

C.V

Name: Shafiei

First Name: Sirous

Birth Date: 23/09/1964

Place of Birth: Iran-Tabriz

B.Sc.: Chemical Engineering, 1984-1988 AIT (Abadan Institute of Technology, IRAN)

MS.: Chemical Engineering 1992-1994 Shiraz University, IRAN

Ph.D.: Chemical Engineering (Optimization of mass exchange networks by Genetic Algorithm and its application on white water networks in pulp and paper) Toulouse institute of Technology- France. Supervised by Prof. S. Domenech (ENSIGC Toulouse, Genetic Algorithms and mass exchange networks part) and Prof. J. Paris (Ecole Polytechnique Montreal, Canada, Pulp and Paper part) Nov. 2002

Foreign Language : Excellent English and French (writing, speaking, reading)

Research works (before Ph.D):

1. Simulation of NGL (Natural Gas liquefying) plant exchanger (Project of B.Sc.)
2. Study of window's direction in buildings as a means of minimization of energy consumption in building HVAC system. (Project of Msc. Paper published in Solar Energy)
3. Optimization of parameters in an empirical equation of state to minimize error of prediction of liquid and gas properties. (MS. Seminar, Paper presented and published in first chemical engineering congress in Iran- Tehran)

Publications :

1. M. Taheri and S.Shafiei, "A case study on the reduction of energy use for the heating of buildings", Renewable Energy, Volume 6, Issue 7, October 1995, pp 673-678 *Extracted from MSc. Thesis
2. S. Shafiei, M. Taheri, and M. A. Yaghoubi, "Energy saving analysis for cooling and heating of buildings", Iranian Journal of science and technology, Vol. 19, No. 4, 1995 *Extracted from MSc. Thesis
3. S. Shafiei, A. Davin, L. Pibouleau, S. Domenech, P. Floquet "Mass Exchange Network Synthesis by Coupling a Genetic Algorithm and a SQP

Procedure”, Computer Aided Chemical Engineering, Volume 8, 2000, Pages 973-978 *Extracted from PhD. Thesis

4. S. Shafiei, S. Domenech, R. Koteles, J. Paris, "System closure in pulp and paper mills: network analysis by genetic algorithm", Journal of Cleaner Production, Volume 12, Issue 2, March 2004, Pages 131-135 *Extracted from PhD. Thesis
5. S. Shafiei, S. Domenech, R. Koteles, J. Paris, "System closure in an integrated newsprint mill, practical application of the genetic algorithm", Pulp & paper Canada, III, 105:6, 2004. *Extracted from PhD. Thesis
6. M. R. Jafari Nasr, S. Shafiei and M. Majidi Givi, “Modeling of Iranian Light crude oil fouling in preheat exchangers of distillation unit”, Research on science and Engineering of petroleum(in Persian), Vol. 13, No 48, 2004
7. E. Rezaei, S. Shafiei, A. Abdollahnezhad, “Water Loss reduction using hybrid cooling tower”, Iranian Association of Che. Eng. Journal, Vol. 5, No. 22, July 2006.
8. S.A.R. Tabatabaei-Nejad, S. Shafiei, S. Rajabzadeh, A. Haghlesan, “Steam Injection Experiments for Recovery of Heavy Crude Oil of an Iranian Field”, SPE 96956, 2006
9. E. Rezaei, S. Shafiei, “An efficient coupled Genetic Algorithm-NLP method for heat exchanger network synthesis”, Iranian Journal of Chemical Engineering, pp.9-17, Vol. 5, No. 1 (winter), 2008
10. E. Rezaei, S. Shafiei, “An NLP Approach for Evolution of Heat Exchanger Networks Designed by Pinch Technology”, Iranian Journal of Chemical Engineering, pp 1-9, Vol. 5, No. 1 (winter), 2008
11. Ebadi, J.S. Soltanmohammadzadeh, S. Shafiei, “Kinetics of catalytic ozonation of methyl tert-butyl ether in the presence of perfluorooctyl alumina”, Chemical engineering & Technology, pp778-788, No. 32, 2009

