

**Syed Javaid Zaidi**  
QAFAC Chair Professor  
Center for Advanced Materials  
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Qatar University, Qatar  
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**Research Interests:** Advanced materials and membranes for clean water and clean energy and environment, desalination and water treatment, Reverse osmosis and Forwarded osmosis process, Thin Film composite membranes for RO and FO applications, materials for Carbon capture and CO<sub>2</sub> utilization CO<sub>2</sub> separation from natural gas, thin film composites for CO<sub>2</sub> capture and conversion and RO/NF desalination, electrocatalyst for fuel cells and carbon capture, CO<sub>2</sub> utilization and conversion, composite polymeric membranes for fuel cells and gas separation, antifouling coating and corrosion inhibitors, design of novel energy storage devices.

### **Qualifications**

- Ph.D.** Chemical Engineering  
Laval University, Canada, 2000  
Thesis title: *Development of composite membranes for applications in fuel cell*
- M.Sc.** Chemical Engineering, King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia, first class honours, 1991.  
Thesis title: *Kinetics of oxidation in aqueous sodium dithionite solutions*
- B.Sc.** Chemical Engineering (First Class Honors), Aligarh University, India, 1986.

### **Professional Experience**

- 07/2015-Present** Chair Professor of Chemical Engineering and *QAFAC Chair*  
Center for Advanced Materials  
Qatar University, Qatar
- 02/2013 –05/2015** *Research Professor*  
The University of Queensland, Australia
- 05/2007 – 01/2013** *Professor*  
Chemical Engineering Department,  
King Fahd University of Petroleum & Minerals(KFUPM)  
Dhahran 31261, Saudi Arabia
- 11/2005 – 05/2007** *Associate Professor*  
Chemical Engineering Department,  
King Fahd University of Petroleum & Minerals(KFUPM)  
Dhahran 31261, Saudi Arabia
- 08/2000 – 11/2005** *Assistant Professor*

<b>Summer 2009-to 2013</b>	Chemical Engineering Department, KFUPM, Saudi Arabia <i>Visiting Professor</i> , MIT Center for Clean Water and Clean Energy. Massachusetts Institute of Technology (MIT), USA
<b>Summer 2005</b>	<i>Visiting Professor</i> , Ottawa University, Canada
<b>Summer 2003</b>	<i>Visiting Professor</i> , Ecole Polytechnique Montreal, Canada
<b>11/ 2008 – 12/2012</b>	<i>Head, Fuel Cell Research</i> Center of Research Excellence in Renewable Energy A National Research Center, KFUPM, Saudi Arabia.
<b>01/ 1996 – 07/ 2000</b>	<i>Research Fellow</i> Chemical Engineering Department Laval University, Quebec, Canada
<b>Summer 1999</b>	<i>Guest Worker</i> , Institute of Chemical Process and Environment Technology, National Research Council of Canada, Ottawa, Canada
<b>05/1991 – 12/1995</b>	<i>Research Engineer</i> , Petroleum & Gas Technology Division Research Institute, King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia
<b>9/1987 – 01/1991</b>	<i>Research Assistant</i> , Department of Chemical Engineering KFUPM, Dhahran 31261, Saudi Arabia.

## **Grants - Funding Secured**

### External Funding : 2008-2019 -- (approx. \$ 10 Million USD)

- Water Analysis for Ras Abu Fontas SWRO Plant, QEWC.
- Collaboration Projects with Baladyat Al-Rayyan, Ministry of Municipality and Environment.
- Nanostructured Membrane for Reverse Osmosis Seawater Desalination, International Research Collaborative Co-funding grant, \$240,000, February 2019-2022.
- Potential Application of Forward Osmosis-Reverse Osmosis Seawater Desalination in Qatar, QU Collaborative grant, February 2019-2021, QR 300,000
- Forward Osmosis Seawater Pretreatment for High Performance Thermal Desalination Plants, Project number NPRP10-0117-170176 (awarded in June 2017), \$600,000 (PI)
- Development and Testing of Membranes for Forward Osmosis Water Desalination, QU Internal Grant, QR 10,000, project number QUST-2-2018-2(LPI), June 2018-March 2019.
- Development of Low-cost Graphene Oxide supported Catalyst for Applications of Direct Methanol Fuel Cells, QU Internal Grant, QR 20,000, project number QUST-2-2018-1(LPI), June 2018-March 2019.
- New Generation of Electrocatalyst and Membranes for Direct Methanol Fuel Cell Applications, Qatar University Internal grant: 24\02\2016 until: 31\12\2017, Project number: QUUG-CAM-CAM-15\16-2, 150,000 (LPI)

- Design, synthesis and evaluation of low cost and highly activity fuel-cell catalysts for direct methanol fuel cells, 9<sup>th</sup> cycle of NPRP, Project number NPRP9-219-2-105, awarded (co-LPI).
- Photoelectrocatalytic Reduction of Carbon Dioxide to Form Organic Compounds, QU Internal Grant, 5/ 2016 - 12/2016, project number QUST-CAM-SPR-15/16-1(LPI)
- Preparation of composite membranes for fuel cell application, QU Internal Grant, project number QUST-CAM-SPR2017-4, 2016/2017 (12 months). (LPI)
- Zinc Oxide Australia, **AUD11,000** , May 2013
- KFUPM Saudi Arabia Research Grant, \$ **48,200** and **\$30,000**, July 2013
- National Science, Technology and Innovation Plan Grant: **Ca. 3 million USD** from 2009 to 2013
- CoRe-Renewable Energy: **Ca. 7.5 million Saudi Riyals (2 million USD)** from the Saudi Arabian Ministry of Higher Education, 2008-20112.
- MIT/KFUPM Collaborative Research Grant: **ca. 1 million USD**, 2008-2014.
- KACST/TIC Carbon Capture Grant: **ca. 500,000 USD**, 2012-2014.
- KFUPM/DSR: **600000 Saudi Riyals (200,000 USD)**, 2006-2008
- SABIC/KFUPM: **400000 Saudi Riyals (120,000 USD)**, 2003-2005.
- KACST: **2 million Saudi Riyals (1.2 million USD)**, 2001-2003
- Petroleum Energy Center, MITI, Japan: **5 million Saudi Riyals (1.5 million USD)** under Saudi-Japanese Research Collaboration for the Development of Hydrocracking Catalysts for Heavy Oil Upgrading 1994-2000.
- Saudi Aramco: 4 million Saudi Riyals (**1.2 million USD**), 1992-1995
- Canada: NSERC, CANMET Grant: **500000 USD**, 1996-2000.

