

## **CURRICULUM VITAE (CV)**

**Mohammad Soltanieh**

**(Jan. 2022)**

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### **Brief Biography**

Dr. Soltanieh has received his Ph.D. (1979) and M.S. (1975) degrees from the State University of New York (SUNY) at Buffalo, USA and his B.S. (1970) from Sharif University of Technology, Tehran, Iran. He has been a visiting professor in the Department of Atmospheric and Oceanic Sciences and senior lecturer in the Department of Chemical and Biomolecular Engineering at the University of Maryland and he has been a visiting professor at MIT, RPI and SUNY in the USA.

Dr. Soltanieh has over 45 years of academic and executive experiences in multidisciplinary areas of chemical engineering, energy and environment, climate change and public policy development. Since 2001 he has served as the National Climate Change Project Manager in the Department of Environment (DOE) of Iran, where he has been responsible for preparation of the National Communications to the United Nations Framework Convention on Climate Change (UNFCCC) and the related climate change activities such as IPCC. Dr. Soltanieh has over 10 years of executive experience in academia serving as the Dean of Graduate Education, Chemical Engineering Department Chair and Vice-Chair, etc. all at Sharif University of Technology. He has published over 110 papers in international scientific peer reviewed ISI journals and has presented over 130 papers at national and international seminars and conferences. In particular, in recent years he has published several papers in the area of gas separation by membranes, greenhouse gas technologies including carbon capture and storage (CCS). He has supervised more than 25 Ph.D. students and more than 130 masters students. He has also taught several graduate courses including: Advanced Reactor Design, Advanced Thermodynamics, Air Pollution Control Engineering, Process Modeling and Simulation, Membrane Separation Processes, Advanced Transport Phenomena and Process Scale-up. At undergraduate level he has taught Thermodynamics, Applied Mathematics in Chemical Engineering, Introduction to Chemical Engineering, Transport Processes and Unit Operations.

He is a founding member of several scientific societies including the Iranian Association of Chemical Engineers, Air Pollution Association and Iran Energy Association, member of the Academy of Sciences of Iran, a member of the National Sustainable Development Committee, and served on the editorial board of seven scientific journals. He has also served as a reviewer of several international scientific journals. He is a distinguished professor receiving Presidential Award and the winner of several environmental awards and recognitions. Dr. Soltanieh is a Nobel Laureate for Peace in 2007 for his contribution to the IPCC on climate change (Coordinating lead author of the Special Report on Carbon Capture and Storage - 2005).

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**A. Name, Title and Contact Address**

**Professor (Retired)**

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**B. Educational Background**

Ph.D. (1979) in Chemical Engineering, State University of New York at Buffalo, USA.

M.S. (1975) in Chemical Engineering, State University of New York at Buffalo, USA.

B.S. (1970) in Chemical Engineering, Sharif University of Technology, Tehran, Iran.

**C. Academic Activities**

**1998 - Present:** Professor, Department of Chemical and Petroleum Engineering, Sharif University of Technology (SUT).

**June 2015 – Sep 2017:** Adjunct Professor and Senior Lecturer, Department of Chemical and Biomolecular Engineering, University of Maryland, College Park, USA.

**Sep. 2013 - Aug 2014:** Visiting Professor, Department of Atmospheric and Oceanic Science, University of Maryland, College Park.

**Sep. 2000 – Jan. 2001:** Visiting Professor of Chemical Engineering and Senior Lecturer, State University of New York at Buffalo.

**Feb. 2000 – Sept. 2000:** Visiting Professor, Massachusetts Institute of Technology (MIT), Departments of Atmospheric Science and Chemical Engineering.

**Feb. 1998- Feb. 2000:** Dean of Graduate Education, Sharif University of Technology, Tehran, Iran. Duties: academic affairs of ten large science and engineering departments at graduate level, including design and establishment of new graduate programs and curricula.

**1985-1998:** Associate Professor of Chemical Engineering at SUT.

**1989-1990:** Visiting Research Scholar, Rensselaer Polytechnic Institute (RPI - USA); collaborating on research projects on membrane processes.

**1979-1985:** Assistant Professor of Chemical Engineering at SUT.

**1977-1979:** Part-time Lecturer, State University of New York at Buffalo USA, teaching basic engineering courses.

**1973-1977:** Instructor and Teaching Assistant, State University of New York at Buffalo (USA); responsible for transport phenomena, kinetics, and process control laboratories.

**1970-1973:** Instructor, Sharif University of Technology, assisting several courses and laboratories including chemical reactor design, transport phenomena, unit operations and process control.

**C.1 Teaching**

Teaching various chemical engineering courses at graduate and undergraduate levels including:

**(a) Graduate courses:** Advanced Transport Phenomena, Advanced Reactor Design, Process Modeling and Simulation, Membrane Separation Processes, Air Pollution Control

Engineering, Advanced Chemical Engineering Thermodynamics and Process Scale-up.

**(b) Undergraduate courses, supervision of laboratories and senior projects:**

Teaching: Chemical Engineering Thermodynamics, Applied Mathematics in Chemical Engineering, Unit Operations of Chemical Engineering, Transport Processes, Chemical Engineering Design and Introduction to Chemical Processes; Process Control Lab, Transport Phenomena Lab, etc.

**(c) M.S. and Ph.D. Theses:**

Supervision of more than 25 Ph.D. and 130 M.S. theses, many of them related to membrane separation processes, kinetics and reactor design, environment and energy technologies, carbon capture and storage and climate change.

**C.2 Research**

Carried out more than fifteen independent research projects in the following areas:

- Energy and environment.
- Carbon capture and storage (CCS).
- Greenhouse gas control technologies.
- Membrane Separation Processes: Development, modeling and applications to water desalination, waste treatment, gas separation, etc.
- Air pollution control and modeling.
- Development of three-way catalysts (TWC) for automotive exhaust emission control.
- Design and simulation of catalytic converters.
- Study of gasoline evaporative losses in production, distribution and consumption in Iran.
- Design of carbon canisters for reduction of evaporative loss of gasoline from automobiles.
- Process modeling and simulation.

**C.3 Executive**

***1998-2000:*** Dean of Graduate Education at Sharif University of Technology (SUT), Tehran, Iran.

***1993-1997:*** Vice-Chairman for Graduate Education in the Chemical Engineering Department at SUT.

***1987-1989:*** Chairman, Department of Chemical Engineering at SUT.

***1983-1985:*** Director, Office of the University-Industry Relations at SUT.

***1990:*** Director, Office of Planning, Evaluation and Supervision, at SUT.

**D. Climate Change Related Activities**

**a. National Activities**

***2001 – 2013: National Project Manager (NPM)***

The Climate Change Enabling Activity under the United Nations Framework Convention on Climate Change (UNFCCC), Department of Environment, Tehran, Iran (*Left this position for sabbatical at the University of Maryland, USA*).

**1998-2000:** Director, Industrial Processes Division, and a member of the Energy Division, for preparation of the national greenhouse gas inventory, and mitigation reports of climate change enabling activity.

## **b. International Activities**

**b.1 Conferences of Parties (COP) of the UNFCCC:** Participating and representing the Iranian Government at the UNFCCC meetings for 10 years.

**b.2 UNFCCC Related Activities:** At the invitation of the UNFCCC Secretariat, *served as a expert reviewer of greenhouse gas inventories and mitigation policies of several developed (Annex I) countries.*

**b.3 IPCC (Intergovernmental Panel on Climate Change) Related Activities:**  
*Nobel Prize Laureate for Peace as a Coordinating Lead Author of the Special Report on Carbon Capture and Storage (CCS) of the IPCC (Intergovernmental Panel on Climate Change), April 2007.*

## **b.4 Reviewer for the GEA/CCS Report**

**2010-2011:** At the invitation of International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria, I served as the “**reviewer**” for the “Global Energy Assessment (GEA) Report – Knowledge Module (KM) 13 - on Carbon Capture and Storage. This report was published by the Cambridge University Press (2012).

## **E. Other Professional Activities**

### **E.1 Consulting**

- To the Ministry of Energy, Ministry of Petroleum and Municipality of Tehran on energy and environment.

### **E.2 Executive**

- **1981-1983: Director**, Chemistry and Chemical Engineering Division, Electric Power Research Center, the Ministry of Energy, Tehran, Iran. Responsible for identification and definition of research projects related to power plants in Iran.
- **1995-1997: Project Manager**, *Tehran Transport Emission Reduction Project*, The Municipality of Tehran, a Global Environment Facility (GEF)/World Bank project. Responsible for coordination and management of the project and as the Iranian counterpart for the Swedish Joint Venture: SWECO/SMHI/MTC, which were selected by the World Bank.
- **2003-2004: Member of Steering Committee** for the Energy/Environment Review (EER) in the Islamic Republic of Iran. A World Bank Project carried out in Iran.
- **2003 & 2008: National Consultant** for selection of air pollution monitoring stations in major cities of Iran; and selection of the consultant for air and water quality management of Iran; a project of the Department of Environment that was funded by the World Bank.

