin, C.: Modeling of compositional grading and plus fraction properties changes with depth in petroleum reservoirs, published in *journal of petroleum science and technology*, 29: 9, 914 – 923, March 2011.
 62. Nikpoor, M.H., **Kharrat, R.**: Introducing a New Method of Predicting PVT Properties for Iranian Crude Oils Applying Artificial Neural Networks, *Journal of petroleum science and technology*, 29: 10, (2011), 1066 – 1079.
 63. Pak, T., **Kharrat, R.**, Bagheri, M., Khalilia, M., Hematfar., V.: Experimental study of Asphaltene deposition during different production mechanisms, *Journal of petroleum science and technology (JPST)*, Vol. 29, Issue 17, 2011, pp. 1853-1863.
 64. Naseryan Moghadam, J., Salahshoor, K., **Kharrat, R.** Introducing a New Method for Predicting PVT Properties of Iranian Crude Oils Applying Artificial Neural Networks, published in *J. Petroleum Science & Technology*, 29: 10, 1066 - 1079, March 2011.
 65. Fatemi S.M., **Kharrat R.**: Assessment of Vapor Extraction (VAPEX) process performance in naturally fractured reservoirs, *Journal of Petroleum Science and Engineering*, Volume 75, Issues 3-4, January 2011, Pages 260-273.
 66. Yadali J. B., **Kharrat R.**, Torabi F.: The influence of pore wettability on the microstructure of residual oil in surfactant-enhanced water flooding in heavy oil reservoirs: Implications for pore-scale flow characterization, *Journal of Petroleum Science and Engineering*, Volume 77, Issue 1, April 2011, Pages 121-134.
 67. Shahvar M.B., Dashtbesh N., and **Kharrat R.**: A new Domain for Reservoir Properties Characterization: *Energy Sources Part A Recovery Utilization and Environmental Effects*, Jan 2011.
 68. Yadali J.B., **Kharrat, R.**: The influence of pore geometric characteristics on flow instability and micro scale physical displacement mechanisms of dilute surfactant flooding in mixed wet porous media, to be published in the *Journal of Porous Media* volume 14, 2011.

69. Fatemi S.M.; **Kharrat R.**; Ghotbi C., The Assessment of Fracture Geometrical Properties on the Performance of Conventional In-Situ Combustion, *Journal of Petroleum Science and Technology*, 29: 6, pp.613 – 625, February 2011.
70. Rasti F.; Masihi M.; **Kharrat R.**, The Semi-Analytical Modeling and Simulation of the VAPEX Process of “Kuh-e-Mond” Heavy Oil Reservoir, *Journal of Petroleum Science and Technology*, 29: 5, 535 - 548, January 2011.
71. Shahvar M.B., Dashtbesh N., and **Kharrat R.**: A new approach for compressional modeling using wavelet coefficients, *Energy Sources Part A Recovery Utilization and Environmental Effects*, Jan 2011.
72. Najafi, S. M., Mousavi M. R., Ghazanfari M. H, Ghotbi C., Ramazani A., **Kharrat R.**, and Amani M., Quantifying the Role of Ultrasonic Wave Radiation on Kinetics of Asphaltene Aggregation in a Toluene–Pentane Mixture, *Journal of Petroleum Science and Technology*, Vol 29, Issue 9 (2011), 29: PP 966-974.
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PHD DISSERTATION SUPERVISED:

1. Theoretical and Experimental study of the VAPEX process in fractured heavy oil systems, **Azin R.**, 2007.
2. Prediction of Multi-Phase Flow Properties in a MIXED-Wet Porous Medium Using Micromodel Experiments and Pore-Scale Modeling, **M.H. Ghazanfari**, 2008.
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2. The Construction of Slim Tube Apparatus and its Application for Measuring the Minimum Miscibility Pressure (MMP), **Jafar Sadegh Mogaddas**, M.S., 1992.
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9. The Theoretical Prediction of Minimum Miscibility Pressure Using Equation of State, **Jalal Harati**, M.S., 1994.
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15. Effects of Polymers (Kelzan XC and Driscal D LTO # 1056) on Rheological and Filtration Properties of Drilling Mud, **Ismail Babaki**, M.S., 1997.
16. The Rheological Behavior of Drilling Mud at Real Field Conditions- Southern Region of Iran, **Nasser Pour Ayoubi**, M.S., 1998.
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27. Simulation & Modeling of the Fouling Phenomena for the Heat Exchanger unit of Razi Petrochemical Plant, **Zarinabadi S.**, M.S., 2000.
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29. Optimization of Field Operation Parameters of T.E.G. Dehydration Units of Ghajrsaran region (Gas Compression), **Davoodi S. A.** M.S., 2000.
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31. Experimental Study of the Application of Malas and the Effect of Salt on the Rheological & Physical Properties of Drilling Fluids, **Zarie, A.**, M.S., 2000.
32. Design and Construction of Drilling Circulation System for the Comprehensive study of Drilling Fluids, **Soltani, A.**, M.S., 2000.
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4. Properties of Petroleum Fluids
5. Properties of Petroleum Fluids Lab.
6. Applied Mathematics in Petroleum Engineering
7. Applied Mathematics in Chemical Engineering
8. Design and Economics in Chemical Engineering
9. Design and Economics in Petroleum Engineering
10. Enhanced Oil Recovery
11. Advanced Design

12. Advanced Drilling Fluids
13. Advanced Mathematics in Chemical Engineering
14. Advanced Mathematics in Petroleum Engineering
15. Advanced Modeling & Simulation in Chemical Engineering
16. Advanced PVT Analysis
17. Advanced Enhanced Oil Recovery
18. Reservoir Simulation
19. Advanced modeling & Reservoir Simulation
20. Applied Mathematics in Accounting & Management
21. Advanced Improved and Enhanced Oil recovery for Reservoir Management
22. Reservoir Simulation for Reservoir Management
23. Enhanced Oil Recovery of Naturally Fractured Carbonated Reservoir