## Awards, Prizes and Honours

1. *Venus International Research Award for Lifetime Achievement in Chemical Engineerin*, an International Award by Venus International Foundation, 2017.
2. Member of *Advisory Council of Arab Water Desalination (Arwadex)*
3. Almarai Prize for *Scientific Research Innovation*, 2011-2012, Saudi Arabia's most prestigious research innovation award.
4. Indian Engineering Forum (IEF) award for contribution in Research given by the H.E. Hamid Ali Rao, Indian Ambassador to Saudi Arabia in November 2012.
5. *Excellence in Research Award for the year 2005-2006*, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia.
6. *Distinguished Researcher Award* for the Year 2004/2005, College of Engineering, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia.
7. *ARWADEX (Arab Desalination) Award*, April 2012.
8. Member of the distinguished KFUPM Research Advisory Board headed by H.E. the Rector of the University, 2006-2010.
9. *Founding member* of the Center of Research Excellence in Renewable Energy, Ministry of Higher Education.
10. *Founding member* of the Technology Innovation Center in Carbon Capture and Sequestration at KFUPM by the Govt of Saudi Arabia.
11. *Member of Executive Committee* of the Center of Research Excellence in Renewable Energy, Ministry of Higher Education.
12. *Member*, Board of Directors, Center of Research Excellence in Renewable Energy
13. *Nominated* for the ENI Energy Prize for the year 2008, Italy

14. *Recipient of KFUPM Patent Award, 2010.*
15. *Invited by UNESCO to participate in the Ministerial Meeting on Energy and water in its headquarter in Paris, June 2007.*
16. *Evaluation committee member for Excellence in Research Award of KFUPM. formed by the Dean of Scientific Research, March 2010.*
17. *Recipient of FCAR award from Government of Canada for outstanding performance and excellence in research (1998).*
18. *Recipient of Canadian Government fellowship to pursue Ph.D. in Chemical Engineering at Laval University (1996-2000).*
19. *Recipient of Saudi Arabian Ministry of Higher Education scholarship to pursue M.S. in Chemical Engineering at King Fahd university of Petroleum, Saudi Arabia (1987-91).*
20. *Recipient of Merit Scholarship at AMU in B.Sc. Engineering.*
21. *Visiting Professor, Massachussetes Institute of Technology, USA*
22. *Visiting Professor, Ottawa University, Canada*
23. *Visiting Professor, University of Montreal, Canada*
24. *Visiting Professor, Queens University, Canada*
25. *Visiting Professor, Indian Institute of Technology, IIT Delhi, India*
26. *Member of KACST Proposal coordination Committee.*
27. *Member of Unifying Efforts in Desalination Research Forum, a national body*
28. *Invited by the European Membrane Society to deliver special lecture in the Middle East-European Membrane Society School at KAUST, Saudi Arabia, May 2012.*
29. *PhD thesis examiner of Indian Institute of Technology, India.*
30. *PhD thesis examiner of King Saud University, Saudi Arabia*
31. *PhD thesis examiner of King Fahd University of Petroleum & Minerals.*
32. *PhD thesis examiner of Anna University, India.*
33. *PhD thesis examiner of Aligarh Muslim University, India.*
34. *PhD thesis examiner of University Teknologi Malaysia (UTM), Malaysia*
35. *Evaluation committee member of faculty promotion of King Fahd University of Petroleum & Minerals*
36. *Chairman of promotion committee of faculty at King Fahd University of Petroleum & Minerals*
37. *Project review committee member of Emirate Foundation, UAE.*
38. *Project review committee member of KACST, Saudi Arabia.*
39. *Project review committee member of Imam University, Saudi Arabia*
40. *Evaluation committee member of SABIC Design Award for the best student Design Project*
41. *Evaluation committee member for Excellence in Research Award of KFUPM. formed by the Dean of Scientific Research, March 2010.*
42. *Chaired session in the 1<sup>st</sup> Saudi Renewable Energy Conference, KFUPM, Dhahran, Saudi Arabia, February 2011.*
43. *Chaired session in International Scientific Committee, 7<sup>th</sup> International Conference on Membrane Science & Technology, Malaysia, May 2009.*
44. *Best Paper Award in the International conference on Electrochemical Power Systems, Hyderabad, India, December 20-21, 2004.*

## **International Collaborations:**

Massachusetts Institute of Technology (MIT), USA (Prof. Paula Hammond and Karen Gleason), UNESCO Center for Membrane Science, University of New South Wales, Australia (Prof. Vicky Chen, Center Director), Istanbul Technical University (Prof. Levent Trabzon), Case Western Reserve University, USA (Prof. Savinell), Center for Clean Energy, University of British Columbia, Canada (Prof. David Wilkinson, Center Director), National Fuel Cell Research Center, Queens University, Canada (Prof. John Pepply, Center Director), Ottawa University, Canada (Prof. T. Matsuura), National Institute of Materials Science, Japan (Prof. Ajayan Vinu), University Complutense, Spain (Prof. Velulenga), Laval University, Canada (Prof. Kaliaguine) Indian Institute of Technology (IIT) Delhi, India (Prof. S. Basu), Universiti Teknologi Malaysia (UTM), Malaysia (Prof. Fauzi Ismail), Petroleum Energy Center, MITI, Japan.

## **Invited Lectures**

Have been invited to deliver keynote and plenary invited lectures at various International/National Conferences and reputed institutions upon invitation.

1. Syed Javaid Zaidi, IMPORTANCE OF TECHNOLOGY IN DEALING WITH COVID-19 FOR WATER TREATMENT, Webinar on Materials Science and Engineering and COVID-19 Crisis, May 10, 2020, Qatar University.
2. Produced Water Management and Beneficial use, International Conference on Advancements in Chemical and Petrochemical Processes (ACAPE-2020), Aligarh Muslim University, Aligarh, India, February 22-24, 2020 (Keynote).
3. Brine Management Strategies for Sustainable Desalination in the Arabian Gulf, 1<sup>st</sup> Workshop on “Human Drive Impacts on the Marine Health of the Arabian Gulf”, 10<sup>th</sup> February 2020, Qatar University (Keynote)
4. Innovative approaches for sustainable energy efficient SWRO desalination, Technical Workshop on “Sustainable Water Environment and Energy Technology”, January 13, 2020 (Keynote).
5. Nanocomposite Membrane Materials for Reverse Osmosis Desalination, International Conference on Materials Science and Materials Chemistry, Vienna, Austria, October 14-16, 2019.
6. Introduction to Membrane Desalination processes, First Water Technology Unit Workshop on Membrane based Seawater Desalination Technologies, April 22, 2019, Qatar University
7. One-Belt-One-Road International Symposium on Advanced Membranes & Sustainable Technologies Tianjin, China on 13-16 April, 2018, “Progress in Membrane Development for Clean Energy and Clean Water” (Plenary).
8. Innovative Approaches for Sustainable Energy Efficient SWRO Desalination, 11<sup>th</sup> International Conference in the Arab Countries, April 18-19, 2017, Cairo, Egypt (keynote)
9. Innovative Membrane Design for Energy Efficient SWRO Desalination, UK-GCC Scientific Collaboration Symposium on Innovation Policy Dialog, Muscat, Oman, March 13-14, 2017 (invited)