#### **F. Memberships**

Founding member, member or affiliate member of several scientific associations including:

- National Academy of Sciences,
- Iranian Association of Chemical Engineers,
- National Sustainable Development Committee,
- Iran Energy Association,
- Air Pollution Association,
- Climate Change Association
- Iranian Membrane Association (To be approved: in progress)
- Served as a member of editorial board of several Iranian scientific journals.

#### **G. Reviewer**

Serving as reviewer of several scientific international journals including:

- Journal of Membrane Science (Elsevier Publisher)
- Separation and Purification Technology (Elsevier Publisher)
- Desalination (Elsevier Publisher)
- International Journal of Greenhouse Gas Control (Elsevier Publisher)
- Applied Materials and Interfaces (ACS)
- Frontiers in Energy (Springer)
- European Journal of Sustainable Development Research
- Etc.

#### **H. Skills**

- Excellent knowledge of reading, writing and speaking English.
- Excellent communication skills.
- Sufficient management experience.
- Sufficient experience with computer applications.

#### **I. Awards and Honors**

- Presidential Award as Distinguished Professor of Sharif University of Technology, 2001.
- Nobel Prize Laureate for Peace as the Coordinating Lead Author of the IPCC (Intergovernmental Panel on Climate Change) Special Report on Carbon Dioxide Capture and Storage - April 2007.
- Received honorary award from the Vice President and the Head of the Department of the Environment for distinguished work on national climate change activities and as a coordinating lead author of the IPCC Special Report on Carbon Dioxide Capture and Storage (2005).
- Received a letter of appreciation from the UNFCCC Secretariat on the outstanding work in preparation of National Communication (2001).
- Received the honorary award of “Outstanding Researcher of the Year in the Field of Environment” from the Center for Peace and Environment (an Iranian NGO) (2009).
- Received an honorary letter of recognition from the National Sustainable Development Committee (2009).

**J. Publications and Presentations**

- Published over 110 scientific papers in international ISI peer-review journals (a selected list is given in Annex I).

**- Google Scholar Citations (as of March 8, 2022)**

	All
Citations	3151
h-index	32
i10-index	71
Documents by author:	144

- Presented over 130 papers at international and national conferences and seminar presentations as invited speaker (Annex II)

- Translated a textbook on thermodynamics (by Smith & Van Ness) from English to Persian (Annex III).

- Prepared over eight technical reports (Annex III).

- Prepared three Iran's National Communications to UNFCCC, 2003, 2011 and 2017 ([www.unfccc.int](http://www.unfccc.int)).

## Annex I SELECTED PUBLICATIONS

### International published ISI papers

1. Omid Javadi, Abolfazl Fathollahi Zonouz, **Mohammad Soltanieh**, Seyyed Abbas Mousavi, "PVDF/PU blend membrane separator for lithium-ion batteries via non-solvent-induced phase separation (NIPS)", Journal of Solid State Electrochemistry <https://doi.org/10.1007/s10008-021-05010-z>, July 2021.
2. Khalili, Fariba; Jafari Nasr, Mohammad Reza Ein-Mozaffari, Farhad, and **Soltanieh, Mohammad**, "Investigation of the Gas-Liquid Flow in an Agitated Vessel Equipped with an ASI Impeller by Using Tomography Method," Iranian Journal of Chemistry and Chemical Engineering," Vol. 39, No. 4, 2020, pp 321-338.
3. Zahra Madadi, **Mohammad Soltanieh**, Tayebe Bagheri Lotfabad, Beheshteh Sohrabi Nazari, "Green synthesis of titanium dioxide nanoparticles with *Glycyrrhiza glabra* and their photocatalytic activity", Asian Journal of Green Chemistry 4 (2020) 256-268.
4. Mousa Nazari, **Mohammad Soltanieh**, Amir Heydarinasab, Bozorgmehr Maddah, "Synthesis of a new self-supported  $Mg_y(Cu_xNi_{0.6-x}Mn_{0.4})_{1-y}Fe_2O_4$  oxygen carrier for chemical looping steam methane reforming process," International Journal of Hydrogen Energy, May 2021.
5. Mousa Nazari, Amir Heydarinasab, **Mohammad Soltanieh**, Bozorgmehr Maddah, "Synthesis and optimization of  $Cu_xNi_{0.6-x}Mn_{0.4}Fe_2O_4$  oxygen carrier for chemical looping steam methane reforming, Accepted for publication in Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, April 2021.
6. Mousa Nazari, Amir Heydarinasab, **Mohammad Soltanieh**, Bozorgmehr Maddah, "Synthesis and optimization of  $NixMn_{1-x}Fe_2O_4$  catalyst in chemical looping steam methane reforming process", Iranian Journal of Chemistry and Chemical Engineering (IJCCE), June 2020.
7. Nadia Sahebamee, **M. Soltanieh**, Seyed Mahmoud Mousavi, Amir Heydarinasab, "Preparation and characterization of porous chitosan-base membrane with enhanced copper ion adsorption performance", Reactive and Functional Polymers, Volume 154, September 2020.
8. Zeinab Hamidzadeh, Sourena Sattari, **M. Soltanieh**, Ali Vatani, "Development of a multi-objective decision-making model to recover flare gases in a multi flare gases zone", Energy 203 (2020) 117815, <https://doi.org/10.1016/j.energy.2020.117815>.
9. F. Abbasizade, M. Abbaspour, **M. Soltanieh**, and A. Kani, "An innovative executive and nancial mechanism for energy conservation in new and existing buildings in Iran", International Journal of Environmental Science and Technology, Published Online: 15 May 2020, <https://doi.org/10.1007/s13762-020-02728-7>
10. Hamed Heidarpour, Mohsen Padervand, **M. Soltanieh**, Manouchehr Vossoughi, "Enhanced decolorization of rhodamine B solution through simultaneous photocatalysis

- and persulfate activation over Fe/C<sub>3</sub>N<sub>4</sub> photocatalyst”, Chemical Engineering Research and Design, 153 (2020) 709–720.
11. Nadia Sahebjamie, **M. Soltanieh**, Seyed Mahmoud Mousavi, Amir Heydarinasab, “Removal of Cu<sup>2+</sup>, Cd<sup>2+</sup> and Ni<sup>2+</sup> ions from aqueous solution using a novel chitosan/polyvinyl alcohol adsorptive membrane, Carbohydrate Polymers, 210 (2019) 264-273.
  12. Saman Monjezi, **M. Soltanieh**, Andrew C. Sanford and Joontaek Park, “Polyaniline membranes for nanofiltration of solvent from dewaxed lube oil”, Separation Science and Technology, Published online August 29, 2018, <https://doi.org/10.1080/01496395.2018.1512617>.
  13. R. Shirmohammadi, **M. Soltanieh**, Luis M. Romeo, “Thermoeconomic analysis and optimization of post-combustion CO<sub>2</sub> recovery unit utilizing absorption refrigeration system for a natural-gas-fired power plant”, Environmental Progress and Sustainable Energy, Vol 37, Issue 3, 1075-1084, Online publication 27 Jan 2018.
  14. Abdollah Khosravanian, Flor Shayegh, **M. Soltanieh**, Saeed Soltanali, and Alimorad Rashidi, “Modeling the breakthrough curve of adsorption of sulfur compounds from propane and butane stream in packed bed with nanozeolite-adsorbent”, Petroleum Research, No 93, 2017 (In Farsi).
  15. M. Feilizadeh, **M. Soltanieh**, M.R. Karimi Estahbanati, Khosrow Jafarpur, S. Saba Ashrafmansouri “Optimization of geometrical dimensions of single-slope basin-type solar stills”, Submitted to Desalination for publication, Desalination 424 (2017) 159-168.
  16. S. A. Hosseini, **M. Soltanieh**, S. M. Mousavi, “Investigating morphology and performance of cellulose acetate butyrate electrospun nanofiber membranes for tomato industry wastewater treatment,” Desalination and Water Treatment, 64(2017) 127-135.
  17. S. M. S. Niknejad, H. Savoji, M. Pourafshari Chenar and **M. Soltanieh**, “Separation of H<sub>2</sub>S from CH<sub>4</sub> by polymeric membranes at different H<sub>2</sub>S concentrations”, International Journal of Environmental Science and Technology (2017) 14:375–384.
  18. Parisa Hajighahremanzadeh, Mahsa Abbaszadeh, Seyyed Abbas Mousavi, **M. Soltanieh**, Hadi Bakhshi, “ Polyamide/polyacrylonitrile thin film composites as forward osmosis membranes”, Journal of Applied Polymer Science, (2016), DOI: 10.1002/APP.44130.
  19. A. Heidarinasab, **M. Soltanieh**, M. Ardjmand, H. Ahmadpanahi and M. Bahmani, “Comparison of Mo/MgO and Mo/ $\gamma$ - Al<sub>2</sub>O<sub>3</sub> catalysts: impact of support on the structure and dibenzothiophene hydrodesulfurization reaction pathways,” International Journal of Environmental Science and Technology, ISSN 1735-1472, Volume 13, Number 4, 2016, pp. 1065–1076.
  20. **M. Soltanieh**, A. Heidarinasab, M. Ardjmand, H. Ahmadpanahi, Morteza Bahmani, “Impact of support on the catalytic behavior of Mo/-Al<sub>2</sub>O<sub>3</sub> and Mo/MgO catalysts on the desulfurization reaction”, Applied Catalysis A: General, 516 (2016) 41-50.
  21. **M. Soltanieh**, A. Zohrabian, M. J. Gholipour and E. Kalnay “A Review of global gas flaring and venting and impact on the environment: Case study of Iran,” International Journal of Greenhouse Gas Control, Elsevier, June 2016, vol 49, pages 488-509.
  22. A. Zohrabian, M. Mansouri Majoumerd, **M. Soltanieh**, S. Sattari, “ Techno-economic evaluation of an integrated hydrogen and power co-generation system with CO<sub>2</sub> capture,” Accepted for publication in the International Journal of Greenhouse Gas Control, Elsevier, November 2015 (Pre-print: Vol. 44, Jan. 2016, pages 94-103).



