

# CURRICULUM VITAE

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## Personal Details

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**Present Position:** Associate Professor

**Department:** Chemical Engineering

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## Education and Qualifications

### i) University Degrees

- *PhD in Chemical Engineering, Sharif University of Science and Technology, Iran, 1993-1998*
- *MSc in Chemical Engineering, Amir-Kabir University, Iran, 1991-1993*
- *BSc in Chemical Engineering, Sharif University of Science and Technology, Iran, 1984-1989*

## Employment

*Assistant Professor, Faculty of Chemical Engineering, Iran University of Science and Technology, Since January 1999*

## Teaching Experiences

**Unit Operation I:** undergraduate course in Faculty of Chemical Engineering, Iran University of Science and Technology

**Unit Operation II:** undergraduate course in Faculty of Chemical Engineering, Iran University of Science and Technology

**Thermodynamic I:** undergraduate course in Faculty of Food Engineering, Science and Research Branch of Islamic Azad University

**Thermodynamic II:** undergraduate course in Faculty of Chemical Engineering, Iran University of Science and Technology

**Environmental Engineering:** undergraduate course in Faculty of Chemical Engineering, Iran University of Science and Technology

**Advanced Electrochemical Engineering:** postgraduate course in Faculty of Chemical Engineering, Iran University of Science and Technology

**Special Separation Processes :** postgraduate course in Faculty of Chemical Engineering, Iran University of Science and Technology

### **Selected Written Works**

- 1- Rowshanzamir, S., Kazemini, M. and Kabiri Isfahani, M. (1998), Mass balance and water management for hydrogen - air fuel cells of the alkaline matrix type . *Int. J. Hydrogen Energy* , 23 (6), 1499-506
- 2- Rowshanzamir, S and Kazemini, M. A new immobilized - alkali H<sub>2</sub> / O<sub>2</sub> Fuel cell. *J. Power Sources*, 88(2000) 262-268
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- 5- Eikani, M.H., Golmohammad, F., Rowshanzamir S., Subcritical water extraction of essential oils from coriander seeds (*Coriandrum sativum* Mill.) *J. Food Engineering*, 80(2), 735-740, 2007.
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- 9- S.M. Sharifi. Asl, S. Rowshanzamir, M.H. Eikani , Modelling and simulation of the steady-state and dynamic behaviour of a PEM fuel cell, *Energy* 35 (2010) 1633–1646.
- 10- M. Amjadi , S. Rowshanzamir, S.J. Peighambarous, M.G. Hosseini, M.H. Eikani, Investigation of physical properties and cell performance of Nafion/TiO<sub>2</sub> nanocomposite membranes for high temperature PEM fuel cells, *International Journal of Hydrogen Energy* 35 ( 2010) 9252 – 9260.