10. UK GCC Science Collaboration Symposium on Waste Water – Treatment and Reuse, March 5-6, 2018, Kuwait, Role of Nanomaterials in Waste Water Treatment (Keynote)
11. 11<sup>th</sup> International Conference on Membrane Science and Technology, August 27-29, 2013, Kuala Lumpur, Malaysia" Polyelectrolyte Multilayer Films Prepared by Layer by Layer Assembly for Reverse Osmosis Desalination, (**Keynote Lecture**).
12. The 8th International Conference on Membrane Science and Technology (MST), November 29- December 1, 2010, ITB Bandung, Indonesia, “Development of composite membranes for fuel cell applications” (**Keynote Lecture**).
13. .European Membrane Society- Middle East School, King Abdullah University of Science and Technology, May 28-31, 2012, “ Status of Fuel Cell Membranes Research in Saudi Arabia” (**Invited Lecture**).
14. International Conference on Membrane Science & Technology (MST 2009), May 13-15, 2009, Kuala Lumpur, Malaysia, “Progress in Polymer Electrolyte Membrane Research for Fuel Cell Applications”(Keynote Lecture).
15. International Symposium and Exhibition on Fuel Cell Technologies, November 11-13, 2009, Mumbai, India, "Progress and Novel strategies for Membrane Development for PEM Fuel Cell", (**Plenary Speaker**).
16. International Symposium on High-Tech Polymeric Materials, October 26-31, 2008, Beijing, China, "Characterization of Polymeric membrane Materials for Fuel Cell Applications" (**Keynote Speaker**).
17. International Symposium on High Tech polymeric materials", May 14-17, 2006, Beijing, China, "Proton conducting polymer composites as membrane materials for PEM fuel cells applications, (**Keynote Lecture**).
18. National Fuel cell Research Center, Queens University, Kingston, Canada, July 2008, “Development of Composite Membranes for Fuel Cells, (**Invited Lecture**).
19. Massachussets Institute of Technology, March 25, 2013USA, “Developmet of Multilayer Membranes for Reverse Osmosis Desalination” (**Invited Lecture**).
20. Performnace Evaluation and Testing of New membranes and electro-catalyst for fuel cells, Ministry of Higher Education, Center of Research Excellence in Renewable Energy, KFUPM, November 2009.
21. KFUPM-NUS workshop, January, 2009, KFUPM, Dhahran, “Overview of membrane Research at KFUPM”.
22. National Desalination Workshop, SWCC, Jubail, October 2009, “Desalination Research at KFUPM”.
23. University of Montpelliers, France, July 2008, “Development of Membrane Materials for PEM Fuel Cell”, seminar presented at CNRS (**Invited Lecture**).
24. National Institute of Materials Science, Skuba, Japan, August 2010, Overview of fuel cell Research activities at KFUPM.
25. MIT, USA, July 30, 2010, “Sharing the experience of collaborative research of KFUPM-MIT Cooperation”.
26. Center of Research Excellence in Renewable Energy, KFUPM, January 2010, Performnace Evaluation composite membranes for fuel cells,
27. KFUPM-MIT Video Conference Meeting, Dhahran, March 2007, “Membrane Research at KFUPM”.
28. GKSS Geeshtat, Germany, March 2007, “Advancements in membrane research for fuel cell applications”, July 2005 (**Keynote Lecture**).

**Citations: 3412**

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### List of Publications (Patents, Journals, Books, and Conferences)

#### Patents

1. S.U. Rahman, **S.M. Javaid Zaidi**, Safdar Hossain, Shakeel Ahmed, “ *Electrocatalysts for electrochemical conversion of carbon dioxide*”, US Patent number 9109293, August 18, 2015.
2. **S.M. Javaid Zaidi**, , Nedal Abu Thabit, *S.A. Ali, Khalid Mezghani, Fuel Cell Membranes*, US Patent US 9099711 B2 (August 4, 2015).
3. S.U. Rahman, **S.M. Javaid Zaidi**, Safdar Hossain, Shakeel Ahmed, “ *Electrocatalysts for electrochemical conversion of carbon dioxide*”, US Patent number 9099752, August 4, 2015.
4. **S.M. Javaid Zaidi**, S. Ahmed, S.U. Rahman, M. Bello “*Methanol Electro-Oxidation Catalyst and Method of Making the Same*” , US Patent number. 8778829, July 15, 2014.
5. **S.M. Javaid Zaidi**, M. Bello, S. Ahmed, S.U. Rahman, “*Fuel cell Membrane Electrode Assembly*”, US Patent Pub. No., US2012141907 A1, June 7, 2012.
6. **S.M. Javaid Zaidi**, M. Bello, S. Ahmed, S.U. Rahman, “*Methanol Electro-Oxidation Catalysts and method of making the same*”, US Patent number 8759247 June 24, 2014.
7. **S.M. Javaid. Zaidi**, S.U. Rahman, Nabeel Abo-Ghander, " *Integrated Electrolytic Electrodialytic apparatus and process for recovering metals and metal ions-containing Waste Streams* " United States Patent No. US 7790016 (September 7, 2010).
8. Kaliaguine, S., S.D.Mikhailenko, **S.M.Javaid Zaidi**, "Composite electrolyte membranes for fuel Cells and methods of making same", United States Patent no. US 6,716,548 (06/04/2004).
9. S.Kaliaguine, S.D.Mikhailenko, **S.M.Javaid Zaidi**, "Composite polymer electrolyte membrane for fuel Cell includes inorganic solid acid and polymer matrix which improves protonic conductivity” , Canadian Patent No. CA 2292703 A, A1 (8/12/1998).
10. Mikhailenko, S; Kaliaguine, S; **S.M.Javaid Zaidi**, "Composite Electrolyte membranes for fuel Cell comprises boron phosphate solid electrolyte embedded in polymer matrix” , Canadian Patent No. CA2256829-A1 (June 2000).
11. **S.M. Javaid Zaidi**, Farid, F, Z.U. Khan, M. Khaled, P. Hammond, *Polyelectrolyte Multilayer Membranes made by spin assisted Layer by Layer Assembly for Reverse Osmosis Desalination*, US Patent application (Applied in December. 2012).
12. **S.M. Javaid Zaidi**, Farid, F, Z.U. Khan, M. Khaled, P. Hammond, *Nanostructured membranes for Reverse Osmosis Desalination*, US Patent application (Applied in December 2012).
13. Z.U. Khan, Asif Matin, Karen Gleason, Rong Yang, Mazen Khaled, **S. M. Javaid Zaidi**, *Surface Modified RO Membranes Discourage Irreversible Adhesion of Bacteria*, US Patent application (Applied in December 2012).
14. Asif Matin, Z.U. Khan, Karen Gleason, Gozde Ozaydin, Mazen Khaled, **S. M. Javaid Zaidi**, *Amphiphilic Copolymer Films with Molecular-scale Compositional Heterogeneties interfere with Biopolymer Adsorption*, US Patent application (Applied in December 2012).
15. **S. M. Javaid Zaidi** Fahad A. Al-Khaldi, Basil Abusharkh, , Muataz A. Atieh, *Removal of Cadmium from Water Using Fly Ash and Other Carbon Based Adsorbents*, US Patent application (Applied in February 2013).