23. H. Rabiee, S. Meshkat Alsadat, **M. Soltanieh**, S. Abbas Mousavi, S. Ali Ghadimi, "Gas permeation and sorption properties of poly (amide-12-b-ethylene oxide) (Pebax1074)/SAPO-34 mixed matrix membrane for CO<sub>2</sub>/CH<sub>4</sub> and CO<sub>2</sub>/N<sub>2</sub> separation" Journal of Industrial and Engineering Chemistry (Korea), Volume 27, 25 July 2015, pp223-239.
24. H. Jahanbakhsh, **M. Soltanieh** and R. Azadi, "Preparation and characterization of SAPO-34 nanoparticles-mixed matrix membranes (MMM) via combined phase separation method for CO<sub>2</sub>/CH<sub>4</sub> gas separation application". NSTI Nanotech 2014, Vol. 1 ([www.nsti.org](http://www.nsti.org)).
25. H. Rabiee, **M. Soltanieh**, S.A. Mousavi, S.A. Ghadimi, "Improvement in CO<sub>2</sub>/H<sub>2</sub> separation by fabrication of poly(ether-b-amide6)/Glycerol Triacetate", Journal of Membrane Science, 1 November 2014, pp. 43-58.
26. H. Maghsoudi and **M. Soltanieh**, "Simultaneous separation of H<sub>2</sub>S and CO<sub>2</sub> from CH<sub>4</sub> by a high silica CHA-type zeolite membrane," Journal of Membrane Science, 470, 15 November 2014, pp.159-165.
27. K. Khadivi and **M. Soltanieh**, "Numerical solution of the nonlinear diffusivity equation in heterogeneous reservoirs with wellbore phase redistribution," Journal of Petroleum Science and Engineering, Volume 114, February 2014, pp. 82-90.
28. A. Shiebeigi, M. Abbaspour and **M. Soltanieh**, "Evaluating the performance of artificial neural network model in downscaling daily temperature, precipitation and wind speed parameters at Iran provincial segmentation," International Journal of Environmental Research, 8(4): 1223-1230, Autumn 2014.
29. S. M. Hedayatzadeh, M. Soltanieh, E. Fatehifar, M.R. Jafari Nasr, "Optimization of genetic algorithm (GA) for determination of kinetic parameters for combustion of methane", Fuel and Combustion (In Farsi), 2014.
30. M. S. Panjehshahi, **M. Soltanieh** and N. Tahouni, "Assessment of technologies for optimization of energy production, conversion and consumption with environmental considerations, Environmental Researches, Fall-Winter 2014-2015, pp.157-170.
31. M. Omidwar, S.M. Mousavi, **M. Soltanieh** and A.A. Safekordi, "Preparation and characterization of polyethersulfone nanofiltration membranes for Amoxicillin removal from contaminated water," Journal of Environmental Health, Science and Engineering, 2014, 12:18, pp. 1-9.
32. A. Shiebeigi, M. Abbaspour and **M. Soltanieh**, F. Hosseinzadeh Lotfi and Z. Ebadi, "Evaluating the impact of climate change on the performance and fuel consumption of thermal power plants of Iran in the next decade", Environmental Science and Technology, March 2014.
33. H. Maghsoudi, **M. Soltanieh**, H. Bozorgzadeh and A. Mohammadizadeh, "Adsorption isotherms and ideal selectivities of hydrogen sulfide and carbon dioxide over methane for the Si-CHA zeolite: Comparison with the all-silica DD3R zeolite, Adsorption Journal, Springer, October 2013, Volume 19, Issue 5, pp 1045-1053.
34. M. A. Kazemi, **M. Soltanieh**, Mehdi Yazdanshenas and Luc Fillaudeau, "Influence of Crossflow Microfiltration on Ceramic Membrane Fouling and Beer," Desalination and Water Treatment, Elsevier, Published online, 7 March 2013.
35. M.A. Kazemi, **M. Soltanieh**, and M. Yazdanshenas, "Modeling of transient permeate flux decline during cross flow microfiltration of non-alcoholic beer with consideration of particle size distribution, Journal of Membrane Science, 411-412 (2012) pp. 13-21.
36. M.A. Kazemi, **M. Soltanieh** and M. Yazdanshenas, "Mathematical modeling of

- crossflow microfiltration of diluted malt extract suspension by tubular ceramic membranes”, *Journal of Food Engineering*, January, Vol. 116, (2013) pp. 926-933.
37. K. Khadivi, **M. Soltanieh** and F. A. Farhadpour, “A Coupled wellbore-reservoirs flow model for numerical pressure transient analysis in vertically heterogeneous reservoirs, *Journal of Porous Media*, October 12, 2012.
  38. M. Dargahi, H. Kazemian, **M. Soltanieh**, M. Hosseinpour and S. Rohani, “ High temperature synthesis of SAPO-34: Applying an L9 Taguchi orthogonal design to investigate the effects of experimental parameters, *Powder Technology*, Vol. 217 (31 January 2012), pages 223-230.
  39. H. Zanganeh, S. Jamshidi and **M. Soltanieh**, “Coupled optimization of enhanced recovery and carbon dioxide sequestration in natural gas reservoirs: Case study in a real gas field in the south of Iran”, *International Journal of Greenhouse Gas Control*, 17 (2013) 515–522.
  40. H. Zanganeh, S. Jamshidi and **M. Soltanieh**, “Optimization of simultaneous enhanced gas recovery (EGR) and carbon dioxide storage in natural gas reservoirs”, *Petroleum Research (in Farsi)*, September 2013.
  41. A. Mohammadi, M. Abbaspour **M. Soltanieh**, F. Atabi, “Post-2012 CDM multi-criteria analysis of industries in six Asian countries: Iranian case study, *Climate Policy*”, Vol. 13, No.2, pp. 210-239, online: 17 January, 2013; print: 12 Feb. 2013.
  42. A. Mohammadi, **M. Soltanieh**, M. Abbaspour, F. Atabi, “What is energy efficiency improvements and carbon market potentials in Iranian petrochemical industries”, *International Journal of Greenhouse Gas Control*, 12 (2013) 460-471.
  43. S. Modarresi and **M. Soltanieh**, “Effect of low frequency oxygen plasma on polysulfone membranes for CO<sub>2</sub>/CH<sub>4</sub> separation”, *Journal of Applied Polymer Science*, vol. 124, issue 124, 25 June (2012), pp 199-204. Online publication: 14 January 2012.
  44. **M. Soltanieh**, K. Mahmoodi Azar and M. Saber, “Development of a zero emission integrated system for co-production of electricity and methanol through renewable hydrogen and CO<sub>2</sub> capture”, *International Journal of Greenhouse Gas Control* 7 (2012) 145-152.
  45. B. Khoshmanesh, A. Pourhashemi, **M. Soltanieh** and D. Hermidas Bavand, “Studying climate change impacts and consequences on global security”, *International Journal of Environmental Research and Management* Vol. 3(2), pp. 044-051, Springer Publisher, March, 2012.
  46. Sara Farhangi, Mojtaba Shariaty-Niassar and **Mohamad Soltanieh**, “A New Resistance Model for Interpretation of Gas Permeation Data of Composite and Asymmetric Membranes”, *Journal of Chemical and Petroleum Engineering*, University of Tehran, Vol. 46, No.2, Dec. 2012, PP. 73-86.
  47. A. Pourhashemi, B. Khoshmaneshzadeh, **M. Soltanieh** & D. Hermidasbavand, “Analyzing the individual and social rights condition of climate refugees from the international environmental law perspective”, *International Journal of Science and Technology*, Published online: Nov. 2011.
  48. M. Hedayat, **M. Soltanieh** and S.A. Musavi, “Simultaneous separation of H<sub>2</sub>S and CO<sub>2</sub> from natural gas by hollow fiber membrane contactor using mixture of alkanolamines, *Journal of Membrane Science*, 377(2011) 191-197.
  49. Z. Khorshidi, **M. Soltanieh**, Y.Saboohi and M. Arab “Economic feasibility of CO<sub>2</sub> capture from oxy-fuel power plants considering enhanced oil recovery revenues”,