- 11- S.J. Peighambaroust, S. Rowshanzamir, M. Amjadi , Review of the proton exchange membranes for fuel cell applications, *International Journal of Hydrogen Energy* 35 ( 2010) 9349-9384.
- 12- K. Ramezani, S. Rowshanzamir, M.H. Eikani, Castor oil transesterification reaction: A kinetic study and optimization of parameters, *Energy* 35 (2010) 4142-4148.
- 13- A. Esmaeilifar, S. Rowshanzamir , M.H. Eikani, E. Ghazanfari, Synthesis methods of low-Pt-loading electrocatalysts for proton exchange membrane fuel cell systems, *Energy* 35 (2010) 3941-3957.
- 14- Ashkan Esmaeilifar, S. Rowshanzamir, Mohammad H. Eikani, Ehsan Ghazanfari, Preparation of low-platinum-loading electrocatalysts using electroless deposition method for proton exchange membrane fuel cell systems, *Electrochimica Acta* 56 (2010) 271–277.
- 15- Ashkan Esmaeilifar, Maryam Yazdanpour, S. Rowshanzamir ,Mohammad H. Eikani, Hydrothermal synthesis of Pt/MWCNTs nanocomposite electrocatalysts for proton exchange membrane fuel cell systems, *International Journal of Hydrogen Energy*, 36 (2011), 5500 -5511.
- 16- S.J. Peighambaroust , S. Rowshanzamir , M.G. Hosseini , M. Yazdanpour, Self-humidifying nanocomposite membranes based on sulfonated poly(ether ether ketone) and heteropolyacid supported Pt catalyst for fuel cells, *International Journal of Hydrogen Energy*, Volume 36, Issue 17, August 2011, Pages 10940-10957.
- 17- Fatemeh Hashemi, S. Rowshanzamir, Mashallah Rezakazemi, CFD simulation of PEM fuel cell performance: Effect of straight and serpentine flow fields, *Mathematical and Computer Modelling* 55 (2012) 1540–1557.
- 18- M. Amjadi, S. Rowshanzamir, S.J. Peighambaroust, S. Sedghi, Preparation, characterization and cell performance of durable nafion/SiO<sub>2</sub> hybrid membrane for high-temperature polymeric fuel cells, *Journal of Power Sources* 210 (2012) 350– 357.
- 19- Maryam Yazdanpour ,Ashkan Esmaeilifar,, S. Rowshanzamir, Effects of hot pressing conditions on the performance of Nafion membranes coated by ink-jet printing of Pt/MWCNTs electrocatalyst for PEMFCs, *International Journal of Hydrogen Energy*, *In Press*, 10.1016/j.ijhydene.2012.04.139
- 20- Eikani, M.H. and Rowshanzamir, S., Synthesis gas from natural gas by noncatalytic partial oxidation. *International Journal of Engineering Science*, Iran University of Science and Technology, 15(1), 57-67, 2004.
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- 23- Rowshanzamir, S., Kazemini, M. (1998) Fuel cell as a mean of producing clean energy from fossil fuel : An experimental approach. *The Second - International Non - Renewable Energy Sources Congress*, Tarbiat Modarres University (T.M.U) , Dec. 12-17, Tehran, Iran.
- 24- Rowshanzamir, S and Kazemini, M. (2000), Development of 1 kW fuel cell stack , *14<sup>th</sup> International Congress of Chemical and Process Engineering* , 27-31.
- 25- Eikani, M.H. and Rowshanzamir, S. (2002), Synthesis gas from natural gas by noncatalytic partial oxidation. *15th International Congress of Chemical and Process Engineering*, Praha, Czech Republic, 25- 29 August.
- 26- Rowshanzamir, S., Eikani, M. H., Application of Nanotechnology in Pharmaceutical Industries, *4<sup>th</sup> European Congress of Chemical Engineering, Granada, Spain, 21-25 Sep., 2003.*
- 27- Rowshanzamir, S., Eikani, M. H., On Board Hydrogen Storage in Fuel Cell Vehicles by Carbon Nanotubes, *4<sup>th</sup> European Congress of Chemical Engineering, Granada, Spain, 21-25 Sep., 2003.*
- 28- Rowshanzamir, S., Eikani, M. H., Environmental Issues of Iran, *4<sup>th</sup> European Congress of Chemical Engineering, Granada, Spain, 21-25 Sep., 2003.*
- 29- Eikani, M. H., Rowshanzamir, S., Kaghazchi, T., Theoretical and experimental study of whey ultra filtration, *4<sup>th</sup> European Congress of Chemical Engineering, Granada, Spain, 21-25 Sep., 2003.*
- 30- Eikani, M. H., Golmohammad, F., Rowshanzamir, S., Noori, H., T., Design and fabrication of a pilot plant to recover aroma compounds from aqueous waste streams, *4<sup>th</sup> European Congress of Chemical Engineering, Granada, Spain, 21-25 Sep., 2003.*
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- 34- Rowshanzamir, S., Jadid, S., Eikani, M.H., Setting national priorities for energy standards in Iran., *ibid*, Praha, Czech Republic, 22-26 August, 2004.
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- 47- S. M. Sharifi, S. Rowshanzamir, M. H. Eikani, "Modeling the steady-state and dynamic V-I characteristics of PEM fuel cell", ", The 5<sup>th</sup> International Chemical Engineering Congress & Exhibition (IChEC 2008), 2-5 January, 2008, Kish Island, I.R. Iran, pages 197-203.
- 48- Haleh K. Namdar, M. H. Eikani, S. Rowshanzamir, "Modeling and Simulation of superheated water extraction of essential oil from coriander seeds", The 5<sup>th</sup> International Chemical Engineering Congress & Exhibition (IChEC 2008), 2-5 January, 2008, Kish Island, I.R. Iran, pages 1-10.
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- 52- P. Valipour, S. Rowshanzamir, M. Alavi, Kinetic modelling of n-dodecane dehydrogenation on Pt/Al<sub>2</sub>O<sub>3</sub> catalyst based on LHHW mechanism, *18th International Congress of Chemical and Process Engineering*, Praha, Czech Republic, 24-28 Aug., 2008.