## **Refreed Journal Publications**

1. M.N. Soliman, F.Z. Guen, S.A. Ahmed, M.J. Khalil, Haleema Saeed, **Syed Javaid Zaidi\***, Energy consumption and Environmental Impact of desalination plans and brine management, *Process Safety and Environmental*, 147(2021) 589-608 (IF: 4.966).
2. Jasir Jawada, Alaa H. Hawarib,, **Syed Javaid Zaidi\***, Modeling of forward osmosis process using artificial neural networks (ANN) to predict the permeate flux, *Desalination* 484 (2020) 114427 (**Impact factor:** 6.603)
3. SudeshYadav, Haleema Saleem, IbrarIbrar Osamah Naji, Alaa AlHawari, Adnan AlhathalAlanezi, **Syed JavaidZaidi\***, AliAltaee, John Zhou, Recent developments in forward osmosis membranes using carbon-based materials, *Desalination* 482, 2020, 114375 (**Impact factor:** 6.603).
4. Haleema Saeed, **Syed Javaid Zaidi\***, Ali Altaee , Power Generation from Salinity Gradient: advancement, Challenges and Potential, *Renewable & Sustainable Energy Reviews* (under review) (IF: 12.110)
5. Haleema Saeed, Sean Poh, F. Ismail, **Syed Javaid Zaidi\***, Developments in the Application of Nanomaterials for Water Treatment and Their Impact on the Environment, *Nanomaterials* 2020, 10, 1764 (IF: 4.324).
6. Haleema Saeed, **Syed Javaid Zaidi\***, Sustainable Use of Nanomaterials in Textiles and Their Environmental Impact, *Materials* 2020, 13, 5134.(IF: 3.057)
7. Haleema Saeed, **Syed Javaid Zaidi\***, Recent Developments in the Application of Nanomaterials in Agroecosystems, *Nanomaterials* 2020, 10, 2411 (IF: 4.324).
8. Jasir Jawad, **Syed Javaid Zaidi\***, Ala Alhawari, Artificial Neural Network Modeling of Wastewater Treatment and Desalination Using Membrane Processes: A Review, *DESALINATION* (under review)
9. Jasir Jawad, **Syed Javaid Zaidi\***, Ala Alhawari Modeling and Sensitivity Analysis of the Forward Osmosis Process to Predict Membrane Flux using Neural Network and Response Surface Methodology, *Chemical Engineering Research and Design*, (under review)
10. Jasir Jawad, **Syed Javaid Zaidi\***, Ala Alhawari The influence of aeration scheme and aeration rate on the permeate flux for wastewater treatment using membrane bioreactors: Experimental and artificial neural network modeling, *Desalination and Water Treatment*, (under review)
11. Jasir Jawad, **Syed Javaid Zaidi\***, Junaid Khalil, Experimental Analysis and Modeling of the Methane Degradation in a Three Stage Biofilter Using Composted Sawdust as Packing Media, *Journal of Environmental Management*, (under review)
12. Haleema Saeed, F. Fadhillah, Alaa Alhawari, A. Benamor, **Syed Javaid Zaidi\***, Organically modified nanoclay filled thin-film nanocomposite membranes for reverse osmosis application, *Materials*, 2019, 12, 3803. (**Impact factor:** 3.532)
13. Mohamed Saleh, **Syed Javaid Zaidi \***, Zainab Alhajri, , Anton Popelka, Preparation and characterization of alumina HDPE composites, *Materials*, 13, 250 (2020) (**Impact factor:** 3.532).
14. Haleema Saeed, **Syed Javaid Zaidi\***, Nanoparticles in Reverse Osmosis Membranes for Desalination: A State of the art review, *Desalination* 475 (2020) 114171. (**Impact factor:** 6.603)
15. Haleema Saeed, Ali Klick, L. Trabzon, and **Syed Javaid Zaidi\***, Recent Advances in Nanofibrous Membranes: Production and applications in Water Treatment and Desalination Applications, *Desalination*, 476 (2020) 114178 (**Impact factor:** 6.566).
16. Wen Xiong, Bahareh A. T. Mehrabadi, Stavros G. Karakolos, Rembert D. White, Abolfazl Shakouri, Peter Kasak, **Syed J. Zaidi**, John W. Weidner, John R. Regalbuto,