- Energy Procedia, 4 (2011) 1886-1892.
50. Z. Khorshidi, **M. Soltanieh**, "Methods for carbon dioxide capture from gas turbine power plants and economic assessment of the clean development mechanism (CDM)" (In Farsi), Farayand No (New Process), Feb.-March 2009.
  51. M. Arab, **M. Soltanieh**, M. B. Shafii, "Experimental investigation of extra-long Pulsating heat pipe application in solar water heaters", *Experimental Thermal and Fluid Science*, Volume 42, October 2012, pp. 6-15.
  52. E. Firuzfar, **M. Soltanieh**, S. H. Noie Baghban and M. H. Saidi, "Investigation of heat pipe heat exchanger effectiveness and energy saving in air conditioning systems using silver nanofluid", *International Journal of Environmental Science and Technology*, Published online: 17 May 2012.
  53. E. Firouzfar, **M. Soltanieh**, H. Noie and S. Hassan Saidi, "Application of heat pipe heat exchangers in heating, ventilation and air conditioning (HVAC) systems", *Scientific Research and Essays Vol. 6 (9)*, 4 May 2011, 99 1900-1908.
  54. E. Firuzfar, **M. Soltanieh**, S.H. Noie, M. H. Saidi, "Energy saving in HVAC systems using nanofluid", *Applied Thermal Engineering*, 31, No. 8 (2011) 1543-1545.
  55. H. Savoji, D. Rana, T. Matsuura, **M. Soltanieh**, "Novel surface modifying macromolecules (SMMs) blended polysulfone gas separation membranes by phase inversion technique", *Journal of Applied Polymer Science*, Published online on 24 August 2011 by Wiley (wileyonlinelibrary.com).
  56. H. Savoji, D. Rana, T. Matsuura, **M. Soltanieh**, "Influence of novel surface modifying macromolecules and coagulation media on the gas permeation properties of different polymeric gas separation membranes", *Journal of Applied Polymer Science*, published online by Wiley, 26 October 2011 (wileyonlinelibrary.com).
  57. M. Pourafshari Chenar, Houman Savoji, **M. Soltanieh**, T. Matsuura and Shahram Tabe, "Removal of hydrogen sulfide from methane using commercial polyphenylene oxide and Cardo-type polyimide hollow fiber membranes, *Korean J. Chem. Eng.*, 28(3), 902-913 (2011).
  58. F. Farahbod, D. Mowla, M. R. Jafari Nasr, M. Soltanieh, "Experimental study of forced circulation evaporator in zero discharge desalination process," *Desalination* 01/2011; DOI: 10.1016/j.desal.2011.10.026.
  59. M. Feilizadeh, **M. Soltanieh**, K. Jafarpur and M.R. Karimi Estahbanati, "A new radiation model for a single-slope solar still", *Desalination*, 262 (2010) 166-173.
  60. M. Pourafshari Chenar, H. Savoji, **M. Soltanieh**, T. Matsuura and S. Tabe, "The effect of ethane on the performance of commercial polyphenylene oxide and Cardo-type polyimide hollow fiber membranes in CO<sub>2</sub>/CH<sub>4</sub> separation application, "*Korean J. Chem. Eng.*, *Korean J. Chem. Eng.*, 27(6), 1876-1881 (2010).
  61. **M. Soltanieh**, A. M. Eslami and Adnan Moradian, "Feasibility study of carbon dioxide capture from power plants and other major stationary sources and storage in Iranian oil fields for enhanced oil recovery (EOR)," *Energy Procedia* 1 (2009) 3663–3668.
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## Appendix II

### CONFERENCE PAPERS & SEMINAR PRESENTATIONS

1. “Patent-Based Technology Life Cycle Analysis: The Case of the Application of Nano-FAU and Nano-ZSM-5 Zeolites in Petroleum Industry”, **M. Soltanieh**, A. Khosravanian, , Flor Shayegh and Saeid Soltanali, Presented at the World Congress on Regulations of Nanotechnology, Nanobiotechnology and Nanoregulations, July 31 – August 1, 2017, Chicago, Ill. USA.
2. “Breakthrough curve modeling for adsorption of sulfur compounds from propane and butane streams using nano zeolite”, A. Khosravanian, Flor Shayegh, **M. Soltanieh**, and Saeid Soltanali, Poster Presentation at the International Gas Union Research Conference, October 24-27, Rio de Janeiro 2017.
3. “Techno-economic comparative study on hydrogen and electricity cogeneration systems with CO<sub>2</sub> capture,” A. Zohrabian, M. Mansouri Majumerd, **M. Soltanieh** and O. Arild, Proceedings of the ASME 2016 Power and Energy Conference, PowerEnergy, June 26-30, 2016, Charlotte, North Carolina.
4. “Global Gas Flaring -The Energy Waste with Serious Environmental Impacts: Case Study of Iran”, **M. Soltanieh**, A. Zohrabian, M.J. Gholipour, Paper presented at TechConnect World Innovation Conference, National Harbor, Washington DC, June 15-17, 2015.
5. “H<sub>2</sub> purification with PVDF/GTA blended membranes”, H. Rabiee, **M. Soltanieh**, S.A. Mousavi, A. Ghadimi, Paper presented at TechConnect World Innovation Conference, National Harbor, Washington DC, June 15-17, 2015.
6. “Preparation and characterization of porous polyethersulfone nanofiltration membranes via combined phase separation method for water desalination”, H. Jahanbakhsh Asl, **M. Soltanieh**, Paper presented at TechConnect World Innovation Conference, National Harbor, Washington DC, June 15-17, 2015.
7. “Observations and trends of emissions from gas flaring in the Persian Gulf region using OMI”, Hao He, **Mohammad Soltanieh**, Angineh Zohrabian, Russell Dickerson, Presented at the 2014 American Geological Union (AGU) Fall Meeting, No: A31N-08.
8. “Carbon capture and storage in energy conversion and process industries”, **M. Soltanieh**, Seminar presented in the Energy Research Center/Chemical and Biological Engineering Department of the University of Maryland, College Park, USA, July 2014.
9. “Preparation and characterization of SAPO-34 nanoparticles-mixed matrix membranes (MMM) via combined phase separation method for CO<sub>2</sub>/CH<sub>4</sub> gas separation application”, H. Jahanbakhsh Asl, **M. Soltanieh**, R. Azadi, Paper presented at the TechConnect World Innovation Conference, Washington DC, June 16-18, 2014.



10. "Carbon dioxide sequestration and enhanced gas recovery by CO<sub>2</sub> injection in a water-drive tight gas condensate reservoir: A case study in south west of Iran", H. Zangeneh, **M. Soltanieh** and S. Jamshidi, Paper presented at the 13<sup>th</sup> Annual Carbon Capture, Utilization and Storage Conference, Pittsburgh, PA, USA, May 28-June 1, 2014.
11. "Hydrogen and electricity co-production by auto-thermal reforming of methane with CO<sub>2</sub> capture deployment", A. Zohrabian, **M. Soltanieh**, S. Sattari and M. Mansouri, Presented at the 13<sup>th</sup> Annual Carbon Capture, Utilization and Storage Conference, Pittsburgh, PA, USA, May 28-June 1, 2014.
12. "Preparation and characterization of nano-porous polyethersulfone membranes via combined phase separation method, H. Jahanbakhsh, **M. Soltanieh**, R. Azadi, presented at International Conference on Nanostructures, Kish Island, Iran, March 2014.
13. "Preparation and characterization of polyethersulfone microporous membrane via combined solvent-non solvent and thermally induced phase separations methods", H. Jahanbakhsh, **M. Soltanieh**, R. Azadi, presented at the 8<sup>th</sup> International Chemical Engineering Congress and Exhibition, Kish, Iran, 24-27 February 2014.
14. "Synthesis of titanium dioxide nanoparticles by sol-gel method using natural surfactants", Z. Madadi, T. Bagheri Lotfabad, **M. Soltanieh**, B. Sohrabi Nazari, presented at International Conference on Nanostructures, Kish Island, Iran, March 2014. Also presented at the 15<sup>th</sup> Student Forum on Nanotechnology, at Tarbiat Modarres University, Tehran, Iran, 24-25 April 2014.
15. "Climate change activities in Iran under the UN Convention on Climate Change", **M. Soltanieh**, presented at the Earth System Science Interdisciplinary Center (ESSIC), University of Maryland, October 14, 2013.
16. "Climate change activities in Iran under the UN Convention on Climate Change", **M. Soltanieh**, presented at US-Iran Symposium on Air Pollution Program, University of California – Irvine. The Symposium was organized jointly by the American Association of Advancement of Science (AAAS) and the US National Academy of Sciences, September 3-5, 2013.
17. "Production of bioethanol from lignocellulosic materials in membrane reactor", M. H. Ebrahimi, **M. Soltanieh**, S. Kashefi and M. Yazdanshenas, Fourth National Bioenergy Conference, Tehran, Iran, October 2013.
18. "Synthesis of pure Si-CHA by dry sol gel method and investigation of its permeation for CO<sub>2</sub> separation from CH<sub>4</sub>", H. Maghsoudi and **M. Soltanieh**, presented at the Third Conference on the Applications of Chemistry in New Technologies, Tehran, Iran, October 2013.
19. "Synthesis and purification of high silica CHA- type zeolite membrane by using N, N, N-trimethyl-1-adamantylammonium hydroxide as the template", H. Maghsoudi and **M. Soltanieh**, presented at the Third Conference on the Applications of Chemistry in New Technologies, Tehran, Iran, October 2013.