- 12 M. Tahmasebpour, A.A. Babaluo, S. Shafiei, E. Pipelzadeh, "Studies on the synthesis of α -Al₂O₃ nanopowders by the polyacrylamide gel method", *Powder Technology*, 191, (2009) 91–97
- 13 Ebrahim Rezaei, Sirous Shafiei, "Heat exchanger networks retrofit by coupling genetic algorithm with NLP and ILP methods", *Computers and Chemical Engineering*, 33, (2009) 1451–1459
- 14 E Paranghooshi, MT Sadeghi, S Shafiei, "Predicting octane numbers for gasoline blends using artificial neural networks The ANN models were more accurate than regression models, *Hydrocarbon Processing* 88 (2009), 49-49
- 15 Ebrahim Rezaei, Sirous Shafiei, Aydin Abdollahnezhad, "Reducing water consumption of an industrial plant cooling unit using hybrid cooling tower", *Energy Conversion and Management*, 51, (2010) 311–319
- 16 M. S. Tarkesh, S. Shafiei, H. Ajamein, "Effect of operational parameters on powders classification by cyclone and precipitation tank", *Separation Science and Engineering (in Persian)*, Vol. 1, No. 2, pp 41-54 (2010)
- 17 Y. Jafarzadeh, S. Shafiei, A. Ebadi, M. Abdoli, "Batch Separation of Styrene/Ethyl Benzene/Water Dispersions", *Iranian Journal of Chemical Engineering* Vol. 7, No. 4 (Autumn), 2010, IChE
- 18 Alireza Behroozsarand, Sirous Shafiei, "Optimal control of amine plant using non-dominated sorting genetic algorithm-II", *Journal of Natural Gas Science and Engineering* 2 (2010) 284-292
- 19 Hadi Soltani, Sirous Shafiei, "Heat exchanger networks retrofit with considering pressure drop by coupling genetic algorithm with LP (linear programming) and ILP (integer linear programming) methods", *Energy* 36 (2011) 2381-2391
- 20 Alireza Behroozsarand, Sirous Shafiei, "Multiobjective optimization of reactive distillation with thermal coupling using non-dominated sorting

genetic algorithm-II”, *Journal of Natural Gas Science and Engineering* 3 (2011) 365-374

- 21 Alireza Behroozsarand, Sirous Shafiei, “Optimal control of distillation column using Non-Dominated Sorting Genetic Algorithm-II”, *Journal of Loss Prevention in the Process Industries* 24 (2011) 25-33
- 22 Alireza Behroozsarand, Sirous Shafiei, “Control of TAME reactive distillation using Non-Dominated Sorting Genetic Algorithm-II”, *Journal of Loss Prevention in the Process Industries* 25 (2012) 192-201
- 23 Y Jafarzadeh, S Shafiei, A Ebadi, M Abdoli, “Experimental investigation on the effect of parameters influencing the performance of a horizontal styrene-water separator”, *Iranian Journal of Chemical Engineering* 9 (2012), 48-54
- 24 Moloud Aghayarzadeh, Reza Alizadeh, Sirous Shafiei, “Simulation and Optimization of Styrene Monomer Production Using Neural Network”, *Iranian Journal of Chemical Engineering*, 1 (2014), 30-41
- 25 SM Mousavi, D Salari, A Niaei, PN Panahi, S Shafiei, “A modelling study and optimization of catalytic reduction of NO over CeO₂–Mn_x (0.25)–Ba mixed oxide catalyst using design of experiments”, *Environmental technology* 35 (2014), 581-589
- 26 A Aghaeinejad-Meybodi, AA Babaluo, S Shafiei, K Ghasemzadeh, “Approximate solutions for gas permeator separating binary mixtures”, *Journal of Membrane Science* 454, (2014), 109-110
- 27 Aghaeinejad, A. Ebadi, S. Shafiei, A.R. Khataee, M. Rostampour, “Modeling and optimization of antidepressant drug Fluoxetine removal in aqueous media by ozone/H₂O₂ process: Comparison of central composite design and artificial neural network approaches”, *Journal of the Taiwan Institute of Chemical Engineers* , 12, (2015), 40-48
- 28 Abbas Aghaeinejad-Meybodi, Amanollah Ebadi, Sirous Shafiei, Alireza Khataee and Mohammad Rostampour, “Degradation of antidepressant drug