- Hector Colon-Mercado, and John R. Monnier, Enhanced Performance of Oxygen-Functionalized Multiwalled Carbon Nanotubes as Support for Pt and Pt–Ru Bimetallic Catalysts for Methanol Electrooxidation, *ACS Appl. Energy Mater.* 2020, 3, 5487–5496 (Impact Factor: 12.5)
17. Majeda Khraisheh , Khadija M. Zadeh, Abedalkhader I. Alkhouzaam, Dorra Turki, Mohammad K. Hassan, Fares Al Momani and **Syed M. J. Zaidi**, Characterization of polysulfone/diisopropylamine 1-alkyl-3-methylimidazolium ionic liquid membranes: high pressure gas separation applications, *Greenhouse Gas Sci Technol.* 0:1–14 (2020); DOI: 10.1002/ghg.2006 (Impact Factor: 1.979).
  18. Mishael S. Thabit, Alaa H. Hawari, Mhd. Hafez Ammar, **Syed Javaid Zaidi**, Guillermo Zaragoza, Ali Altaee, Evaluation of forward osmosis as a pretreatment process for multi stage flash seawater desalination, *Desalination* 461 (2019) 22–29 (**Impact factor: 6.603**)
  19. Sk S Hossain, Junaid Saleem, S U Rahman, **S. M. J. Zaidi**, Chin Kui Cheng, Synthesis and evaluation of copper supported titanium nanotubes as electrocatalyst for the electrochemical reduction of carbon dioxide to organics, *Catalysts: Environmental Catalysis*, 2019, 9, 298;doi:10.3390 (**Impact factor: 3.876**)
  20. Ammar Bin Yousaf, Md Abdur Rauf and **Syed Javaid Zaidi\*** "Fabrication of Solid Proton Conducting High Performance Composite Membranes for the Application of Hydrogen Fuel Cells" *Desalination and Water Treatment*, 150 (2019) 84–90. doi: 10.5004/dwt.2019.23736 (**Impact factor: 1.356**)
  21. Ammar Bin Yousafa, M. Imran, **Syed Javaid Zaidi\***, Peter Kasak, Engineering and understanding of synergistic effects in the interfaces of rGO-CNTs/PtPd nanocomposite revealed fast electro-oxidation of methanol, *Journal of Electroanalytical Chemistry* 832 (2019) 343–352 (**Impact Factor : 3.218**).
  22. Ammar Bin Yousaf, Rashid Khan, AkifZeb, **Syed Javaid Zaidi\***, Peter Kasak, Binary cobalt-iron oxides magnetic nanocomposites embedded porous carbon lawn with inherent N doping as promising electrode material for supercapacitors and Li-ion batteries, *Journal of Electroanalytical Chemistry* 848 (2019) 113344 (**Impact Factor : 3.218**).
  23. M. Kh. Nazala, b, O. S. Olakunlec, A. Al-Ahmedd, A. S. Sultana, and **Syed. J. Zaidi** , Methanol Electro-Oxidation in Alkaline Medium Methanol Electro-Oxidation in Alkaline Medium on the Catalyst Performance, *Russian Journal of Electrochemistry*, 2019, Vol. 55, No. 2, pp. 61–69 (**Impact factor: 1.01**)
  24. Yousaf, Ammar Bin; Alsaydeh, Sajeda Adnan-Mutlaq; Zavahir, Fathima Sifani; Kasak, Peter; **Syed Javaid Zaidi** (2018), Ultra-low Pt decorated NiCu Bimetallic Alloys Nanoparticles Supported on Reduced Graphene Oxide for Electro-oxidation of Methanol, *MRS Communications*, 1, 8, 1050-1057, DOI: 10.1557/mrc.2018.140. **Impact factor: 3.008**).
  25. Alaa H. Hawari, , Abdulaziz Al-Qahoumi , Amina Ltaief , **Syed J.Zaidi** , Ali Altaee (2018), Dilution of seawater using dewatered construction water in a hybrid forward osmosis system, *Journal of Cleaner Production*, 195, 365-373 (**Impact Factor 6.207**)
  26. Olanrewaju S Olakunle; Mazen K Nazal ; Amir Al-Ahmed; Belabbes Merzougui; Abdullah Abualkibash; Abdullah Sultan; Ammar B Yousaf; **Syed Javaid Zaidi\***, Metal Free Ni/Cu/Mo Trimetallic Nanocomposite Supported on Multi-Walled Carbon Nanotubes as Highly Efficient and Durable Anode-Catalyst for Alkaline Direct Methanol Fuel Cells, *Journal of Electroanalytical Chemistry*, 823 (2018) 98–105 (**Impact Factor 3.012**).
  27. Sajeda A. Al-Saydeh, **Syed Javaid Zaidi\*** and Muftah H. El-Naas (2018) Conversion of Carbon Dioxide: Opportunities and Fundamental Challenges, *American Journal of Engineering and Applied Science*, Volume 11, Issue 1, Pages 138-153 (DOI : 10.3844/ajeassp.2018.138.153)

28. Li Honglin,, Ammar Bin Yousaf, Akif Zeb, Peter Kasak, **Syed Javaid Zaidi**, Li Ying, Luo Weiqing, Liu Shuaishuai, Han Tianli1, Li Mingling (2018) Nano-Magnetic Hydroxalcite Synthesized by Double In-situ Hydrothermal Method with Enhanced Electromagnetic Characteristics, *Int. J. Electrochem. Sci.*, 13 (2018) 1321 – 1330, doi: 10.20964/2018.02.41(**Impact Factor 1.469**).
29. Hammadur Rahman, **Syed Javaid Zaidi\***, Desalination in Qatar: Present Status and Future Prospects, *Civil Eng Res J.*, vol 6, issue 5, 2018. DOI: 10.19080/CERJ.2018.06.555700, ISSN: 2575-8950
30. Ammar Bin Yousaf, M. Imran, **Syed Javaid Zaidi** & Peter Kasak(2017) Highly Efficient Photocatalytic Z-Scheme Hydrogen Production over Oxygen-Deficient WO<sub>3-x</sub> Nanorods supported Zn<sub>0.3</sub>Cd<sub>0.7</sub>S Heterostructure, *Nature Scientific Reports*, 7: 6574, July 2017 DOI:10.1038/s41598-017-06808-6 (**Impact factor: 4.5**)
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231. **S. M. Javaid Zaidi\***, S.U. Rahman, M. Bello, Evaluation of methanol cross-over through SPEEK/TPA/zeolite composite membranes by Electrochemical Method, Fuel Cell Seminar, November 13-17, 2006, Honolulu, USA.
232. M. Bello, S. U. Rahman , and **S. M. Javaid Zaidi\***, "Comparative Studies on Measurement Techniques for Methanol Crossover through Polymer Electrolyte Membranes of DMFC" Chemindix 2007, March 2007, Bahrain.
233. S. U. Rahman, **S. M. Javaid Zaidi\***, A. Nafees, "Removal of CO from hydrogen by selective electrooxidation", Poster Presentation, Gordon Research Conference on Fuel Cells, Bryant University, RI, USA, 17-22 July 2005.
234. M.I. Ahmed, **S. M. Javaid Zaidi\***, S.U. Rahman, "Proton conductivity studies of novel composite membranes for medium temperature fuel cells", Proc: International conference on membrane and membrane processes (ICOM 2005), August 21-26, 2005, Soul, Korea.
235. **S. M. Javaid Zaidi\***, "Impact of membrane materials on the performance of fuel cells", Proc: International Mechanical Engineering Conference, IMEC-2004, December 5-8, 2004, p598-615, Kuwait.
236. M.I. Ahmed, A.Nafees, **S. M. Javaid Zaidi\***, S.U. Rahman, Fuel Cells: Trends and directions for Cleaner Energy Production", Proc: International Mechanical Engineering Conference, IMEC-2004, December 5-8, 2004, p86-102, Kuwait.
237. **S. M. Javaid Zaidi\***, M.I. Ahmed, S.U. Rahman, "Recent Progress in Composite Membranes for Direct Methanol Fuel Cell Applications", Proc: 6<sup>th</sup> International Conference on Chemistry in Industry, September 27-29, 2004, Bahrain.
238. Ahmed Nafees, S.U. Rahman, **S. M. Javaid Zaidi\***, " Approaches to solve problem of co poisoning in hydrocarbon based fuel cell system", Proc: 6<sup>th</sup> International Conference on Chemistry in Industry, September 27-29, 2004, Bahrain.
239. S.U. Rahman, A. Nafees, **S. M. Javaid Zaidi\***, "Fuel Options for Fuel Cell Systems",Proc: 6<sup>th</sup> International Conference on Chemistry in Industry, September 27-29, 2004, Bahrain.
240. S. U. Rahman, J.W. Weidner, **S. M. Javaid Zaidi\*** and N. A. Al-Baghli, A. Nafees, "Approaches to hydrocarbon processing for automotive and stationary fuel cell systems", Proc: Petrotech 2003, Sept 30-Oct 1, 2003, Bahrain.
241. **S. M. Javaid Zaidi\***, "Technology of Hydrocarbon-based Fuel Cell", Proc: Fourth National Energy Congress, World Energy Council sponsored Conference:May 10-12, 2003, Tehran, Iran, page 167-179.