20. "Synthesis of high silica CHA-type zeolite membrane by in-situ crystallization for separation of acid gases ( $\text{CO}_2$  and  $\text{H}_2\text{S}$ ) from methane", H. Maghsoudi and **M. Soltanieh**, presented at the Third Conference on the Applications of Chemistry in New Technologies, Tehran, Iran, October 2013.
21. "Impact of climate change on water resources and biodiversity of Iran", **M. Soltanieh** and S. J. Shayegan, presented at the Regional Workshop on Sustainable Development of Asian Countries, Water resources and Biodiversity under Climate Change, organized by the Association of Academies and Societies of Sciences in Asia (AASSA), Barnaul, Russia, August 19-23, 2013.
22. "Synthesis of membranes with CHA structure: Challenges and methodologies", H. Maghsoudi and **M. Soltanieh**, presented at the First National Conference on the Applications of Novel Technologies in Chemistry and Chemical Engineering, Abgineh International Convention Center, Tehran, Iran, 16 April 2013.
23. "Synthesis and evaluation of surface adsorption properties of zeolites for natural gas sweetening", H. Maghsoudi, **M. Soltanieh**, H.R. Bozorgzadeh, and A. M. Alizadeh, presented at the 14<sup>th</sup> National Chemical Engineering Congress, Sharif University of Technology, Tehran, Iran, 17-19 October 2012.
24. "Climate Change Activities in Iran", **M. Soltanieh** and S. J. Shayegan, presented at the Regional Workshop on Impact and Mitigation of Climate Change in Asia and Oceania, organized by the Association of Academies and Societies of Sciences in Asia (AASSA), Vladivostok, Russia July 29-31, 2012.
25. "Reservoir characterization enhancement through integrated wellbore-reservoir flow model and pressure transient analysis in vertically heterogeneous reservoirs", K. Khadivi, R. Masoudi, **M. Soltanieh**, F.A. Farhadpour, presented at the Regional Petroleum Geo-science and Exhibition, Kuala Lumpur, Malaysia, 23-24 April 2012.
26. "A numerical approach for simultaneous estimation of spatial variation of porosity-permeability boundaries of zones in radially homogeneous reservoir", K. Khadivi, **M. Soltanieh** and R. Masoudi, presented at the International Conference on Integrated Petroleum Engineering and Geo-science, 12-14 June 2012.
27. " $\text{CO}_2$  injection to natural gas reservoirs for enhanced gas recovery (EGR) and storage", H. Zangeneh, S. Jamshidi and **M. Soltanieh**, presented at the 14<sup>th</sup> National Chemical Engineering Congress, Sharif University of Technology, Tehran, Iran, 17-19 October 2012.
28. "Production of biogas from dairy industries wastewater: Case study of Kalleh Dairy Industries in Amol", M. Mazloom, S. Yaghmaei and **M. Soltanieh**, presented at the Third National Bioenergy Conference, Tehran, Iran, 19 October 2012.
29. "Investigation of the effectiveness of CDM in solving the environmental challenges of industries of Iran", M. Abbaspour, A. Mohammadi, **M. Soltanieh**, presented at the 17<sup>th</sup> Conference of the Association of Environmental Specialists of Iran, Tehran, Iran, 1-2 February 2012.

30. "Artificial neural network for prediction of  $PM_{10}$  concentration in Tehran urban area and comparison with multiple regression approach", Allahyari, **M. Soltanieh**, Moslehi, presented at CHISA, Czech Republic, 2012.
31. "Studying climate change impacts and consequences on global security", B. Khoshmanesh zadeh, A. Poorhashemi, **M. Soltanieh** and D. Hermidas Bavand, presented at the International Conference on Environment, Energy and Biotechnology (ICEEB), Kuala-Lampur, Malaysia, May 5-6, 2012.
32. "The use of amines and their mixtures for  $H_2S$  and  $CO_2$  removal of natural gas: simulation and numerical study of gas sweetening plant". R. Miri, S. M. S. Niknejad, **M. Soltanieh**, F. Hosseini, and S. J. Moosavi, In the Proceedings of the 61st Canadian Chemical Engineering Conference (CSCHE2011), London, ON, Canada, October 23-26, 2011.
33. "Process simulation and optimization of dehydration unit of gas refineries", R. Miri, S. M. S. Niknejad, **M. Soltanieh**, F. Hosseini, S. J. Moosavi, and E. Amini, In the Proceedings of the 8th European Congress of Chemical Engineering (ECCE2011), Berlin, Germany, September 25-29, 2011.
34. "Numerical simulation of hollow fiber membranes for separation of binary gas mixtures: case study with separation of  $CO_2/CH_4$ ". R. Miri, S. M. S. Niknejad, **M. Soltanieh**, F. Hosseini, and S. J. Moosavi, In the Proceedings of the 3rd European Process Intensification Conference (EPIC 2011), Manchester, UK, June 20-23, 2011.
35. " $H_2/N_2$  gaseous mixture separation in a hollow fiber membrane: numerical simulation and optimization studies". R. Miri, S. M. S. Niknejad, **M. Soltanieh**, F. Hosseini, and S. J. Moosavi. (2011). In Proceedings of the 2nd European Conference on Process Analytics and Control Technology (EuroPACT 2011), Glasgow, UK, April 26-29, 2011.
36. "Separation of  $H_2S$  from natural gas and  $H_2S/CH_4$  mixed gases with polymeric membranes: case study with PPO and PEUU". S. Niknejad, H. Savoji, and **M. Soltanieh**, Accepted in the 3rd European Process Intensification Conference (EPIC 2011), Manchester, UK, June 20-23 2011.
37. "Plasticization effect of  $H_2S$  on performance of polyphenylene oxide hollow fiber membrane at high concentrations of hydrogen sulfide". H. Savoji, S. M. S. Niknejad, and **M. Soltanieh**. In Proceedings of the 19th International Congress of Chemical and Process Engineering CHISA 2010 and the 7th European Congress of Chemical Engineering ECCE-7, Prague, Czech Republic, 28 August - 1 September, 2010.
38. "Comparison of high and low concentrations of hydrogen sulfide from methane using commercial polyphenylene oxide hollow fiber membrane". S. M. S. Niknejad, H. Savoji, M. Pourafshari Chenar, and **M. Soltanieh**. In Proceedings of the 6th International Chemical Engineering Congress & Exhibition, Kish Island, Iran, November 16-20, 2009.

