

Mahmood Moshfeghian Resume

Personal Data: Born in 1951, Married, 2 Daughters and 2 Sons

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Current Positions

- Professor, School of Chemical, Petroleum and Gas Engineering, Shiraz University, Shiraz, Iran, 1979 - Present
- Senior Technical Advisor, PetroSkills/Campbell, Houston, TX, USA, Jan 2005 - Present

Education:

BS, 1974; MS, 1975; Ph.D., 1978; Post Doc, 1978-1979
(All in Chemical Engineering at Oklahoma State University, Stillwater, USA)

Theses (Supervisor: Professor K. J. Bell)

- **"The Effect of 180 Degree Bend on Turbulent Heat Transfer Coefficient in Pipes,"** MS Thesis, Oklahoma State University, Stillwater, Oklahoma, July 1975.
- **"Fluid Flow and Heat Transfer in U-Bends,"** Ph.D. Thesis, Oklahoma State University, Stillwater, Oklahoma, May 1978.

Major Areas of Research

- Gas Conditioning and Processing
- Process Design, Simulation and Software Development
- Hydrate, Wax, and Asphaltene Formation and Management, Multi-Phase Fluid Flow
- Fluid Phase Equilibria, Equations of State; Thermodynamic Properties
- Petroleum Production and EOR

Publications / Training Courses & Workshops for Oil and Gas Industries

- More than 120 papers in refereed journals
- More than 95 presentations in International Conferences
- More than 90 Tip of the Month published at: <http://www.jmcampbell.com/tip-of-the-month/>
- More than 10 research reports
- Conducted more than 100 **Training Courses** and computer aided design workshops for oil and gas industries including international oil companies (Shell, BP, and ExxonMobil, Chevron, ESSO, ARAMCO, GASCO, ENOGEX, DCP, ENERFLEX, Williams, RasGas, QatarGas, RepSol, TCO, KPO, QP, KISR, NIOC and NIGC).

Computer Skills

FORTRAN, Visual Basic, MathCad

Aspen Plus, HYSYS/UniSim, ProMax, VMG, CMG, ProTreat, ProTherm, PipePhase, GCAP, EzThermo

eLearning: Moodle, Adobe

Consultant for:

- John M. Campbell/PetroSkills, Houston, TX, USA

Previous consultant for:

- Chemical Engineering Consultant, Stillwater, OK, USA
- Pessanj Co. Ltd., Specialist in Crude Oil and Product Survey, Tehran, Iran
- National Iranian Oil Company, Tehran, Iran
- National Iranian Petrochemical Company, Tehran, Iran
- National Iranian Gas Company, Tehran, Iran
- Kharg Petrochemical Company, Kharg Island, Iran
- Shiraz Petrochemical Complex, Shiraz, Iran
- Shiraz Oil Refinery, Shiraz Iran
- Razi Petrochemical Complexes, Mahshahr, Iran
- Petrochemical Industries Design and Engineering Company (PIDEC), Shiraz, Iran
- Padena Engineering and Design Company, Shiraz, Iran
- Oil Industries Engineering and Construction Company (OIEC), Tehran, Iran

Typical Industrial Projects Supervised:

- “Feasibility study of natural gas transportation by hydrate formation processes”, 2002.
- “Simulation of Natural Fractionation unit of Bandar Imam Petrochemical Complex to determine distribution of sulfur-containing compounds in the LPG products”, 2000.
- “Study of asphaltene deposition well pipe for Ahwaz Oil Production Zone”, 1999.
- “Simulation and design of fractionation unit for Sepidan ethanol plant”, 1997.
- “Simulation and design of flare system for Kharg Methanol plant”, 1997.
- “Simulation of fractionation unit of Bandar Imam MTBE plant”, 1996.
- “Simulation of absorber column in Hasheminezhad gas plant to increase capacity”, 1995.
- “Replacement of R-22 with propane in the refrigeration unit of Shiraz Petrochemical Complex”, 1995.
- “Simulation and design of gas compression plant for Ghachsaran EOR projects”, 1994.
- “Study of hydrate formation in the well head for Gachsaran Oil Production Zone”, 1994.
- “Simulation of the MIS-Mahshar sour gas pipeline to increase line capacity”, 1994.
- “Simulation and design of flare system for Shiraz Methanol Plant”, 1992
- “Simulation of LP-thank odorization and determining the mercaptan content”, 1990.
- “Simulation and design of fractionation unit of Isfahan aromatic plant”, 1986
- “Simulation and design of absorber and stripper column of the gas sweetening unit of Vali-Asar gas plant”, 1984
- “Study the cause of hydrogen blistering in the fractionation unit of Mahshahr NGL plant”, 1982.

Academic Training:

In addition to conducting computer aided design workshops using modern tools for working engineers in the fields of oil, gas and petrochemicals, 4 PhD and 29 MS students were supervised by Mahmood Moshfeghian. Many of these trained personal are holding high positions as faculty member in universities and also in various fields of industry.