242. **S. M. Javaid Zaidi\***, M.I. Ahmed, S.U. Rahman, "Proton conductivity studies of novel composite membranes for medium temperature fuel cells", Proc: International conference on membrane and membrane processes (ICOM 2005), August 21-26, 2005, Soul, Korea.
243. **S. M. Javaid Zaidi\***, "Impact of membrane materials on the performance of fuel cells", Proc: International Mechanical Engineering Conference, IMEC-2004, December 5-8, 2004, p598-615.
244. **S. M. Javaid Zaidi\***, "Technology of Hydrocarbon-based Fuel Cell", Proc: World Energy Council sponsored Conference: 4th National Energy Conference, May 10-12, 2003, Tehran, Iran.
245. **S. M. Javaid Zaidi\***, Fuel Cells Development for Automobiles Applications, ASME Conference on Engineering Systems Design and Analysis, July 8-11, 2002, Istanbul, Turkey .
246. **S. M. Javaid Zaidi\***, Technology of Direct Methanol Fuel Cell: Progress and Future Prospects, 6<sup>th</sup> Saudi Engineering Conference, October 22-23, 2002, KFUPM, Dhahran.
247. M.I. Ahmed, A.Nafees, **S. M. Javaid Zaidi\***, S.U. Rahman, Fuel Cells: Trends and directions for Cleaner Energy Production", Proc: International Mechanical Engineering Conference, IMEC-2004, December 5-8, 2004, p88-102.
248. A. Nafees, M.I. Ahmed, **S. M. Javaid Zaidi\***, S.U. Rahman, "The promise of fuel cell powered vehicles", Proc: International Mechanical Engineering Conference, IMEC-2004, December 5-8, 2004, p88-102.
249. **S. M. Javaid Zaidi\***, M.I. Ahmed, S.Ahmed, "Characterization and Proton conductivity measurements of solid USY-zeolite loaded with Heteropolyacids", Proc: International conference on Electrochemical Power Systems, December 20-21, Hyderabad, India.
250. **S. M. Javaid Zaidi\***, M.I. Ahmed, S.U. Rahman, "Recent Progress in Composite Membranes for Direct Methanol Fuel Cell Applications", Proc: 6<sup>th</sup> International Conference on Chemistry in Industry, September 227-29, 2004.
251. **S. M. Javaid Zaidi\***, M.I. Ahmed, S.U. Rahman, " Approaches to solve problem of co poisoning in hydrocarbon based fuel cell system", Proc: 6<sup>th</sup> International Conference on Chemistry in Industry, September 227-29, 2004
252. **S. M. Javaid Zaidi\***, M.I. Ahmed, S.U. Rahman, "Fuel Options for Fuel Cell Systems", Proc: 6<sup>th</sup> International Conference on Chemistry in Industry, September 227-29, 2004.
253. S. U. Rahman, **S. M. Javaid Zaidi\*** and N. A. Al-Baghli, "Approaches to hydrocarbon processing for automotive and stationary fuel cell systems", Proc: Petrotech 2003, Sept 30-Oct 1, 2003, Bahrain.
254. S. U. Rahman, **S. M. Javaid Zaidi\***, "Status and promise of methanol fuel cell technology", Proceedings, Petrotech 2003, Sept 30-Oct 1, 2003, Bahrain.
255. **S. M. Javaid Zaidi\*** and S. U. Rahman, "Technological advancements in membrane development for PEM fuel cells" Proc: Scientific Advances in Fuel Cell Systems, Amsterdam, Netherlands, 24-26 September 2002.
256. A.S. Sultan and **S. M. Javaid Zaidi\***, Pilot Plants in Refining and Petrochemicals, 5<sup>th</sup> International Conference on Chemistry and Industry, October 14-16, 2002, Bahrain.
257. **S. M. Javaid Zaidi\***, S.D.Mikhailenko, S. Kaliaguine (2001), Development of composite membranes for DMFC, Proc: 4th International Symposium on New Materials for Electrochemical systems, July 8-11, Montreal, Canada,.
258. **S. M. Javaid Zaidi\***, S.F.Chen, S.D.Mikhailenko and S. Kaliaguine (1999), Proton Conducting membranes based on Polyoxadiazoles, Proc: 3<sup>rd</sup> International Symposium on New Materials for Electrochemical systems, Montreal, Canada, 4-6 July.

259. **S. M. Javaid Zaidi\***, S.D.Mikhailenko and S. Kaliaguine (1998), 'Solid polymer composite electrolytes for PMFC', Proc: 33<sup>rd</sup> Intersociety Engineering Conference on Energy Conversion, Colorado Springs, CO, August 2-6.
260. **S. M. Javaid Zaidi\*** (1995). Impact of gasoline reformulation on the refining Industry, Proc. 4th Saudi Eng. Conf., November 5-8, vol V, pp 303-308, K. A.A. University, Jeddah, Saudi Arabia.
261. **S. M. Javaid Zaidi\*** (1995). Role of Technology in meeting environmental regulations in the petroleum refining Industry, Proc. First Int. conf. on Environmental Issues in Petroleum and Petrochemical Industries, December 4-6, Organized by Air & Waste Management Association (Saudi Arabian section) and Bahrain society of Engineers, pp 553-563, Manama, Bahrain.
262. **S. M. Javaid Zaidi\*** and A.A. Shaikh (1994). Kinetics and mass transfer of gas-liquid and gas-liquid-solid reactions in a novel contactor, Proc. 2nd Int. Conf. on Chemistry in Industry, Oct. 24-26, pp 480-488, Manama, Bahrain.
263. Yeboah, Y.D., S.A. Ali, **S. M. Javaid Zaidi\*** and M.A.B. Siddiqui(1994). Comparison of the activity of steam reformer catalysts, Proc. 2nd Int. Conf. on Chemistry in Industry, Oct. 24-26, pp 1075-1083, Manama, Bahrain.
264. **S. M. Javaid Zaidi\***, A. S. Sultan, I.A. Hussein (2007) "Solution Viscosity Behavior of polymeric materials used in Fuel Cell Application: Sulfonated Poly(ether ether ketone), Polyetherimide and Polysulfone", European Polymer Conference, EUPO-227, May 27-June 1, 2007, Gargnano, Italy
265. **S. M. Javaid Zaidi\***, A.S. Sultan, I.A. Hussein (2007), Rheological Properties of Aqueous Solutions of Sulfonated Poly(ether ether ketone), Polyetherimide and Polysulfone, ", European Polymer Conference, EUPO-227, May 27-June 1, 2007, Gargnano, Italy
266. **S. M. Javaid Zaidi\***, Abdur-Rauf (2007), Recent advances in Polymer Membranes for PEMFC Applications, ", European Polymer Conference, EUPO-227, May 27-June 1, 2007, Gargnano, Italy.
267. **S. M. Javaid Zaidi\***, S.U. Rahman, Overview of Fuel Cell Research at KFUPM", Middle East Conference on Fuel Cell and Hydrogen Economy, December 6-7, 2005, Duba, UAE **(Invited Presentation)**
268. **S. M. Javaid Zaidi\***, "Proton conducting polymer composites as membrane materials for PEM fuel cells applications, CNRS, University of Montpellier, France, July 13, 2006 **(Invited Presentation)**
269. A. Nafees, S. Rahman and **S. M. Javaid Zaidi\***, "Carbon Monoxide Removal from Reformate on Nickel Catalyst for PEM Fuel Cell", 208th Meeting of The Electrochemical Society, Los Angeles, California, October 16 - 21, 2005.
270. **S. M. Javaid Zaidi\***, S.U. Rahman, "Perfluorinated ionomer-boron phosphate composite membranes for PEM Fuel Cell Applications", 205<sup>th</sup> Meeting of the Electrochemical Society, San Antonio, May 9-13, 2004
271. **S.M.J. Zaidi\***, S.U. Rahman, Halim H. Redhwi, :R & D Activities of Fuel Cell Research at KFUPM", Proc: 8<sup>th</sup> Arab International Solar Energy Conference & Regional World Renewable Energy Congress, 8-10 March, 2004, Bahrain.
272. **S. M. Javaid Zaidi\***, S. U. Rahman, Nabeel Abo-Ghander (2004), "An Integrated Electrolytic Electrodialytic Method for Removal of Heavy metal from wastewater, 16th International Congress of Chemical and Process Engineering CHISA 2004, Prague,
273. **S. M. Javaid Zaidi\***, S.U. Rahman, Nabeel Abo-Ghander (2004), " Metal Ions from Wastewater using a Novel Integrated Electrolytic Electrodialytic Process"*Electrochemistry Society Meeting, Greece, August 2004*