39. "Comparison of H<sub>2</sub>S removal from natural gas using PPO and PEUU membranes for HSE considerations". S. M. S. Niknejad, H. Savoji, and **M. Soltanieh**, In the Proceedings of the 2nd International Conference on HSE, Tehran, Iran, November 1-2, 2009.
40. "Hydrogen sulfide removal from natural gas to protect the environment". H. Savoji, S. M. S. Niknejad, and **M. Soltanieh**, In the Proceedings of the 2nd International Conference on HSE, Tehran, Iran, November 1-2, 2009.
41. "Coupling reservoir and wellbore models for reliable numerical well test analysis of heterogeneous formations", K. Khadivi, **M. Soltanieh** and F. A. Farhadpour, presented at the 13th Iranian National Chemical Engineering Congress & 1st International Regional Chemical and Petroleum Engineering, Kermanshah, Iran, 25-28, October 2010.
42. "Numerical solution of the nonlinear diffusivity equation in heterogeneous reservoirs with well-bore phase redistribution", K. Khadivi, **M. Soltanieh** and F. A. Farhadpour, presented at the 13th Iranian National Chemical Engineering Congress & 1st International Regional Chemical and Petroleum Engineering, Kermanshah, Iran, 25-28 October 2010.
43. "Mathematical modeling and simulation of hollow fiber membranes for separation of gas mixtures: Case study with separation of H<sub>2</sub>S/CH<sub>4</sub> by polyphenylene oxide (PPO) hollow fiber module", S. M. S. Niknejad, H. Savoji and **M. Soltanieh**, presented at the 9th International Congress of Chemical and Process Engineering CHISA 2010 and the 7th European Congress of Chemical Engineering ECCE-7, Prague, Czech Republic, 28 August- 1 September 2010.
44. "Solar distillation basins with inclined condensation surface: Comparison of data with modeling results", M. Feilizadeh, **M. Soltanieh**, K. Jafarpour, M. R. Karimi, S. Safarithe , and A. Mansouri, presented at the 12<sup>th</sup> National Chemical Engineering Congress, Sahand University of Technology, Tabriz, Iran, October 2010.
45. "A review on the application of heat pipe heat exchanges for energy saving in HVAC systems", **M. Soltanieh**, E. Firuzfar, presented at 10th International Conference on Clean Energy (ICCE-2010), Cyprus, September 15-17 2010.
46. "CO<sub>2</sub>/N<sub>2</sub> and O<sub>2</sub>/N<sub>2</sub> separation characteristics of PC membranes: effect of coagulation bath temperature", S. Sedghi and **M. Soltanieh**, presented at the 9th International Seminar on Polymer Science and Technology, Iran, 2010.
47. "Economic feasibility of CO<sub>2</sub> capture from oxy-fuel power plants considering enhanced Oil recovery revenues", Z. Khorshidi and **M. Soltanieh**, presented at the ASME 4th International Conference on Energy Sustainability, United States, 2010.
48. "Applications of wickless heat pipe heat exchangers in HVAC system", E. Firuzfar, M. Soltanieh and H. Noie Baghban, presented at the 6<sup>th</sup> International Chemical Engineering Congress and Exhibition, Kish Island, Iran, 16-20 November, 2009.
49. "Analysis of fouling and flux behavior in cross-flow microfiltration of non-alcoholic beer by

ceramic membrane", M. Yazdanshenas, S. A. R. Tabatabaee Nezhad, **M. Soltanieh**, L. Fillaudeau, presented at the 7th International Conference on Membrane Science & Technology (MST2009), Malaysia, 12-15 May 2009.

50. "Fouling understanding during rough non-alcoholic beer with ceramic membrane", M. Yazdanshenas, S. Tabatabaei, **M. Soltanieh**, L. Fillaudeau, presented at the Euromembrane, France, 2009.

51. "Evaluation of different polymeric membranes performances in microfiltration of rough non-alcoholic beer", M. Yazdanshenas, A. Tavakkoli, A. Babaluo, S. A. R. Tabatabaee Nezhad, **M. Soltanieh**, L. Fillaudeau, presented at the 6<sup>th</sup> International Chemical Engineering Congress and Exhibition, Kish Island, Iran, 16-20 November, 2009.

52. "A methodology for studying the effect of geometrical dimensions of a basin type solar still", M. Feilizadeh, **M. Soltanieh**, K. Jafarpur, S. Ashrafmansouri, M. R. Karimi Estahbanati, presented at the Sustainable Development of Energy, Water and Environment Systems (SDEWES), Croatia, 2009.

53. "Investigating gas permeation behavior and morphology of PC membranes", S. Sedghi and **M. Soltanieh**, presented at the 6th International Chemical Engineering Congress and Exhibition (ICHEC), Kish Island, Iran, November 16-20, 2009.

54. "Removal of high concentration of hydrogen sulfide from methane using commercial polyphenylene oxide hollow fiber and poly ester urethane urea flat membranes", H. Savoji, S. M. S. Niknejad, **M. Soltanieh**, presented at the 6th International Chemical Engineering Congress & Exhibition, Iran, 2009.

55. "Different methods for CO<sub>2</sub> capture from natural gas-fuelled power plants and economic feasibility of CDM", Z. Khorshidi, **M. Soltanieh**, presented at the First Conference on Carbon Market and the Clean Development Mechanism (CDM) in Petrochemical Industries of Iran, Tehran Iran, October 2009.

56. "The effect of ethane on the performance of commercial polyphenylene oxide and Cardo-type polyimide hollow fiber membranes in CO<sub>2</sub>/CH<sub>4</sub> separation applications", M. Pourafshari-chenar, **M. Soltanieh**, H. Savoji, T. Matsuura and A. Tabe-Mohammadi, presented at the 8<sup>th</sup> World Congress of Chemical Engineering, Montreal, Canada, 23-27 August 2009.

57. "Removal of hydrogen sulfide from methane using commercial polyphenylene oxide and Cardo-type polyimide hollow fiber membranes", M. Pourafshari-chenar, **M. Soltanieh**, H. Savoji, T. Matsuura and A. Tabe-Mohammadi, presented at the 8<sup>th</sup> World Congress of Chemical Engineering, Montreal, Canada, 23-27 August 2009.

58. "A novel high temperature synthesis of SAPO-34 molecular sieves", M. Dargahi, **M. Soltanieh**, H. Kazemian and M. Hosseinpour, M. Pourafshari-chenar, **M. Soltanieh**, H. Savoji,

T. Matsuura and A. Tabe-Mohammadi, presented at the 8<sup>th</sup> World Congress of Chemical Engineering, Montreal, Canada, 23-27 August 2009.

59. "Application of internal reflectors in solar distillation stills", M. Feilizadeh, **M. Soltanieh**, K. Jafarpour, M. R. Karimi, S. Safari, and A. Mansouri, presented at the National Conference on Fuels, Energy and Environment, Materials and Energy Research Center of Iran, June 2008.

60. "Optimization of Cu/ZnO ratio in Cu-ZnO-ZrO<sub>2</sub>/H-Y bifunctional catalyst used for production of tetrahydrofuran from maleic Anhydride", S. Aghaziarati, **M. Soltanieh**, M. Kazemini, S. Sahebdehfar, presented at the 5th International Chemical Engineering Congress & Exhibition, Iran, 2008.

61. "Hydrogenation of maleic anhydride to tetrahydrofuran using", S. Aghaziarati, **M. Soltanieh**, M. Kazemini, S. Sahebdehfar, presented at the 18th International Congress of Chemical and Process Engineering" (CHISA), Czech Republic, 24-28 August 2008.

62. "Cross-flow sterile microfiltration of non-alcoholic beer", M. Yazdanshenas, S. Tabatabaei Nejad, **M. Soltanieh**, L. Fillaudeau, presented at the International Congress on Membranes and Membrane Processes, Hawaii, United States, 12-18 July 2008.

63. "Analysis of whole range of flux behavior during full scale apple juice ultrafiltration process", M. Yazdanshenas, S. A.R. Tabatabaee Nezhad, R. Roostaazad, A.B. Khoshfetrat, **M. Soltanieh**, presented at the 5th International Chemical Engineering Congress and Exhibition, Iran, 2008.

64. "Feasibility study of carbon dioxide capture from power plants and other major stationary sources and storage in Iranian oil fields for Enhanced Oil Recovery (EOR)", **M. Soltanieh**, A. M. Eslami and A. Moradian, presented at the 9<sup>th</sup> International Conference on Greenhouse Gas Control Technologies, Washington DC, November 16-29, 2008.

65. "Process integration of membrane reactor for steam methane reforming for hydrogen separation with CO<sub>2</sub> capture in power production by natural gas combined cycle", **M. Soltanieh** and Bitra Najmi, A. Molaei Dehkordi, presented at the 9<sup>th</sup> International Conference on Greenhouse Gas Control Technologies, Washington DC, November 16-29, 2008.

66. "Synthesis of SAPO-34 crystalline with usage of TEOS as Silica Source", presented at the First Iran International Zeolite Conference, M. Dargahi, **M. Soltanieh**, H. Kazemian, Amirkabir University, Tehran, Iran, 29 April – 1 May 2008.

67. "SAPO-34: A convenient membrane medium for light molecules separation", presented at the First Iran International Zeolite Conference, M. Dargahi, **M. Soltanieh**, H. Kazemian, Amirkabir University, Tehran, 29 April – 1 May 2008.

68. "Clean Development Mechanism (CDM), global carbon market and Iran," **M. Soltanieh**, plenary lecture presented at the Second National HSE (Health-Safety-Environment), Sharif

University of Technology, Tehran, Iran, March 2-4, 2008.

69. "Contribution of the energy sector to national GHGs inventory and policies to mitigate emissions", **M. Soltanieh**, plenary lecture presented at the National Iranian Oil Company Seminar on Clean Development Mechanism (CDM), 28 January 2008.

70. "Integration of hydrogen production by steam methane reforming in membrane reactors with natural gas combined cycle (NGCC) power plants and CO<sub>2</sub> capture," **M.Soltanieh**, presented at the Second National HSE (Health-Safety-Environment), with B. Najmi, Sharif University of Technology, Tehran, Iran, March 2-4, 2008.