fluoxetine in aqueous media by ozone/H₂O₂ system: process optimization using central composite design”, 12, (2015), 1477-1488

- 29 Shaaban Ghodbanan, Reza Alizadeh, Sirous Shafiei, “Steady-State Modeling of Multi-Cylinder Dryers in a Corrugating Paper Machine”, *Drying Technology*, 33, (2015), 1474-1490
- 30 Shaaban Ghodbanan, Reza Alizadeh, Sirous Shafiei, “Thermodynamic and Heat Transfer Evaluation of Pocket Drying Section in the Multi-Cylinder Dryers of Paper Machine”, *Iranian Journal Of Chemical Engineering* 13 (2015), 57-70,
- 31 Yaser Pourfarhady Myankoo, Sirous Shafiei, “Application of ACOR to find optimal no stream splitting heat exchanger networks for pre-designed heat exchanger networks”, *Chemical Engineering Research and Design*, 96, (2015), 158-171.
- 32 Hadi Soltani, Sirous Shafiei, “Adiabatic reactor network synthesis using coupled genetic algorithm with quasi linear programming method”, *Chemical Engineering Science*, 137, (2015), 601-612
- 33 H. Soltani, S. Shafiei, “Isothermal Reactor Network Synthesis Using Coupled Non Dominated Sorting Genetic Algorithm-II (NSGAI) with Quasi Linear Programming (LP) Method”, *Iranian Journal of chemical engineering*, 12, (2015), 77-95
- 34 MJ Vaezi, AA Babaluo, S Shafiei, “Modeling of Ethyl benzene Dehydrogenation Membrane Reactor to Investigate the Potential Application of a Micro-porous Hydroxy Sodalite Membrane”, *Journal of Chemical and Petroleum Engineering* 49 (2015), 51-62
- 35 M Omidifar, S Shafiei, H Soltani, “Optimization of Hydrogen Distribution Network by Imperialist Competitive Algorithm”, *Iranian Journal of chemical engineering*”, 13 (2016), 63-77

- 36 Khaled Zoroufchi Benis, Esmail Fatehifar, Sirous Shafiei, Fatemeh Keivani Nahr, Yaser Purfarhadi, “Design of a sensitive air quality monitoring network using an integrated optimization approach”, *Stochastic environmental research and risk assessment* 30, (2016), 779-793
- 37 Dehghani, A. Ebadi*, S. Shafiei, A. Aghaeinejad-Meybodi, “Synthesis, Characterization and application of nano-perfluorooctyl alumina for adsorption of Methyl tertiary-Butyl Ether (MTBE) from aqueous medium”, *Desalination and Water Treatment*, 57,(2016), 11807-11819
- 38 Yaser Pourfarhady Myankoo, Sirous Shafiei, “A specific strategy for determination of feasible domain of heat exchanger networks with no stream splitting and its assessment by application of ACOR Algorithm”, *Applied Thermal Engineering* 104, (2016), 791-803.
- 39 H Soltani, S Shafiei, J Edraki, “Reactor network synthesis using coupled genetic algorithm with the quasi-linear programming method”, *Chemical and Biochemical Engineering Quarterly* 30 (2016), 199-211
- 40 S Ghodbanan, R Alizadeh, S Shafiei, “Optimization for energy consumption in drying section of fluting paper machine”, *Thermal science* 21 (2017), 1419-1429
- 41 T Pirhoushyaran, S Shafiei, “The combination of mathematical and stochastic methods in the synthesis of non-sharp ternary separation unit”, *Journal of Separation Science And Engineering* 9 (2017), 23-36
- 42 T Pirhoushyaran, S Shafiei, “A new approach for the optimization of nonsharp distillation superstructures”, *Asia-Pacific Journal of Chemical Engineering* 13 (2018), e2151
- 43 SM Abdoli, S Shafiei, A Raoof, A Ebadi, Y Jafarzadeh, “Insight into heterogeneity effects in methane hydrate dissociation via pore-scale modeling”, *Transport in Porous Media*, 124, (2018), 283-201