274. **S. M. Javaid Zaidi\***, "A Systematic Study of Conductivity of Zeolites, *Proc: 2nd European Polymer Electrolyte Fuel Cell Forum*, June 30-4 July, 2003, Lucerne, Switzerland.
275. **S. M. Javaid Zaidi\***, S. D. Mikhailenko, M. D. Guiver, S. Kaliaguine (2000), Proton conducting composite membranes for direct methanol fuel cell, 4<sup>th</sup> International conference on Catalysis in membrane reactors, July 3-5, Zaragoza, Spain.
276. S. D. Mikhailenko, **S. M. Javaid Zaidi\***, and S. Kaliaguine (1998). 'On the possibility to use boron phosphate as solid electrolyte', 15<sup>th</sup> Canadian Symposium on Catalysis, May 17-20, Quebec City, Canada.
277. Danuma, C; **S. M. Javaid Zaidi\***, N.Voyer, S.Giasson, and S. Kaliaguine (1998). 'Templating effects in the synthesis of MCM-41/48 phases', 15<sup>th</sup> Canadian Catalysis Symposium, May 17-20, Quebec City, Canada.
278. Danuma, C; **S. M. Javaid Zaidi\***, N.Voyer, S.Giasson, and S. Kaliaguine (1998). 'Templating effects in the synthesis of MCM-41/48 phases', 1st International Symposium on mesoporous Molecular Sieves, July10-12 Baltimore, USA.
279. Anabtawi, J.A., M.M. Abu Shbak, A.G. Maadhah and **S. M. Javaid Zaidi\*** (1996), Recent Technology development in conversion of LPG to Aromatics, Proc. 2<sup>nd</sup> Symposium on Technologies, Economics, & Investment Opportunities in Petrochemical Industries in the Kingdom of Saudi Arabia, October 15-17, Riyadh, Saudi Arabia.
280. Anabtawi, J.A., S.A. Ali, M.A.B. Siddiqui and **S. M. Javaid Zaidi\*** (1996). Evaluation of naphtha reforming catalysts by accelerated deactivation tests, Fifth World Congress of Chem. Eng., July 14-16, San Diego, Calif., U.S.A.
281. Anabtawi, J.A., M.M. Abu Shbak, A.G. Maadhah and **S. M. Javaid Zaidi\*** (1995), Recent Technology development in conversion of LPG to Aromatics, Fifth Annual Workshop on Catalysis in Petroleum Refining and Petrochemicals, Dec.2-3, Research Institute, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.
282. Anabtawi, J.A., S.A.Ali, M.A.B. Siddiqui and **S. M. Javaid Zaidi\*** (1995). Factors Influencing the performance of naphtha HDS catalysts, 2nd Int. Conf. on Catalysis in Petroleum Refining and Petrochemical Industries, April 22-26, Kuwait.
283. Anabtawi, J.A., S.A.Ali, M.A.B. Siddiqui and **S. M. Javaid Zaidi\*** (1994). Pilot plant evaluation of naphtha reforming catalysts, 13th Canadian Symposium on catalysis, May 24-27, Sarnia, Ontario, Canada.
284. **S. M. Javaid Zaidi\*** (1994). The Phenomenon of Migration of additives from plastic into foodstuffs, "POLYMER 94", Indian Petrochem. Corp., Feb. 1-3, Baroda, India.
285. Anabtawi, J.A., S.A.Ali, M.A.B. Siddiqui and **S. M. Javaid Zaidi\*** (1993). Catalyst selection for naphtha desulfurization, 3rd Saudi-Japanese Symposium on Petroleum Refining and Petrochemicals, Oct.31-Nov.1, Research Institute, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.
286. Yeboah, Y.D., S.A.Ali, **S. M. Javaid Zaidi\***, and M.A.B. Siddiqui(1993). Activity of commercial steam reformer catalysts, 3rd Saudi-Japanese Symposium on Petroleum Refining andPetrochemicals, Oct.31-Nov.1, Research Institute, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.
287. Yeboah, Y.D. and **S. M. Javaid Zaidi\*** (1993). Recent trends in LTS catalysts, Preprints First European Congress on catalysis, Sep. 12-17, Montpellier, France.
288. Shaikh, A.A. and **S. M. Javaid Zaidi\*** (1992). Kinetics of natural gas treating reactions: Review experimental methods, Symposium on Production and Processing of Natural Gas, Feb.29-March 2, King Saud University, Riyadh, Saudi Arabia.
289. **S. M. Javaid Zaidi\***, "Development of Composite Membranes for Fuel Cell" Invited Lecture, GKSS Research Center, September 2001, Hamburg, Germany.

290. **S. M. Javaid Zaidi** "Development of Polymer Electrolyte membrane for DMFC", Presentation at H Power Enterprise of Canada, Montreal, June 2000.