71. "The Kyoto Protocol CDM mechanism: opportunities for the Islamic Republic of Iran and the role of the Designated National Authority (DNA)", **M. Soltanieh**, plenary lecture presented at the Strategic Research Center of the Expediency Council of Iran, Tehran, February 17, 2007.

72. "The potentials for carbon dioxide capture and storage in the energy technologies: The impact on the oil and gas sectors", **M. Soltanieh**, plenary lecture presented at the Special Workshop on Carbon Dioxide Capture and Injection in the Oil Fields, Organized jointly by the Research Institute for Enhanced Oil and Gas Recovery of the National Iranian Oil Company and the Shell Oil Company, 5 March 2007.

73."An optimum catalyst for dehydrogenation of 1,4-butanediol in production of tetrahydrofuran", S. Aghaziarati, **M. Soltanieh**, M. Kazemini, S. Sahebdehfar, presented at the 17th International Congress of Chemical and Processes Engineering (CHISA), Czech Republic, 2006.

74. "A computational fluid dynamics (CFD) approach to modeling of pervaporation in thin membrane channels", **M. Soltanieh**, M. Shayegh, R. Roostaazad, presented at CHISA, Czech Republic, 2006.

75. "Sulfide removal by natural mix of chemotrophic sulfide oxidizing bacteria in anaerobic conditions", M. Vosoughi, J. Amirfakhri and **M. Soltanieh**, Z. Tavassoli, presented at CHISA, Czech Republic 2006.

76."Estimation of temperature and residence time of carbon black oil furnace industrial reactors", A. Javadi, **M. Soltanieh**, D. Bastani, presented at the ASME International Mechanical Engineering Congress, Chicago, Illinois, United States, 5-10 November 2006.

77. "Clean energy technologies: The impacts of the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP)", **M. Soltanieh**, plenary lecture presented at the 11th National Chemical Engineering Congress, Tarbiat Modarres University, December 2006.

78. "Carbon dioxide capture and storage (CCS) in the energy technologies", **M. Soltanieh**, plenary lecture presented at the 11<sup>th</sup> National Iranian Chemical Engineering

Conference, Tarbiat Modarres University, December 2006.

79. "Synthesis and characterization of nano-sized TPA-silicalite-1 crystallites by a two-stage varying temperature synthesis from clear solutions", **M. Soltanieh, et.al.** presented at the First International Congress on Nano-science and Nanotechnology, University of Tehran 18-20 December 2006.

80. "The Kyoto Protocol to the UNFCCC – Greenhouse gas emissions and their impact on the development of the energy and industrial sectors", **M. Soltanieh**, seminar presented at Behran Oil Company, Tehran, May 2006.

81. "The potentials for carbon dioxide capture and storage in the energy technologies: the impact on the oil and gas sectors", **M. Soltanieh**, presented at the Consultancy Meeting on Options for Post-Kyoto Regimes and their Implications for Sustainable Energy Development, , the Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, 22-26 May 2006.

82. "Prospects for climate change mitigation in Iran with emphasis on the energy sector projects", **M. Soltanieh**, presented at the Consultancy Meeting on Options for Post-Kyoto Regimes and their Implications for Sustainable Energy Development, The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, 22-26 May 2006.

83. "Modeling and simulation of membrane reactor for syngas and hydrogen production with CO<sub>2</sub> capture", **M. Soltanieh**, presented at the Eight International Conference on Greenhouse Gas Control Technology, GHGT-8, Trondheim, Norway, 19 – 22 June 2006.

84. "Synthesis and characterization of silicalite-1/ceria/alpha alumina nano-composite membranes by secondary growth of colloidal seeds," **M. Soltanieh, et.al.**, presented at the First International Congress on Nano-science and Nanotechnology, , University of Tehran, 18-20 December 2006.

85. "Climate change mitigation analysis in the Islamic Republic of Iran", **M. Soltanieh**, Presented at the Workshop on Preparation of the Second National Communications from Non-Annex I Parties, Tbilisi, Georgia, 26-28 October 2005.

86. "Modeling and simulation of membrane-absorption hybrid systems for CO<sub>2</sub> capture from natural gas," **M. Soltanieh, et.al.**, presented at the Seventh International Conference on Greenhouse Gas Technologies, GHGT-7, Vancouver, Canada, 5 - 9 September, 2004.

87. "Evaluation of carbon black reactors: estimation of temperature and residence time", A. Javadi, **M. Soltanieh**, S. Sahebdehfar, D. Bastani, Kh. Javadi, ASME International Mechanical Engineering Congress, Anaheim, California, USA, 13-19 November 2004.

88. "The effect of oxygen enrichment by membrane technology on fuel efficiency and reduction



of air pollution,” H. Taghdisian, **M. Soltanieh**, presented at the 8<sup>th</sup> Iranian National Congress of Chemical Engineering, Ferdowsi University, Mashhad, Iran, 20-23 October 2003.

89. “Gasoline evaporative losses: emission calculations from refineries to automobiles”, Radpour, **M. Soltanieh** and M. S. Ahadi, presented at the 8<sup>th</sup> Iranian National Congress of Chemical Engineering, Ferdowsi University, Mashhad, Iran, 20-23 October 2003.

90. “Assessment of the effect of the Iranian energy sector development on air pollution and emission of greenhouse gases”, **M. Soltanieh**, and M. S. Ahadi, presented at the 8<sup>th</sup> Iranian National Congress of Chemical Engineering, Ferdowsi University, Mashhad, Iran, 20-23 October 2003.

91. “Washcoating of monolytic automotive catalytic converters with Pd-only catalyst and their experimental reactor test”, M. Irani, **M. Soltanieh**, presented at the 8<sup>th</sup> Iranian National Congress of Chemical Engineering, Ferdowsi University, Mashhad, Iran, 20-23 October 2003.

92. “Simulation of hollow fiber modules for multicomponent gas separation,” A. Hojjati-Saeedi, **M. Soltanieh**, presented at the 8<sup>th</sup> Iranian National Congress of Chemical Engineering, Ferdowsi University, Mashhad, Iran, 20-23 October 2003.

93. “Production of activated carbon from wood wastes by chemical activation method”, M. Nowee, **M. Soltanieh**, Kazemi, presented at the 8<sup>th</sup> Iranian National Congress of Chemical Engineering, Ferdowsi University, Mashhad, Iran, 20-23 October 2003.

94. “A semi-empirical model and parametric study for prediction of performance of carbon black furnace reactor”, A. Javadi and **M. Soltanieh**, presented at the 7<sup>th</sup> Iranian National Congress of Chemical Engineering, University of Tehran, Tehran, Iran, 28-30 October 2003.

95. “Investigation of the causes of color degradation of diethanol amine solution at acid gas treatment plant of the Khark Petrochemical Complex,” A.H. Moini, **M. Soltanieh**, presented at the 7<sup>th</sup> Iranian National Congress of Chemical Engineering, University of Tehran, Tehran, Iran, 28-30 October 2001.

96. “Optimization of synthesis gas production and separation by partial oxidation of methane in membrane reactors,” M. Haghighi and **M. Soltanieh**, presented at the 7<sup>th</sup> Iranian National Congress of Chemical Engineering, University of Tehran, Tehran, Iran, 28-30 October 2001.

97. “Kinetics of hydrogen transfer in CVD hot filament reactor”, S. Talebjed, **M. Soltanieh**, Presented at the 7<sup>th</sup> Iranian National Congress of Chemical Engineering, University of Tehran, Tehran, Iran, 28-30, October 2001.

98. "Air pollution modeling and simulation in mega cities: advantages, difficulties and

uncertainties," **M. Soltanieh**, seminar presented at the Department of Chemical Engineering, State University of New York at Buffalo, USA, June 2000.

99. "An Integrated Master Plan for Air Pollution Control in the Greater Tehran Area," **M. Soltanieh**, seminar presented at the Department of Atmospheric Science, Massachusetts Institute of Technology, USA, May 2000.

100. "Air pollution modeling and simulation in mega cities: Advantages, Difficulties, and Uncertainties," **M. Soltanieh**, Seminar presented at the Mechanical Engineering Department, Northeastern University, USA, April 2000.

101. "Estimation of heat transfer coefficient in gas-solid fluidized beds containing submerged surfaces", **M. Soltanieh**, presented at the Fourth National Iranian Congress in Chemical Engineering, Sharif University of Technology, Tehran, Iran, March 1999.

102. "Modeling and simulation of amine absorption columns with mass transfer approach", **M. Soltanieh** and M. Bazmi, presented at the Fourth National Iranian Congress on Petroleum, Gas and Petrochemicals, Tehran, Iran, September 1998.

103. "Role of turbulence in modeling and simulation of photochemical smog formation and transport," **M. Soltanieh**, M. Mousavi, presented at the Fifth Conference on Fluid Dynamics, Mashhad University, Iran, September 1998.

104. "Modeling of photochemical smog resulting from combustion of fossil fuels", M. Mousavi and **M. Soltanieh**, presented at the Second International Conference on Non-Renewable Energy, INRESC, Tehran, Iran, December 1998.