- 44 SM Abdoli, S Shafiei, A Raof, A Ebadi, Y Jafarzadeh, H Aslannejad, “Water flux reduction in microfiltration membranes: a pore network study”, *Chemical Engineering & Technology* 41 (2018), 1566-1576
- 45 A Aghaeinejad-Meybodi, A Ebadi, S Shafiei, A Khataee, AD Kiadehi, “Degradation of Fluoxetine using catalytic ozonation in aqueous media in the presence of nano- γ -alumina catalyst: Experimental, modeling and optimization study”, *Separation and Purification Technology* 211, (2019), 551-563
- 46 M Kianinia, SM Abdoli, S Shafiei, “Estimation of Pore Size and Permeability in Porous Media Using Image Processing”, *Iranian Chemical Engineering Journal* 20 (2021), 36-49
- 47 H Seyfi, S Shafiei, R Dehghanzadeh, P Amirabedi, “Mathematical Modeling and Parameters Optimization of the Degradation of Acrylonitrile in Biofilters”, *Iranian Journal of Chemical Engineering (IJChE)* 18 (2021), 3-15

Communications

1. S. Shafiei, S. Domenech, J. Paris, “Application of Genetic Algorithms on System Closure in Pulp and Paper Mills.”, Montreal International Symposium on Process Integration, Montreal Oct. 2000 *Extracted from PhD. Thesis
2. S. Shafiei, S. Domenech, J. Paris, “Fermeture Des Circuits Papetiers : Analyse Des Réseaux Par Algorithme Génétique.”, 69^{ième} Congrès ACFAS, Sherbrooke 2001, *Extracted from PhD. Thesis
3. S. Shafiei, S. Domenech, J. Paris, A. Davin, “System Closure in Pulp and Paper Mills as an Optimization Problem: A Novel Approach.”, 51^e Canadian Congress of Chemical Engineering on Process Integration, Halifax Oct. 2001. *Extracted from PhD. Thesis
4. S. Shafiei, S. Domenech, R. Koteles, J. Paris, “System closure in pulp and paper mills, Network analysis by genetic algorithm”, PRES01, 4th

Conference on process integration and modeling, and optimization for energy saving and pollution reduction, Florence, May, 2001. *Extracted from PhD. Thesis

5. S. Shafiei, S. Domenech, J. Paris, “Pulp and Paper Network Analysis by Genetic Algorithm, Mathematical Programming and Process Simulation.”, TAPPI 2001 Engineering Conference (San Antonio, TX, Dec. 2001), *Extracted from PhD. Thesis
6. S. Shafiei, S. Domenech, J. Paris, “System Closure In An Integrated Newsprint Mill, Practical Application Of The Genetic Algorithm”, PAPTAC 88th Annual Conference (Montreal, Jan. 2002), *Extracted from PhD. Thesis
7. S. Shafiei, J. Paris, S. Domenech, “Mass Exchange Network Synthesis by Coupling a Genetic Algorithm and a SQP Procedure” , Eighth National Chemical Engineering Congress (Mashhad, Ferdowsi University, Iran 21-23 Oct. 2003), **selected as one of the best papers of the congress** *Extracted from PhD. Thesis
8. A. Khudiev, S. Shafiei, J.S. Soltanmahammadzadeh, S. Rajabzadeh, M. Haghghi, J. Odak, "VOC Removal from air by Ozone on Porous media", Ninth National Chemical Engineering Congress (Tehran, Science and Technology University of Iran Dec. 2004), **selected as one of the best papers of the congress**
9. M. J. Nasr, S. Shafiei, M. Majidi, "Effect of fouling factor on area and cost of preheat exchangers network of distillation unit", Ninth National Chemical Engineering Congress (Tehran, Science and Technology University of Iran Dec. 2004)
10. M. J. Nasr, S. Shafiei, A. Shafaghat, “Heat transfer and pressure drop coefficients for helical baffle heat exchangers”, Tenth National Chemical Engineering Congress (Zahedan, Sistan and Balouchestan University Dec. 2005)