- 53- M. Amjadi, S. Rowshanzamir, S. Sedghi, S. J. Peighambardoust, High temperature proton exchange membrane fuel cells: advantages and technical challenges, *18th International Congress of Chemical and Process Engineering*, Praha, Czech Republic, 24-28 Aug., 2008.
- 54- P. Moradi, S. Rowshanzamir, M.H. Eikani, "The application of electrochemical technology to the wastewater treatment", First International Conference on Advances in Wastewater Treatment and Reuse", University of Tehran, Tehran, Iran, 30 June -2 July, 2009.
- 55- M. Amjadi, S. Rowshanzamir, M. H. Eikani, S. Sedghi, S.J. Peighambardoust, Morphological investigation of Nafion/TiO<sub>2</sub> nanocomposite membranes of PEM Fuel Cell, The 6th International Chemical Engineering Congress & Exhibition, Kish , Iran, 16-20 Nov. 2009.
- 56- S. J. Peighambardoust, S. Rowshanzamir, M. G. Hosseini, M. Amjadi, Synthesis and Characterization of the Cs-Substituted Tungstophosphoric Acid Supported Pt Catalyst (Pt-Cs<sub>2.5</sub>H<sub>0.5</sub>PW<sub>12</sub>O<sub>40</sub>) as an Additive for Preparation of the Self-humidifying Composite Membranes in PEM fuel cells, Pamukkale University, Denizli, Turkey, -30 June 2010.
- 57- S. Rakhshanpouri, S. J. Peighambardoust, S. Rowshanzamir, Water Transport in a Seven-Layer Model of PEMFC, Pamukkale University, Denizli, Turkey, -30 June 2010.
- 58- S. J. Peighambardoust, S. Rowshanzamir, M. G. Hosseini, M. Amjadi, Investigation of the optimum degree of sulfonation in the sulfonated Polyether Ether Ketone (sPEEK) as a proton Exchange Membrane for PEM Fuel Cells, Pamukkale University, Denizli, Turkey, -30 June 2010.
- 59- D. Agahizad S. rowshanzamir, Multi-objective optimization model for PEM fuel cell systems, Fuel Cells Science and Technology Conference , 6-7 October 2010 , Zaragoza, Spain.
- 60- S. Rakhshanpouri, S. Rowshanzamir, Water transport investigation in seven layers of Polymer Electrolyte, Fuel Cells Science and Technology Conference , 6-7 October 2010 , Zaragoza, Spain.
- 61- S. J. Peighambardoust, S. Rowshanzamir, M. G. Hosseini, M. Amjadi, Non-fluorinated self-humidifying nanocomposite membranes with ionic conductivity improvement for proton exchange membrane fuel cell applications, Fuel Cells Science and Technology Conference , 6-7 October 2010 , Zaragoza, Spain.
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- 63- Seyed Jamaledin Peighambaroust, Soosan Rowshanzamir, Mir Ghasem Hosseini, Mehdi Amjadi, Investigation of the optimum degree of sulfonation in the sulfonated polyether ether ketone (sPEEK) as proton exchange membrane for PEM fuel cells, Fuel Cells Science and Technology Conference , 6-7 October 2010 , Zaragoza, Spain.
- 64- D. Agahizad, A. Mallaki , A. Sadeghi , S. Rowshanzamir , A MULTI-OBJECTIVE OPTIMIZATION MODEL FOR POLYMER ELECTROLYTE MEMBRAN FUEL CELL SYSTEM, *10th International Conference on Clean Energy (ICCE-2010) Famagusta, N. Cyprus, September 15-17, 2010.*
- 65- Rowshanzamir S., Rakhshanpouri S., Analysis of water transport in seven-layer model of PEMFC, CHISA 2010 - ECCE7, 19th International Congress of Chemical and Process Engineering CHISA 2010 and the 7th European Congress of Chemical Engineering ECCE-7
- 66- Ashkan Esmailifar , Soosan Rowshanzamir, Mohammad H. Eikani, Hydrothermal synthesis of Pt/MWCNTs nanocomposite electrocatalysts for PEMFCs, CHISA 2010 - ECCE7, 19th International Congress of Chemical and Process Engineering CHISA 2010 and the 7th European Congress of Chemical Engineering ECCE-7
- 67- P. Moradi, S. Rowshanzamir, M.H. Eikani, H. Kasehgari, Elimination of COD from wastewater by electrochemical treatment, CHISA 2010 - ECCE7, 19th International Congress of Chemical and Process Engineering CHISA 2010 and the 7th European Congress of Chemical Engineering ECCE-7
- 68- S.Rakhshanpouri, S. Rowshanzamir, Investigation of Water Transport in Proton Exchange Membrane Fuel Cell, *Proceedings of the International Conference on Environmental Pollution and Remediation Ottawa, Ontario, Canada, 17-19 August 2011 Paper No. 163.*
- 69- Rowshanzamir, S. and Eikani, M.H. (2001), Design and construction of 1kW fuel cell. *3rd National Energy Congress*, World Energy Council, National Energy Committee of Islamic Republic of Iran, 1-2 May, Tehran, Iran.
- 70- Rowshanzamir, S.; Eikani, M.H.; Eliassi, A. (2002), Application of nanotechnology in fuel cell systems, Nanotechnology Conference (The Next Industrial Revolution), 25, Vol. 2,P.335-343, 5-6 Mar. 2002, Technology Cooperation Office Nanotechnology Policy Studies Committee, www.tco.ac.ir/nano, Tehran, Iran, Mar. 2002.
- 71- Rowshanzamir S. , Sh. Jadid, M. H. Eikani, Priorities for Energy Standards in Iran: A Multi-Criteria Decision Aid (MCDA) Technique, *5<sup>th</sup> National Energy Congress*, 7-8 May 2005.
- 72- Eshagh Nimvar, T., Rowshanzamir, S., Khoshnoodi, M., Eikani, M.H., Modeling of the cathode catalyst layer of PEM fuel cell, *9<sup>th</sup> Iranian Chemical Engineering Congress (ICHEC9), Iran University of Science and Technology, Tehran, Iran, 23-25 Nov. 2004.*
- 73- Ghazanfari, E., Esmailifar, A., Rowshanzamir, S., Eikani, M.H., Amjadi, M., Synthesis of platinum nanoparticles by electroless method for polymer electrolyte membrane fuel cell. *2<sup>nd</sup> Fuel Cell Seminar of Iran, Khajenasireadin Tousi Univ., Oct 18, 2008, Tehran, Iran.*