Professional Experiences

- Professor, Chemical Engineering Department, Shiraz University, 1991-Present
- Senior Technical Advisor/Senior instructor/ PetroSkills/Campbell, Houston, TX, USA, Jan 2015 - Present
- Senior Research Engineer/instructor/consultant, John M. Campbell/PetroSkills, Norman, OK, USA, Aug 2005- Dec 2014
- Senior Research Scientist, Kuwait Institute for Scientific Research, Petroleum Research & Studies Center, Sep. 2003- 2005
- Professor, Chemical Engineering Department, Qatar University, Sep. 2000 – Sep 2003
- Chairman of ABET Committee, Qatar University, Sep 2000 – Sep 2003
- Associate Professor, Chemical Engineering Department, Shiraz University, 1986-1991
- Assistant Professor, Chemical Engineering Department, Shiraz University, Aug 1979-1986
- Director of Graduate Studies, School of Engineering, Shiraz University, 1997-2000
- Chairman, the 4th International Chemical Engineering Conference, Shiraz, Iran, April 24-27, 2000.
- Dean, School of Engineering, Persian Gulf University, May 1991 - 1993.
- Vice Dean for Research, School of Engineering, Shiraz University, July 1991 - Sep 1992 and Nov 1985 - Sep 1989
- Head, Chemical Engineering Department, Shiraz University, Sep 1990-Jul 1991 and Jun 1985 - Nov 1985
- Member of Editorial Board, International J. of Oil, Gas and Coal Technology 2010-Present
- Editor-in-Chief, Iranian Journal of Science and Technology 1993-1995.
- Member of Editorial Board (1995-2005):
 - International J. of Modeling and Simulation
 - Modares Journal of Engineering and Technology
 - Iranian Journal of Chemistry and Chemical Engineering
- Member of Advisory Board (1990-2000):
 - Amir Kabir Journal, Scientia Iranica Journal, Iranian Petroleum Institute Journal
- Member of Chemical Engineering Scientific Committee, Ministry of Higher Education, 1997 - 2000
- Member of Promotion Committee, Petroleum Industries Research Institute, 1999- 2000
- Member of Educational Committee, Petroleum Industries University, 1999- 2000
- Member of Graduate Studies Committee, Petroleum Industries University, 1999- 2000
- Member of Oil and Gas Scientific Committee, Ministry of Higher Education, January 1999 - 2000
- Member of Scientific Committee, Regional Library of Science and Technology, January 1993 - 1998

- Visiting Professor, Department of Chemical Engineering, University of Sydney, Sydney, Australia, February 96-July 96.
- Visiting Professor, School of Chemical Engineering, Oklahoma State University, Stillwater, Oklahoma, Jul 99-Sep 99, Jul 98-Sep 98, Jul 97-Sep 97, Mar 97-Apr 97, Aug. 96-Feb. 97, July 93 - Sept. 93, Sept. 89 - Sept. 90, July 87 - Sept. 87, and July 85-Sept. 85
- CO-Chairman, International Congress on Computational Method in Engineering, Shiraz, Iran, May 2-6, 1993

Honors, Awards and Professional Organizations

- Third Place Best Paper Presentation at the 3rd International Gas Processing Symposium, March 5-7, 2012, Doha, Qatar
- John M Campbell 2011 President's Award, Mar 2012
- John M Campbell 2008 President's Award, Jan 2009
- Distinguished Scientist, Selected by the Organization of Islamic Countries Scientific Committee, 2008
- Associate Member of Iranian Academy of Science, 1998-2003
- Shiraz University Distinguished Professor, 1997-1998.
- Shiraz University Outstanding Professor, 1994-1995, 1993-1994, 1992-1993.
- International Who's Who of Intellectuals, 1993
- Senior Member of the American Institute of Chemical Engineering (AIChE), 1973-Present
- Member of the Iranian Association of Chemical Engineering (IACHE)
- Member of the Iranian Institute of Chemistry and Chemical Engineering
- Member of the Iranian Petroleum Institute.
- Best paper presentation, Gold, the Iranian Petroleum Institute
- The Oklahoma State University International Graduate Student of the Year, 1977-1978
- Member of the Tau Beta Pi (Sigma Tau)
- Member of the Phi Eta Sigma
- Dean's Honor Roll of Distinguished Students, Oklahoma State University
- International Student Scholarship, Oklahoma State University, 1972-1973
- Atomic Energy Organization of Iran Scholarship, January to December 1977

Courses Taught at Shiraz University, Oklahoma State University, University of Sydney, Petroleum University of Technology, Persian Gulf University, and University of Qatar

- Thermodynamics (BS, MS and Ph.D.)
- Solution Thermodynamics (Ph.D.)
- Introduction to Gas Conditioning and Processing (BS)
- Gas Liquefaction (BS)
- Computer Aided Design (BS, MS and Ph.D.)
- Fluid Mechanics (BS, MS and Ph.D.)
- Transport Phenomena (MS)
- Multi-Component Separations (MS)
- Unit Operations I and II (BS)

- Applied Mathematics in Chemical Engineering (BS, MS))
- Chemical Reaction Engineering (BS)
- Process Heat Transfer (MS)
- Multi-component Distillation (BS)
- Phase Behavior and PVT of Reservoir Fluids (MS)

Key Note Speeches:

1. **“An Overview of LNG Production Technologies”**, 9th Iranian Chemical Engineering Conference, Tehran, Iran, Nov. 23-25, 2004
2. **“Natural Gas Transportation and Applications of Gas Hydrates”**, 12th Gas, Oil, and Petrochemical Industries Congress, Tehran, Feb. 24-26, 2003
3. **"Role of Thermodynamics in Computer Simulation and Design of Chemical Engineering Processes"**, 3rd Iranian Chemical Engineering Congress, Ahwaz, Iran, 1998
4. **"Role of Computer in Chemical Engineering Education"**, 2nd Iranian Chemical Engineering Congress, Tehran, Iran, 1997

Invited Speakers:

- University of Sydney, Australia
- University of New South Wales, Australia
- Oklahoma State University, USA
- Delft University of Technology, Netherlands
- University of Qatar, Qatar
- University of United Arab Emirates, UAE
- Kuwait Institute for Scientific Research, Kuwait
- American University of Sharjah, UAE
- University of Kuwait, Kuwait
- Heriot Watt University, Edinburgh, UK
- Most Iranian Universities:
 - University of Shiraz, Shiraz
 - Sharif University of Technology, Tehran
 - Amirkabir University of Technology, Tehran
 - Isfahan University of Technology, Isfahan
 - University of Isfahan, Isfahan
 - Tarbiat Modares University, Tehran
 - University of Petroleum Industries, Ahwaz
 - Sistan and Blochestan University, Zahedan
 - University of Boshehr, Boshehr
 - University of Mazanderan, Amol
 - University of Babol, Babol

Publications and Conference Presentations (As of Jan 2015)

Handbook Contribution Publication:

Riegel's Handbook of Industrial Chemistry, 11th Edition; Chapter 20: Natural Gas; by Robert N. Maddox, **Mahmood Moshfeghian**, James D. Idol; Arland H. Johannes; Edited by Kent. Kluwer Academic/Plenum Publishers, New York 2012

Published in Refereed English Language Journals:

1. Nasrifar, Kh., and **Moshfeghian, M.**, "Vapor-Liquid Equilibria of Binary Associating Fluids Using a Cubic Equation of State with Limited Data," *Industrial & Engineering Chemistry Research*, 53 (5), pp 2052-2061, 2014.
2. Zirrahi, M., Hassanzadeh, H., Abedi, J. and **Moshfeghian, M.**, "Prediction of solubility of CH₄, C₂H₆, CO₂, N₂ and CO in bitumen," *The Canadian J. of Chemical Engineering*, 92, (3), pp 563-572, 2014
3. Nazarzadeh, M. and **Moshfeghian, M.**, "New volume translated PR equation of state for pure compounds and gas condensate systems," *Fluid Phase Equilibria, Fluid Phase Equilibria* 337, 214–223. 2013
4. Mohebi, V., Nadrifar, A., Behbahani, R.M., **Moshfeghian, M.**, "Investigation of kinetics of methane hydrate formation during isobaric and isochoric processes in an agitate dreactor," *Chemical Engineering Science*, 76, 58–65, 2012
5. Mohebi, V., Nadrifar, A., Behbahani, R.M., **Moshfeghian, M.**, "Determination of Henry's law constant of light hydrocarbon gases at low temperatures," *J. Chem. Thermodynamics*, Volume 51, 8–11, 2012
6. Zirrahi, M., Azin, R., Hassanzadeh, H., **Moshfeghian, M.** "Mutual solubility of CH₄, CO₂, H₂S, and their mixtures in brine under subsurface disposal conditions," *Fluid Phase Equilibria, Fluid Phase Equilibria* 324, 80–93. 2012
7. Nasrifar, Kh., and **Moshfeghian, M.**, "Multiphase equilibria of waxy systems with predictive equations of state and a solid solution model," *Fluid Phase Equilibria*, 314, 60-68, 2012.
8. Reshadi, P., Nasrifar, Kh., and **Moshfeghian, M.**, "Evaluating the phase equilibria of liquid water + natural gas mixtures using cubic equations of state with asymmetric mixing rules," *Fluid Phase Equilibria*, 302, pp 179-189, 2011.
9. Zirrahi, M., Azin, R., Hassanzadeh, H., **Moshfeghian, M.** "Prediction of water content of sour and acid gases," *Fluid Phase Equilibria*, 299, pp 171-179, 2010.
10. Riazi, M.R., and **Moshfeghian, M.**, "A thermodynamic model for LLE behavior of oil/brine/ionic-surfactant/alcohol co-surfactant systems for EOR processes," *J. of Petroleum Science and Engineering*, 67 pp. 75-83 (2009).
11. Najibi, H., Rezaei, R., Javanmardi, J., Nasrifar, Kh. And **Moshfeghian, M.**, "Economic Evaluation of Natural Gas Transportation from Iran's South-Pars Gas Field to Market," *Applied Thermal Engineering* Volume 29, Issue 10, PP Pages 2009-2015, 2009,
12. Taraf, R., Behbahani, R. and **M. Moshfeghian**, "Direct Prediction of Cricondentherm and Cricondenbar Coordinates of Natural Gas Mixtures using Cubic Equation of State," *International J. of Thermophysics*, Vol 29, Issue 6, p1954 (2008).
13. Javanmardi, Nasrifar, Kh., S.H. Najibi, and **M. Moshfeghian**, "Natural Gas Transportation: NGH or LNG?", *World Review of Science, Technology and Sustainable Development*, Vol 4, No 2 /3 (2007)