11. S. Shafiei, A. Charchi, H. Ghasabzadeh, "Chromium recovery from tanning liquor", Tenth National Chemical Engineering Congress (Zahedan, Sistan and Balouchestan University Dec. 2005)
12. M. Zivdar, S. Shafiei, M. Ahli, M. M. Chavoshbashi, "Hydrogenation of C5-Cut in liquid phase", Tenth National Chemical Engineering Congress (Zahedan, Sistan and Balouchestan University Dec. 2005)
13. S. Nemati, S. Shafiei, J.S. Soltanmhammadzadeh, S. Shahri, "Modeling of Cat-reformer reactors of Tabriz Refinery for prediction of rate of deactivation of catalysts and product quality improvement", Tenth National Chemical Engineering Congress (Zahedan, Sistan and Balouchestan University Dec. 2005)
14. N. Faraghi, S. Shafiei, J.S. Soltanmhammadzadeh, "Modeling of Fixed Bed Reactor for the dehydrogenation of Ethyl benzene to styrene: Effect of Operating Parameters" Eleventh National Chemical Engineering Congress, Tarbiat Modarres university, Tehran, Iran, Nov. 2006
15. A. Ebadi, S. Shafiei, J. Soltan mohammadzadeh, "Enhancement of Molecular Mechanism of Ozonation Reactions by the Use of Heterogeneous Catalysts" 58th Canadian Chemical Engineering Conference, 2008, Canada
16. S. Shafiei, A. Khodiev, P. Amini, F. Faramarzi "Study of substitution of chlorination by Ozonation in treatment of cooling water of Tabriz Refinery and feasibility study", 12th National Chemical Engineering Congress, Sahand university of Technology, Tabriz, Iran, Oct. 2008
17. Y. Jafarzadeh, S. Shafiei, A. Ebadi, and M. Abdoli, "Batch separation of styrene/ethyl benzene/water dispersions", The 6th International Chemical Engineering Congress & Exhibition, 16-20 November, 2009 Kish Island, I.R. Iran. (ICHEC 2009)
18. Alireza Behroozsarand, Sirous Shafie, "Multiobjective Optimization of TAME Production Using Reactive Distillation", The 6th International

Chemical Engineering Congress & Exhibition, 16-20 November, 2009
Kish Island, I.R. Iran. (ICHEC 2009)

19. S. G. Sadoughi, S. Shafiei, “Coupled Genetic Algorithm-LP Method For Single Contaminant Water Reuse Network Synthesis”, The 6th International Chemical Engineering Congress & Exhibition, 16-20 November, 2009 Kish Island, I.R. Iran. (ICHEC 2009)

20. S..Shafiee, M.Shahpar, H.Ranjbar, M.R.Haddadi, “Application of Artificial Neural Network for modelling of the ABS latex coagulation processes”, The 6th International Chemical Engineering Congress & Exhibition, 16-20 November, 2009 Kish Island, I.R. Iran. (ICHEC 2009)

21. N. Azizi, E. Fatehifar, S. Shafeie, A. Elkamel, L. Khazini, A. Ebrahimi, “Reducing Gaseous Pollutants Emissions in a Network of Refinery Stacks Using Optimal Control Equipments”, The 6th International Chemical Engineering Congress & Exhibition, 16-20 November, 2009 Kish Island, I.R. Iran. (ICHEC 2009)