- 74- Amjadi, M., Rowshanzamir, S., Eikani, M.H., Peighamardoust, S.J., Ghazanfari, E., High temperature proton exchange membrane fuel cells: Advantages and technical challenges., 2<sup>nd</sup> Fuel Cell Seminar of Iran, Khajenasireadin Tousi Univ., Oct 18, 2008, Tehran, Iran.
- 75- Sharifi Asl S. M., Rowshanzamir S. , Eikani M. H., PEM fuel cell voltage transient response to the sudden changes in current, The 12<sup>th</sup> Iranian Chemical Engineering Congress, 20-23 October 2008, Sahand University of Technology.
- 76- M. Mollaei, S. Rowshanzamir, N. Khabazi, Progress and prospect in electro-Fenton process for wastewater treatment, 6<sup>th</sup> Annual Seminar of Electrochemistry of Iran, Kish International Convention Center, Iran, 9-11 October 2010
- 77- D. Agahizad, S. Rowshanzamir, Multi-Objective Optimization of Polymer Electrolyte Membrane Fuel Cell Systems, 6<sup>th</sup> Annual Seminar of Electrochemistry of Iran, Kish International Convention Center, Iran, 9-11 October 2010
- 78- N. Khabazi, S. Rowshanzamir, M. Mollaei, Electrochemical Oxidation of phenolic wastewater, 6<sup>th</sup> Annual Seminar of Electrochemistry of Iran, Kish International Convention Center, Iran, 9-11 October 2010
- 79- Aylin Rahnavard, Soosan Rowshanzamir, Gholamreza Amir Khanlou, The catalyst layer containing sulfonated poly(ether ether ketone) as the electrode ionomer for polymer electrolyte fuel cells, 7<sup>th</sup> annual seminar of electrochemistry of Iran, 9-10 Nov 2011, K.N. Toosi University of Technology, Tehran, Iran.
- 80- Gh. Amir Khanlou , S. Rowshanzamir , T. Mohammadi, S.J. Peighamardoust, A. Rahnavard, Effect of Pt content in Pt based catalysts on chemical stability of nanocomposite membrane based sPEEK, 7<sup>th</sup> annual seminar of electrochemistry of Iran, 9-10 Nov 2011, K.N. Toosi University of Technology, Tehran, Iran.
- 81- Sh. Ghafari, S. Rowshanzamir , T. Mohammadi, Review and comparison of approaches to proton exchange membrane fuel cell modeling, 7<sup>th</sup> annual seminar of electrochemistry of Iran, 9-10 Nov 2011, K.N. Toosi University of Technology, Tehran, Iran.
- 82- E. Kooshki, S. S. Rowshanzamir , Analysis of measuring conductivity of proton conductive membranes, 7<sup>th</sup> annual seminar of electrochemistry of Iran, 9-10 Nov 2011, K.N. Toosi University of Technology, Tehran, Iran.
- 83- A. Behbahani, S. Rowshanzamir, A. Esmaeilifar, Zirconia Nanoparticles Synthesized by Hydrothermal Method for Fuel Cells Applications , 5<sup>th</sup> Iranian Fuel Cell Seminar, Tabiat Modarres University, Feb 15-16 2012.
- 84- A. Rahnavard , S. Rowshanzamir, Catalyst Utilization of Electrodes with Sulfonated Poly Ether Ether Keton (sPEEK) Ionomer, 5<sup>th</sup> Iranian Fuel Cell Seminar, Tabiat Modarres University, Feb 15-16 2012.
- 85- Sh. Ghafari, S. Rowshanzamir, T. Mohammadi, One-dimensional and Non-isothermal Model for a PEMFC using a Sulfonated Poly (ether ether ketone) Membrane, 5<sup>th</sup> Iranian Fuel Cell Seminar, Tabiat Modarres University, Feb 15-16 2012.