14. Salman, M., Qabazard, H. and **M. Moshfeghian**, "Water Scaling Case Studies in a Kuwaiti Oil Field," *J. of Petroleum Science and Engineering*, 55, pp 48-55 (2007)
15. Javanmardi, Nasrifar, Kh., S.H. Najibi, and **M. Moshfeghian**, "Feasibility of transporting LNG from South-Pars gas field to potential markets," *J. of Applied Thermal Engineering*, 26, pp.1812-1819 (2006)
16. **Moshfeghian, M.**, Maddox, R.N., and A.H. Johannes, "Application of Exponential Decay Distribution of C₆₊ Cut for Lean Natural Gas Phase Envelope," *J. of Chem. Engr. Japan*, Vol 39, No 4, pp.375-382 (2006)
17. Qabazard H. and **M. Moshfeghian**, "A Generalized Correlation for Pool Boiling Heat Transfer Coefficient based on Corresponding State Rule for Pure Compounds and Binary Mixtures," *IASME Transactions*, Vol 2, Issue 9, p.1634-1639, (2005).
18. Javanmardi, J.; Nasrifar, Kh., and **M. Moshfeghian**, "Comparing Different Methods for Prediction of Liquefied Natural Gas Densities," *Engineering J. of the University of Qatar*, Vol. 18, Pages 39-56 (2005)
19. Javanmardi, Nasrifar, Kh., S.H. Najibi, and **M. Moshfeghian**, "Economic evaluation of natural gas hydrate as an alternative for natural gas transportation," *J. of Applied Thermal Engineering*, 25 1708–1723 (2005)
20. Nasrifar, Kh., Bolland, O., and **M. Moshfeghian**, "Predicting Natural Gas Dew Points from 15 Equations of State," *J. of Energy and Fuel*, Vol. 19, Pages 561-572, (2005)
21. Akbarzadeh, K., Ayatollahi, Sh., Nasrifar, Kh., Yarranton, H.W., and **M. Moshfeghian**, "Prediction of the Densities of Western Canadian Heavy Oils and their SARA Fractions from the Cubic Equations of State," *Iranian J. of Science and Technology, Transaction B*, Vol 28, No. B6, pp 695-699 (2004)
22. Javanmardi, J., Ayatollahi, Sh., Motealleh, R. and **M. Moshfeghian**, "Experimental Measurement and Modeling of R22 (CHClF₂) Hydrates in Mixtures of Acetone + Water," *J. of Chemical Engineering Data*, 49, 886-889 (2004)
23. Mchaweh, A.; Alsaygh, A.; Nasrifar, Kh. and **M. Moshfeghian**, "A simplified method for calculating saturated liquid densities," *J. of Fluid Phase Equilibria*, 224, 2, pp. 167-167, (2004)
24. Akbarzadeh, K., Ayatollahi, Sh., **Moshfeghian, M.**, Alboudwarej, and H.W. Yarranton, "Estimation of SARA fraction properties with the SRK EOS," *J. f Canadian Petroleum Technology*, Vol. 43, No. 9, (2004)
25. Nasrifar, Kh. and **M. Moshfeghian**, "Application of an improved equation of state to reservoir fluids: Computation of Minimum Miscibility Pressure," *J. of Science and Engineering*, Vol. 42, Pages 23-234, (2004)
26. Ayatollahi, Sh., Narimani, M. and **M. Moshfeghian**, "Intermittent Gas-Lift Study in Aghajari Oil Field," *J. of Petroleum Science and Engineering*, Vol. 42, Pages 245-255 (2004)
27. Nasrifar, Kh; Ayatollahi, Sh. and **M. Moshfeghian**, "Predict the properties of aqueous mixed electrolyte solutions using the properties of respective aqueous single electrolyte solution only," *Engineering J. of Qatar University*, Vol. 16, pp. 29-38, (2003)
28. Javanmardi, J. and **M. Moshfeghian**, "Energy Cnosumption and Economic Evaluaion of Water Dessalination by Hydrate Phenomonn," *J. of Applied Thermal Engineering*, in Vol 23, pp. 845-857, (2003)
29. Nasrifar, Kh., Mooijer-van den Heuvel, M.M., Peters, C.J., Ayatollahi, Sh. and **M. Moshfeghian**, "Measurements and modeling of bubble points in binary carbon dioxide