Work experience (Before Ph.D.):

1. Seven months on oil production platform on Persian golf as training and maintenance engineer (1988)
2. Four years of work as planning and project control engineer in the construction of petrochemical plant in Tabriz-Iran. (1994-1998), mainly utility and waste treatment plants (power plant, cooling tower, waste water treatment)

Academic activities

Teaching:

Under graduate:

1. English Technical Writing
2. Application of mathematics in chemical Engineering
3. Introduction to chemical engineering
4. Process Control

5. Industrial Process Control
6. Numerical Methods in chemical Engineering
7. Mass and Energy balance in chemical engineering
8. Software Workshop in chemical engineering
9. Chemical Eng. Unit operations
10. Heat Transfer

Graduate:

1. Chemical engineering optimization
2. Chemical process modeling and simulation
3. Advanced Mass Transfer
4. Advanced mathematics for oil production engineers
5. Advanced Fluid Mechanics
6. Special topics in Process Integration
7. Integrated process design
8. Pinch Technology

Electronic Learning

Actively involved in University program in Electronic learning and prepared material for this new method of learning for the following courses

1. Mass and Energy balance in chemical engineering
2. Numerical Methods in Chemical Engineering
3. Process Control
4. Chemical engineering optimization
5. Pinch Technology

Held Electronic Workshop For general engineering software and Chemical Engineering Software

Research:

Supervision of over 50 graduate students' thesis

Supervision of 8 PhD students in process integration and process control and environment

Research contracts with industry

1. Elimination of VOC from air by Ozone on porous Media
2. Enhanced oil recovery by injecting Non-Hydrocarbon gases with special attention to Iran reservoirs (contract with Iran oil ministry)
3. Enhanced oil recovery by injecting Steam with special attention to Iran reservoirs (contract with Iran oil ministry)
4. Feasibility Study of using optimized methods of cooling water system for Tabriz Refinery (contract with Tabriz Refinery)
5. Study of various methods of Ethyl benzene dehydrogenation in the world (contract with Tabriz Petrochemical complex)
6. Pilot set up of V305 and optimization of water separation from Hydrocarbon system and DM water treatment system
7. Simulation and optimization of Styrene Monomer Production Unit Towers (Contract with Tabriz Petrochemical Complex)
8. Application of predictive control in petrochemical complex
9. Feasibility Study of reducing water consumption in cooling water system for Tabriz Refinery (contract with Tabriz Refinery)

Consultant

Involved in two petrochemical research groups as consultant to evaluate and accept received research proposals namely Olefin research team and Styrene research team

Worked for Tabriz Petrochemical Complex as research consultant

Administrative

Associate dean of chemical engineering faculty, Sahand university of Technology since 01.05.2003 up to 01.05.2007

Executive director of 12th National chemical Engineering Congress Held in Tabriz from 19.10.2008 till 22.10.2008.

Executive director of first seminar on refinery operations held in 2017 in Tabriz.

Head of chemical Eng Division of E-learning from sep 2007 till 2017

Distinctions and Awards

- Selected by scientific association of students in year 2006 as the best teacher for having good public relations with students and having high rank regarding teaching qualities
- Awarded by educational office as Distinct teacher in 2009 for having qualified teaching skills
- Supervision of students in national Chem. E. Car competition which led to the 1st rank in 2010
- Member of national admission exam team in chemical engineering branch for selecting qualified students to higher education levels

Professional membership

Active member of Iranian chemical Eng. Association.

References:

Jafar sadegh Soltan mohammad zadeh, University of Saskatoon, Canada

Email: j.soltan@usask.ca,

Tel. no. (306) 966-5449

Jean Paris: École Polytechnique de Montréal, Canada

Email: jean.paris@polymtl.ca

Tel no: (514) 340-4711 poste 4921

Mahmood Moshfeghian: Instructor/Consultant for John M Campbell & Company based in Norman, OK.

Email: mahmoodm@jmcampbell.com