105. "Catalytic converter performance in dual fuel, natural gas/diesel Engines," **M. Soltanieh**, Sallami, et.al, presented at the Second International Conference on Non-Renewable Energy, INRESC, Tehran, Iran, December 1998.

106. "A new process for production of isobutylene," A. Boghoz and **M. Soltanieh**, presented at the Second International Conference on Non-Renewable Energy, INRESC, Tehran, Iran, December 1998.

107. "Dispersion of air pollutants in an industrial zone – A case study for a refinery and a power plant", **M. Soltanieh**, presented at Air Pollution '97, Fifth International Conference on Air Pollution, Bologna, Italy, September 1997.

108. "Multicomponent mass transfer in membranes", **M. Soltanieh**, et.al., presented at the Second National Iranian Congress of Chemical Engineering, The University of Petroleum Industries, Ahwaz, Iran, March 1997.

109. "Transport of multicomponent gas mixtures through polymeric membranes," **M. Soltanieh**, M. Moemeni, presented as an invited Speaker at the Fourth International Conference on Frontiers of Polymers and Advanced Materials, Cairo, Egypt, January 1997.

110. "Development of an improved numerical method for solution of partial differential equations in mass transfer through membranes", **M. Soltanieh** et.al., presented at the Third National Iranian Congress of Chemical Engineering, The University of Petroleum Industries, Ahwaz, Iran, March 1997.
111. "A mathematical model for turbulent flow in rectangular open channels", **M. Soltanieh**, et.al., presented at the 12<sup>th</sup> International Congress of Chemical Engineering, CHISA 96, Czech Republic, August 1996.
112. "Catalytic converter performance in duel fuel, Diesel/natural gas engines", **M. Soltanieh**, Sallami, et.al., presented at the 12<sup>th</sup> International Congress of Chemical Engineering, CHISA 96, Czech Republic, August 1996.
113. "A skeletal isomerization of normal alkenes," A. Boghoz and **M. Soltanieh**, Presented at the 12<sup>th</sup> International Congress of Chemical Engineering, CHISA 96, Czech Republic, August 1996.
114. "A preliminary investigation of photochemical smog formation and transport in Tehran", **M. Soltanieh** and M. Mousavi, presented at the First Regional Conference on Climate Change, IMO-WMO, Tehran, Iran, June 1996.
115. "Application of molecular sieves in drying of gases," **M. Soltanieh**, et.al., presented at the Second National Iranian Congress of Chemical Engineering, Amir Kabir University, Tehran, Iran, March 1996.
116. "Prediction of bed voidage in gas-solid fluidized beds", **M. Soltanieh**, et.al., presented at the Second National Iranian Congress of Chemical Engineering, Amir Kabir University, Tehran, Iran, March 1996.
117. "Reduction of evaporative loss of gasoline by adsorption on activated carbon", A. Abbasi and **M. Soltanieh**, presented at the Conference on Motor Vehicles and the Environment, Tehran, Iran, September 1995.
118. "Comparison of road and rail transport with respect to air pollution and greenhouse gas emissions", **M. Soltanieh**, presented at the First Iranian Seminar on Traffic Engineering, Tehran, Iran, September 1995.
119. "Membrane softening: modeling and experiments in the presence of poly-electrolytes", **M. Soltanieh**, et.al., presented as an invited speaker at the Third International Conference on Frontiers of Polymers and Advanced Materials, Kuala-Lampur, Malaysia, January 1995.
120. "Catalytic oxidation of hydrocarbons", **M. Soltanieh**, et.al., presented at the First National Iranian Congress of Chemical Engineering, Tehran, Iran, September 1994.

121. "Simulation of three-way catalytic converters', M. Estiri and **M. Soltanieh**, presented at the First National Iranian Congress of Chemical Engineering, Tehran, Iran, September 1994.
122. "Multicomponent effects in reverse osmosis and ultrafiltration', **M. Soltanieh**, et. al., presented at the International Symposium on Progress in Membrane Science and Technology, PMST 94, The University of Twente, The Netherlands, June 1994.
123. "Ultrafiltration of viscous solutions', **M. Soltanieh**, et.al., presented at CHISA 94, Prague, Czech Republic, August 1993.
124. "A finite-difference method for dynamic simulation of multicomponent separation in packed columns", **M. Soltanieh**, et.al., presented at the First International Congress on Numerical Methods in Engineering, Shiraz University, Shiraz, Iran, May 1993.
125. "Low pressure membranes: new developments and applications", H. Samimi and **M. Soltanieh**, presented as an invited speaker at the Second International Conference on Frontiers of Polymers and Advanced Materials, Jakarta, Indonesia, January 1993.
126. "Modeling and dynamic simulation of multicomponent multistage distillation", H. Mehdizadeh and **M. Soltanieh**, presented at the Fifth Iranian Congress of Chemistry and Chemical Engineering, Shahid Beheshti University, Tehran, Iran, September 1992.
127. "Effect of casting conditions on the performance of cellulose acetate membranes", H. Samimi and **M. Soltanieh**, presented at the 34<sup>th</sup> IUPAC – International Symposium on Macromolecules – MACRO 92, Prague, Czech Republic, July 1992.
128. "Development of three-way catalysts for control of exhaust emission", **M. Soltanieh**, et.al., presented at the First Symposium on Catalysts, Isfahan University of Technology, Iran, May 1992.
129. "Transient dispersion in laminar tube flow," S. Sadraei and **M. Soltanieh**, presented at the World Fourth Congress of Chemical Engineering, Karlsruhe, Germany, June 16-21, 1991.
130. "Recycling of microelectronic etching solutions by reverse osmosis", W.N. Gill, **M. Soltanieh**, et.al., presented at the AIChE Annual Meeting in Chicago, USA, November 1990.
131. "Design and optimization of spiral wound reverse osmosis modules", H. Hojjati and **M. Soltanieh**, seminar presented at the Department of Chemical Engineering, State University of New York at Buffalo, NY, USA, May 11, 1990.
132. "Development of low-pressure membranes," **M. Soltanieh**, et.al., presented at the Third Iranian Congress of Chemistry and Chemical Engineering, University of Gilan, Iran, September 1989.
133. "Simulation of two-phase flow of multicomponent mixtures", **M. Soltanieh**, et.al., presented at the First Iranian Congress of Chemistry and Chemical Engineering, Tehran, Iran, September 1987.

## Annex III

### BOOK, BOOK CHAPTER AND TECHNICAL REPORTS

#### **III.1 Book**

Translated a book from English to Persian entitled: Introduction to Chemical Engineering Thermodynamics by Smith & Van Ness and Abbott, 3<sup>rd</sup> edition [McGraw-Hill (1975)] and 6<sup>th</sup> edition [McGraw-Hill (2001)].

#### **III. 2 Book Chapter**

Sustainable Membrane Technology for Energy, Water and Environment, Edited by Ahmad Fauzi Ismail and Takeshi Matsuura, Chapter 13: “Analysis of fouling and flux behavior in cross-flow microfiltration of nonalcoholic beer by ceramic membrane,” pp 157-167, by M. Yazdanshenas, S.A. Tabatabaei Nejad, **M. Soltanieh** and Luc Fillaudeau, Wiley 2012.

#### **III.3 Technical Reports**

- Coordinating Lead Author for the IPCC Special Report on Carbon Dioxide Capture and Storage (2005) [see **Section b.3** above]
- Iran’s Initial National Communication to the United Nations Framework Convention on Climate Change (UNFCCC)”, March 2003. Preparation of the Second National Communication to UNFCCC that was submitted in October 2011(available at: [www.unfccc.int](http://www.unfccc.int)). Third National Communication.
- "Investigation of Gasoline Evaporative Loss from Production, Storage, Distribution, and Consumption Systems in Iran," Report prepared for the Iranian National Oil Company (NIOC), 1999.
- "Modeling and Simulation of Photochemical Smog Formation and Transport in Tehran," Report prepared for Iran Meteorological Organization, Tehran, Iran, 1999.
- "A Troubleshooting Study on the Ammonia Refrigeration System of Dewaxing Unit of Behran Oil Refinery," Report prepared for Behran Oil Company, Tehran, Iran, 1995.
- “Feasibility Study of the Application of Membrane Processes in Natural Gas Sweetening”, Report prepared for the National Iranian Gas Company, Tehran, Iran, 2001.
- “Experimental investigation of natural gas sweetening by membranes”, Reports prepared for the National Iranian Gas Company (NIGC); with collaboration of the University of Ottawa, Canada.
- “Production of Activated Carbon from Wood Wastes” Report prepared for Mazandaran Wood and Paper Industries Company”, Tehran, Iran, 2002.
- “Estimation of the Air Pollutants from the South Pars Oil and Gas Complex in Assaluyeh (in the Persian Gulf) and Development of an Integrated Model for Prediction of Air Pollution in the Region”, Reports prepared for NIOC, 2007- 2008.