- systems with tetrahydropyran and methylcyclohexane," J. of Fluid Phase Equilibria, 204, pp. 1-14, (2002)
30. Nasrifar, Kh. and **M. Moshfeghian**, "Vapor-Liquid Equilibria of LNG and Gas Condensate Mixtures by Nasrifar-Moshfeghian Equation of State," J. of Fluid Phase Equilibria, Vol. 200, pp.203-216, (2002)
 31. Javanmardi, J., **Moshfeghian, M.** and C. J. Peters, "Modeling of Hydrate Formation Conditions in Mixtures of Methane, Water and Acetone," Iranian J. of Science and Technology, Transaction B, Vol. 26, No. B2, pp 241-248, (2002)
 32. Arab Abousadi, Z. and **M. Moshfeghian**, "Combining the CORGC and UNIFAC models for prediction of multi-component VLE behavior for polar systems," J. of Scientia Iranica, Vol. 9, No. 1, pp 19-28, (2002)
 33. Nasrifar, Kh. and **M. Moshfeghian**, "Liquid-Liquid Equilibria of Water + Hydrocarbon Systems from Cubic Equations of State," J. of Fluid Phase Equilibria, 193, pp. 261-275 (2002)
 34. Nasrifar, Kh. and **M. Moshfeghian**, "A New Cubic Equation of State for Simple Fluids: Pure and Mixtures," J. of Fluid Phase Equilibria, 190, pp. 73-88, (2001)
 35. Akbarzadeh, K. and **M. Moshfeghian**, "Application of the Polymer Chain-of-Rotator (PCOR) Equation of State and its Extension to Polymer Blends," J. of Fluid Phase Equilibria, 187-188, pp. 347-361, (2001)
 36. Nasrifar, Kh. and **M. Moshfeghian**, "A Model for Prediction of Gas Hydrate Formation Conditions in Aqueous Solutions Containing Electrolytes and/or Alcohol," J. of Chemical Thermodynamics, 33, 999-1014, (2001)
 37. Shariati, A., C. J. Peters, and **M. Moshfeghian**, "Further Evaluation of the Shariati-Peters-Moshfeghian C_{7+} Characterization Method," J. of Fluid Phase Equilibria, 179(1-2), 23-41 (2001).
 38. Javanmardi, J., **Moshfeghian, M.** and R. N. Maddox, "An Accurate Model for Prediction of Gas Hydrate Formation Conditions in Mixture of Aqueous Electrolyte Solutions and Alcohol," Canadian J. of Chemical Engineering, 79, 367-373, (2001)
 39. Nasrifar, Kh., Ayatollahi, Sh. and **M. Moshfeghian**, "Improving the Simplified-Perturbed-Hard-Chain Theory Equation of State Using a New Non-Attracting Hard-Sphere Equation", Canadian J. of Chemical Engineering, 78, 1111-1119, (2000)
 40. Javanmardi, J., **Moshfeghian, M.** and R. N. Maddox, "Application and Extension of Aasberg-Petersen Model for Prediction of Gas Hydrate Formation Conditions in Mixture of Aqueous Electrolyte Solutions and Alcohol," Gas: hydrates: challenge for the future/edited by Gerald D. Holder and P. R. Bishnoi, Annals of the New York Academy of Sciences, 713 -721 (2000)
 41. Nasrifar, Kh., and **M. Moshfeghian**, "Computation of Equilibrium Hydrate Formation Temperature for CO_2 and Hydrocarbon Gases Containing CO_2 in the Presence of an Alcohol, Electrolytes and their Mixtures," J. of Petroleum Sciences and Engineering, 26, Nos. 1-4, (2000)
 42. Saghafi, A. and **M. Moshfeghian**, "Evaluation of vapor-liquid equilibrium of ethane binary systems using UNIQUAC-based mixing rules and its extension to multi-component systems", J. of Fluid Phase Equilibria, 169, No. 1, pp. 31-47 (2000)
 43. Javanmardi, J. and **M. Moshfeghian**, "A New Approach for Prediction of Gas Hydrate Formation Conditions in Mixture of Aqueous Electrolyte Solutions," J. of Fluid Phase Equilibria, 168, No. 2 pp. 135-148 (2000)

44. Nasrifar, Kh., Ayatollahi, Sh. and **M. Moshfeghian**, "A Compressed Liquid Density Correlation", J. of Fluid Phase Equilibria, 168, No. 2, pp. 149-163 (2000)
45. Nasrifar, Kh., Ayatollahi, Sh. and **M. Moshfeghian**, "Generalized Saturated Liquid Density Prediction Method for Pure Compounds and Multi-component Mixtures", J. of Fluid Phase Equilibria, 168, No. 1, pp. 71-90 (2000)
46. Nasrifar, Kh., Ayatollahi, Sh. and **M. Moshfeghian**, "An Extended Saturated Liquid Density Equation," J. of Fluid Phase Equilibria, Vol. 166, pp. 163-181, (1999)
47. Nasrifar, Kh. and **M. Moshfeghian**, "Evaluation of Liquid Density Prediction Methods for Pure Refrigerants," J. of Fluid Phase Equilibria, 158-160, pp. 437-445, (1999)
48. Shariati, A., **Moshfeghian, M.** and R.N. Maddox, "The Effect of Correct C₆₊ Characterization on the Computer Simulation of Two-Phase Flow Pipelines", International J. of Modeling and Simulation, Vol. 19, No. 4, pp. 352-356 (1999)
49. Nasrifar, K. and **M. Moshfeghian**, "A Saturated Liquid Density Equation in Conjunction with the Predictive Soave-Redlich-Kwong Equation of State for Pure Refrigerants and LNG Multi-component Systems," J. of Fluid Phase Equilibria, Vol. 153, pp. 231-242, (1998)
50. Nasrifar, Kh. and **M. Moshfeghian** "Comparative Study of the Equations of State for Prediction of Properties of Two Newly Developed Refrigerants," Modres J. of Engineering, No. 4, pp. 93-102, (1999)
51. Shariati, A., C. J. Peters, and **M. Moshfeghian**, "A Systematic Approach to Characterize Gas Condensates and Light Petroleum Fractions," J. of Fluid Phase Equilibria, Vol. 154, pp. 165-179, (1999).
52. **Moshfeghian, M.**; Maddox, R. N.; Johannes, A. J.; Amiri, S. and Sh. Saremi "Computer Simulation of Gas Treating Unit and Comparison with Plant Data," Eng. J. of Qatar University, Vol. 11, pp. 91-102, (1998).
53. Shariati, A., C. J. Peters, and **M. Moshfeghian**, "Bubble Point Pressures of Some Petroleum Fractions in the Presence of Methane or Carbon Dioxide," J. Chem. Eng. Data, V. 43, No. 5, pp. 789-790, (1998).
54. Shariati, A., C. J. Peters, and **M. Moshfeghian**, "Bubble Point Pressures of Some Selected Carbon Dioxide + Synthetic C₆₊ Mixtures," J. Chem. Eng. Data, V. 43, No. 5, pp. 785-788, (1998).
55. Shariati, A., C. J. Peters, and **M. Moshfeghian**, "Bubble Point Pressures of Some Selected Methane + Synthetic C₆₊ Mixtures," J. Chem. Eng. Data, 43, pp. 280-282, (1998).
56. Nasrifar, Kh.; **Moshfeghian, M.** and R.N. Maddox, "Prediction of Equilibrium Conditions for gas Hydrate Formation in the Mixtures of both Electrolyte and Alcohols," J. of Fluid Phase Equilibria, 146, pp. 1-13, (1998).
57. Javanmardi, J.; **Moshfeghian, M.** and R.N. Maddox, "Simple Method for Predicting Gas-Hydrate-Forming Conditions in Aqueous Mixed-Electrolyte Solutions," J. of Energy and Fuel, Vol. 12, No. 2, (1998).
58. Sarshar, M., and **M. Moshfeghian**, "Vapor-Liquid Equilibrium Calculation of H₂S-CO₂-Alkanolamine Solution Using Gibbs-Free Energy Minimization," Iranian J. of Science and Technology, Vol. 22, No. 1 (1998).
59. Mainusch, S., Peters, C. J., de Swaan Arons, J., Javanmardi, J. and **M. Moshfeghian** "Experimental Determination and Modeling of Methane Hydrates in Mixtures of Acetone and Water", Journal of Chemical and Engineering Data, 42(5), 948-950, (1997).