## Conference Attendance

- *15th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 25-29 August, 2002.*
- *16th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 22-26 August, 2004.*
- *WAYS 1st General Conference, Marrakech, Morocco, 11-14 December 2004.*
- *4<sup>th</sup> European Congress of Chemical Engineering, Granada, Spain, 21-25 Sep., 2003.*
- *17th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 Aug., 2006.*

## Research Projects

- 1- Energy research priorities of nanotechnology in Iran, Iran Ministry of Energy, Deputy of Electricity and Energy Affairs
- 2- Design and fabrication of experimental Solid Polymer Electrolyte Fuel Cell (SPEFC)
- 3- Design, fabrication and optimization of Electrode of Solid Polymer Electrolyte Fuel Cell
- 4- Modeling of fuel cells for combined heat and power in residential applications
- 5- Fuel processing investigation for fuel cell systems
- 6- Investigation of nano particle design in supercritical fluids media
- 7- Kinetic Modelling of Autothermal Reforming (ATR)
- 8- Fabrication of the Non-Fluorinated Nanocomposite Proton Exchange Membrane as a Substitute for the Nafion in PEM Fuel Cells
- 9- The hydrothermal synthesis of Pt/C nanocomposites for Proton Exchange Membrane Fuel Cells (PEMFCs)
- 10- Biodiesel production from Castor oil transesterification reaction
- 11- Reduction of COD in wastewater by electrochemical technology
- 12- Ion Exchange Membranes modifications
- 13- Ion Exchange Membranes manufacturing
- 14- Synthesis of proton exchange composite membrane from biopolymers for fuel cell systems
- 15- Self-humidifying composite membrane for proton exchange membrane fuel cells
- 16- Developing alkaline anion exchange membranes (AAEMs) for fuel cell applications
- 17- Electrochemical Technologies for Water or Wastewater Treatment