60. Keshtkar, A.; F. Jalali, and **M. Moshfeghian**, "Evaluation of Vapor-Liquid Equilibrium for CO₂ Binary Systems with UNIQUAC-Based Horon-Vidal Mixing Rules", *J. of Fluid Phase Equilibria*, 140, pp. 107-128 (1997).
61. Rahimian, S. and **M. Moshfeghian**, "Optimization of Kihara Potential Parameters for Gas Hydrate Prediction in the Presence of Electrolytes", *Arabian J. for Science and Engineering*, Vol. 22, No. 2B, (1997).
62. Keshtkar, A.; F. Jalali, and **M. Moshfeghian**, "Development of PSRK/UNIQUAC Model to Methane and Nitrogen Gases", *J. of Fluid Phase Equilibria*, 145, pp. 225-237 (1998).
63. Bakhti, R.; F. Jalali and **M. Moshfeghian**, "Vapor Liquid Equilibria in Strong Electrolyte Solutions by the CORGC Equation of State," *Chem. Eng. Comm.*, Vol. 155, pp. 179-195, (1996).
64. Javanmardi, J. and **M. Moshfeghian**, "Computer-Aided Graphic Phase Behavior by Equation of State," *Iranian J. of Science and Technology*, Vol. 20, No. 1 (1996).
65. Nasrifar, K. and **M. Moshfeghian**, "Prediction of Liquid Density of LNG, N₂, H₂S and CO₂ Multi-component Systems by the CORGC Equation of State," *J. of Fluid Phase Equilibria*, 112, pp. 89-99 (1995).
66. **Moshfeghian, M.** and M. Zia-Razzaz, "Accurate Prediction of Thermodynamic Properties of Alcohols, Ketones and Ethers by MCORGC EOS" *J. of Eng.*, Islamic Republic of Iran (1995).
67. Mowla, D.; M.S. Hatamipour and **M. Moshfeghian**, "The Effect of Dilute Polymer Solutions on Drag Reduction in Horizontal Two Phase Flow," *International J. for Engineering Analysis and Design*, Vol. 2, 97-105 (1995).
68. **Moshfeghian, M.**; A. Soltani Goharrizy and I. N. H. Saber, "Liquid Density of Pure and Multi-component Fluids by the Scaled -Variable-Reduced-Coordinate (SVRC) Method", *Eng. J. of Qatar University*, Vol. 8, pp. 13-29 (1995).
69. Lashkari, S. and **M. Moshfeghian**, "Simulation of Three-Phase Distillation Column Using Bubble Point and Φ - Φ Approach", *Eng. J. of Qatar University*, Vol. 8, pp. 43-64 (1995).
70. **Moshfeghian, M.** and R. N. Maddox, "HYDRATE +: Simulation of High Pressure Flow Line Hydrate Formation Conditions," Eds. E. D. Sloan, J. Happel and M. A. Hantow, *Annals of New York Academy of Sciences*, Vol. 715, 1994.
71. Soltan Mohammad Zadeh, J. S. and **M. Moshfeghian**, "Computer Simulation of Two-Phase Fluid Flow in Pipe Network," *Iranian J. of Science and Technology*, Vol. 18, No. 1, 1994.
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- 70- Shariati, A. R.; **M. Moshfeghian** and R.N. Maddox, "The Effect of Correct C₆₊ Characterization on Computer Simulation of Two Phase Flow," IASTED International Conference of Modeling, Simulation and Optimization, May 6-9, 1996, Gold Coast, Australia.

- 71- Nasrifar, K. and **M. Moshfeghian**, "Liquid Density of Multi-component Systems by the CORGC Equation of State," Iranian Association of Chemical Engineering National Conference, Teheran, December 1995.
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- 74- **Moshfeghian, M.**, "Prediction of Liquid Density by the MCORGC Equation of State," Proceeding of the First International Non-Renewable Energy Sources Congress," December 26 - 30, 1993, Teheran, Iran.
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- 76- Soltan Mohammad Zadeh, J. S. and **M. Moshfeghian**, "Simulation of Multiphase Flow in Pipe Networks," Presented at the 24th Annual Meeting of Fine Particle Society Meeting, Chicago, Illinois, August 24-28, 1993.
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- 84- **Moshfeghian, M.**, F. C. McQuiston, and R. N. Maddox, "Prediction of Refrigerant Thermodynamic Properties by EOS, Part I: Saturated Properties of Pure Compounds," Eleventh Symposium on Thermophysical Properties, National Institute of Standards and Technology, Boulder, Colorado, June 23-27, 1991.

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- 86- Shariat, M. H., and **M. Moshfeghian**, "Application of an EOS Based Mathematical Model of Vapor-Liquid-Liquid-Equilibria to Hydrocarbon + Alcohol + Water Mixtures," the 5th International IUPAC Workshop on Vapor-Liquid Equilibria in 1-Alkanol+N-Alkane Mixtures, Garadisca D'Isonzo, Italy, Sept. 7-8, 1989.
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- 88- Shariat, M. H.; **M. Moshfeghian**, M. Monabbati and R.N. Maddox, "Thermodynamic Properties and Vapor-Liquid Equilibria of Refrigerants by a Modified Peng-Robinson EOS," Proceeding of 4th International Conference on Thermodynamics of Solution of Non-Polar Electrolytes, Santiago De Compostela, Spain, Sept. 24-29, 1989
- 89- Elizondo, V. E., M. Abouarabi, R. N. Maddox, and **M. Moshfeghian**, "Low Pressure Experimental Equilibrium Data for the Absorption of Acid Gases in Alkanolamine Solutions," Presented at 1989 Spring National Meeting of American Institute of Chemical Engineers, Houston, Texas, April 2 - 6, 1989.
- 90- **Moshfeghian, M.**, "The PFGC Equation of State at the Age of 14," Proceeding of the Fourth International IUPAC Workshop, Thessaloniki, Greece, Oct. 24-26, 1988.
- 91- Maddox, R. N., L. L. Lilly, **M. Moshfeghian** and E. Elizondo, "Estimating Water Content of the Sour Natural Gas Mixtures," Proceeding of Laurance Reid Gas Conditioning Conference, Norman, Oklahoma, March 1988.
- 92- **Moshfeghian, M.**, A. Shariat and R. N. Maddox, "Modification of the Peng-Robinson Equation of State," Proceeding of World Congress III of Chemical Engineering, Tokyo, September 1986.
- 93- **Moshfeghian, M.**, J. H. Erbar and R. N. Maddox, "Application of Mini Computers in Chemical Engineering," Proceeding of the First International Micro and Mini Computer Conference, Houston, Texas, November, 1979.
- 94- **Moshfeghian, M.** and K. J. Bell, "Local Heat Transfer Measurements in and Downstream from a U-Bend," Proceeding of the Joint ASME/AIChE National Heat Transfer Conference, San Diego, California, 1979.
- 95- **Moshfeghian, M.**; A. Shariat and J. H. Erbar, "Application of the PFGC Equation of State to Gas Processing Systems," Proceeding of the AIChE National Meeting, Houston, Texas, 1979.
- 96- **Moshfeghian, M.**, K. J. Bell and R. N. Maddox, "Reaction Equilibria for Acid Gas Systems," Proceeding of Laurance Reid Gas Conditioning Conference, Norman, Oklahoma, March 1977.
- 97- **Moshfeghian, M.** and K. J. Bell, "Fluid Flow and Heat Transfer in U-Bends," Proceeding of the 3rd Iranian Congress of Chemical Engineering, Shiraz University, Shiraz, Iran, November 1977.

- 98- **Moshfeghian, M.** and K. J. Bell, "Experimental Investigation of Fluid Flow and Heat Transfer in U-Bends," Presented at the Southwest Symposium on Thermal Sciences, Norman, Oklahoma, April 1977.

Funded Research Projects:

1. **Moshfeghian, M.** "Thermodynamic Modeling of Hydrate Formation Condition in the Presence of Mixed Electrolytes and Alcohols," Shiraz University, 2000.
2. **Moshfeghian, M.** "Prediction of Hydrate Formation Condition Based the CORGC Equation of State," Shiraz University, 1994.
3. **Moshfeghian, M.** "Prediction of Liquid Density of Pure Refrigerants," 1993.
4. **Moshfeghian, M.** and D. Mowla, "The effect of Polymer Solution on Two Phase Gas Liquid Flow," (in Persian), 1991.
5. **Moshfeghian, M.** "Estimation of Water Content of Sour Gases by the PFGC-MES EOS," (in Persian), Shiraz University, 1985
6. **Moshfeghian, M.**, "Sour Gas Process Simulation, SGPS," 1983.
7. Erbar, J. H., A. K. Jagota, S. Muthswamy and **M. Moshfeghian**, "Predicting Synthetic and Natural Gas Thermodynamic Properties Using a Modified Soave Redlich Kwong Equation of State," GPA Research Report RR-42, August 1979.

Ph.D. Thesis Supervised at Shiraz University:

1. "Thermodynamic Modeling of Asphaltene Deposition", by K. Akbarzadeh, (2002)
2. "Theoretical and Experimental Study of Liquid Densities," by J. Khashayar Nasrifar, (2001)
3. "Theoretical Modeling and Experimental Investigation of Water Desalination By Hydrate Formation Process," by J. Javanmardi, (2000)
4. "Characterization of C₆₊ Fraction by a Group Contribution Equation of State," by A. Shariati, (1998)

M.S. Thesis Supervised at Shiraz University:

5. "Modeling and prediction of the water content of acid gases using CPA equation of state", by M. A. Rezaeian Kouchi (2013)
6. "Improvement of Phase Behavior Prediction of Natural Gas by EOS in the Dense Phase Region", by S. Valiollahi (2012)
7. "Prediction of sulfur containing compounds distribution in LPG products", by A.H. Saadat (2012)
8. "Modeling rapid depressurization of vessels", by B. Kavianpour (2012)
9. "Prediction of sulfur containing compounds distribution in LPG products", by A.H. Saadat (2012)
10. "Evaluation of different methods of predicting liquid density and developing an improved method", by M. Nazarzadeh (2012)
11. "Evaluation of the Existing Wax Precipitation Models and Provide an Improved Model", by M. Eshrati (2011)
12. "Theoretical Study of Asphaltene Deposition", by M. Abdullahi (2001)

13. **“Simulation of Precalcination Unit in Cement Factory and Developing a Computer Software”**, by A. Estejab (1999)
14. **“Developing a Software Package for Simulation of Thermal Cracking of Naphtha”**, by H. R. Najafi (1999)
15. **"Evaluation of CORGC/UNIFAC for Polar Systems"** by Z. Abouarabi Saadi, (1999)
16. **"Graphic Behavior of Non-Ideal Solutions"** by R. Bahraini, (1998)
17. **"Mathematical Modeling of Industrial Furnaces by Zone Method"** by R. Azin, (1998)
11. **"Prediction of Phase Equilibria and Henry's Constants of Light Gases in Heavy Hydrocarbons Using Equation of State,"** by A. Saghafi (1998).
12. **"Evaluation of Equation of State for Modeling of Supercritical Fluids Phase Equilibria,"** by A. R. Keshtkar, (1996).
13. **"Vapor-Liquid Equilibria in Electrolyte Solutions by the CORGC Equation of State,"** by M. R. Bakhti, (1995).
14. **"Simulation of Sea Water Desalination by Hydrate Formation,"** by S. Rahimian (1995).
15. **"Vapor-Liquid and Chemical Equilibria for H₂S-CO₂-Alkanolamine System Based on Gibbs-Free Energy Minimization,"** by M. Sarshar (1995).
16. **"Computer Simulation of Three-Phase Distillation Column,"** by S. Lashkari, (1994).
17. **"Computer Generation of Thermodynamic Graphs,"** by J. Javanmardi, (1994).
18. **"Analysis of Two Phase Fluid Flow in Pipes Network,"** by J. S. Soltan Mohammad Zadeh, (1993).
19. **"Prediction of Thermodynamic Properties in the Neighborhood of Critical Point,"** by R. Ziaratti, (1992).
20. **"A New Group Contribution Equation of State,"** by M. Zia Razzaz, (1992)
21. **"Extension and Evaluation of the CORGC EOS for Prediction of Thermodynamic Properties of Polar and Non-Polar Compounds,"** by F. Dehghani (1991).
22. **"Capabilities of the PFGC Equation of State in Predicting the Thermodynamic Properties of Refrigerants and Light Hydrocarbon Mixtures,"** by N. Mehranbod (1990).
23. **“Unsteady State Two Phase Fluid Flow Pressure Drop Calculation,”** by S. Ayatollahi, (1989).
24. **"A New Method for Hydrate Formation Prediction and Inhibition Based on the PFGC-MES EOS,"** by S. H. Najibi, (1989).
25. **"Hydrate Formation Prediction and Inhibition Based on the PFGC-MES EOS,"** by B. Roozbehani, (1988).

MS Thesis Supervised at Petroleum University of Technology in Ahwaz:

1. **“Prediction of Cricondenbar and Cricondentherm Coordinates Using Tangent Plane Criterion and a Cubic Equation of State”**, by R. Taraf, (2005)
2. **“Nitrogen Removal from *Nar and Kangan* Natural Gas”**, by Sh. Zabighasemi, (2005)

MS Thesis Supervised at University of Qatar and University of Tehran:

3. **“Characterization of Petroleum Fluids Using MNM EOS and SPM Algorithm”**, by F. Asa’adi, (2002)
4. **“Numerical Algorithms for Determination of Retrograde Regions of Petroleum Fluids Using MNM EOS”**, by N. Tarom, (2002)

Software Development:

1. **"EZ-THERMO"**, Developed by **M. Moshfeghian** and R.N. Maddox (1985-present) an interactive program for PC, which performs unit operation simulation.
2. **"GCAP"**, Developed by **M. Moshfeghian**, A. Shariat and R.N. Maddox (1990-present). A supplementary program for gas Conditioning and Processing, Vols. 1 and 2.
3. **"EZ-DENSITY"**, Developed by **M. Moshfeghian** (1992- present). An interactive for prediction of liquid density of pure fluids by several correlations.
4. **"EOS-TAILOR"**, Developed by **M. Moshfeghian** and R.N. Maddox (1990-present). An Interactive and Integrated Graphics Database Program for Evaluating and Upgrading the Equations of State.
5. **"EZ-TXT"**, Developed by **M. Moshfeghian** and R.N. Maddox (1985- present). An interactive program for Tray-by-Tray Design of Distillation Towers.
6. **"EZ-FLARE"**, Developed by **M. Moshfeghian** (1985- present). An interactive program for gathering and flaring system.
7. **"C6-CHAR"**, Developed by **M. Moshfeghian** and R.N. Maddox (1985- present). An interactive program for Characterization of Non-Standard Components present in natural gas or crude Oil.
8. **"EZ-NLR"**, Developed by **M. Moshfeghian** (1980-present). An interactive program with graphics capabilities for Non-Linear Regression.
9. **"HYDRATE PLUS"**, Developed by **M. Moshfeghian** and R.N. Maddox (1989-present). An interactive program for calculation of Hydrate Formation Condition in flow lines.