### **Technical Reports**

291. **S. M. Javaid Zaidi**, I.A. Hussein Synthesis, Thermal, and Rheological Characterization of Composite Membranes for Fuel Cell Applications, KFUPM Fast Track, Principal Investigator, Budget SR75, 2005.
292. **S. M. Javaid Zaidi**, S.U. Rahman, Development of New Polymer Composite Membranes for Direct Methanol Fuel Cell, Project Manager KFUPM-ARI Grant, Budget SR 75,000, December 2003.
293. I.A. Hussein, B.F. Abu Sharkh, **147. S. M. Javaid Zaidi**, E.Y Osei-Twum, "Investigation of the Influence of Molecular Structure on Molecular Characteristics of metallocene LLDPE by NMR, Light Scattering, DSC, and MD Simulation Techniques", Principal Investigator, KACST, Final report September, 2006, Budget SR 867,000.
294. Multi- Scale Design of Next Generation Reverse Osmosis (RO) Membranes for Seawater Desalination, KFUPM-MIT Research Collaboration, Budget SAR 2.0 Million, September 2008-September 2010. *Annual Progress Report*, June 2009.
295. Performance Evaluation and Testing of New membranes and electro-catalyst for fuel cells, center of Research Excellence in Renewable Energy, Budget SAR 2,751,500, October 2008 – May 2012, *Three progress reports*.
296. Membrane and Cell Development for the Electrochemical Cell conversion of CO<sub>2</sub> to Hydrocarbons, center of Research Excellence in Renewable Energy, Budget SAR 2,810,250, October 2008 – May 2012 *Three progress reports*.
297. Novel composite membranes and carbon nanotubes based electrocatalyst for PEM fuel cells, National Science, Technology and Innovation Plan and KACST Collaborative Grant, September, 2009- September 2011, Budget SAR 2.0 million (*one progress report*)
298. Development of New Generation Reverse Osmosis (RO) Membranes for Seawater Desalination, National Science, Technology and Innovation Plan and KACST Collaborative Grant, September, 2009- September 2011, Budget SAR 2.0 million. (*one progress report*)
299. Electrochemical conversion of carbon-dioxide to hydrocarbons using solid electrolyte, National Science, Technology and Innovation Plan and KACST Collaborative Grant, September, 2009- September 2011, Budget SAR 2.0 Million. (*one progress report*)
300. Separation of Binary Organic Mixtures using Novel Composite Polymeric Membranes by Pervaporation, KFUPM, Budget SR 425,000, *Two progress reports*.
301. Development of New Polymer Composite Membranes for Direct Methanol Fuel Cell, Project Manager KFUPM-ARI Grant, Budget SR 75,000, *Progress Report*, March ,2003.
302. Development of New Polymer Composite Membranes for Direct Methanol Fuel Cell, Project Manager KFUPM-ARI Grant, Budget SR 75,000, *Progress Report*, July ,2003.
303. Development of New Polymer Composite Membranes for Direct Methanol Fuel Cell, Project Manager KFUPM-ARI Grant, Budget SR 75,000, *Progress Report*, October ,2003.
304. Thermal, and Rheological Characterization of Composite Membranes for Fuel Cell Applications, KFUPM Fast Track, Principal Investigator, Budget SR75, *Two progress reports*.
305. Development of Highly Conductive Composite Membranes for Medium Temperature PEM Fuel Cell. KFUPM, Principal Investigator Final report, Budget SR 638,700, *Five progress reports*.

306. Influence of Molecular Parameters on the Rheology and Miscibility of molten linear low-density polyethylene (LLDPE) in low-density polyethylene (LDPE) and high-density polyethylene (HDPE). KFUPM, Principal Investigator, Budget SR 1.28 million, *five progress reports* April 2001- April 2004.

## **Reviewer of the Journals and Funding agencies**

*Reviewer to various International, Regional and local organizations including:*

- ♦ Discovery Grants, Australia, National Science Foundation (NSF), USA; King Abdul Aziz City for Science and Technology (KACST); Arab Science & Technology Foundation (ASTF), Sharjah, UAE; Emirates Foundation, Imam Mohammed University, King Saud University, KSA, KFUPM-DSR, King Saud University.

*Reviewer for various International and Regional journals including:*

- Journal of Membrane Science; Desalination, Journal of Chemical Technology and Biotechnology, Electrochimica Acta; Journal of Applied Polymer Science, Materials Chemistry, Desalination, Journal of New Materials for Electrochemical Systems; Journal of Electrochemical Society; e-Polymers; Arabian Journal for Science & Engineering; Journal of Science and Engineering (King Saud University journal ) University of Jordan Scientific Journal; Arabian Gulf Journal (Bahrain); Sultan Qaboos University Journal. Int. Journal of Hydrogen Energy, 6<sup>th</sup> Saudi Engineering Conference; Petrotec 2003, ChemIndex, Polymer Bulletin, Desalination and water Treatment.

## **Graduate Students (Ph.D., M.S.) Supervision**

1. Safdar Hossein, *Electrochemical conversion of carbon-dioxide to hydrocarbons*, Ph.D. Thesis, Chemical Engineering, Ph.D. Thesis Supervisor June 2012.
2. Mohammed Shahid, *Electrochemical Reduction of carbon-dioxide to hydrocarbons*, M.S. Thesis, Chemical Engineering, Thesis Supervisor, May 2012.
3. Fahad Al-Khaldy, *Removal of Chromium and Cadmium from water using carbon based adsorbents*, Ph.D. Thesis, Chemical Engineering, Co-Supervisor, June 2011.
4. Nidal Abu-Thabit, "*Synthesis of Ionic Polymers for proton Exchange membrane Fuel Cell*", Ph. D. Thesis, Thesis Supervisor, May 2010.
5. M. Bello, *Development of Methanol Electrooxidation Catalyst for Direct Methanol Fuel Cell*, Ph.D. Thesis, Chemical Engineering, Ph.D. Thesis Supervisor, July 2011.
6. Farid fadhillah. "*Polyelectrolyte Multilayer Reverse Osmosis Membrane for Seawater desalination*", Chemical Engineering, Ph.D. Thesis Supervisor June 2012
7. Asif Matin, *Enhancing the bio-fouling resistance of reverse osmosis membranes by dual surface modification*, Ph.D. Thesis, Supervisor, June 2012.
8. M. Abdul Raouf, "*Performance of composite SPEEK membranes for PEM Fuel Cell*", M.S. Thesis, Chemical Engineering KFUPM, Dhahran, November 2007, Thesis Supervisor
9. M. Bello, "*Methanol Permeation in Novel PEM for Direct Methanol Fuel Cell*", April 2006, M.S. Thesis, Chemical Engineering, Supervisor.
10. Abdullah S Sultan, "*Rheological and Thermal Characterization of Polymeric Membrane Materials for use in Fuel Cell*", May 2006, M.S. Thesis, Chemical Engineering Supervisor.
11. Nafeed Ahmed, "*Electrochemical Removal of CO from Hydrogen using Nickel Catalyst*", 2005, M.S. Thesis, Chemical Engineering, Supervisor.
12. Mohd Irfan Ahmed, "*Development of composite membranes for direct methanol Fuel cell*", 2005, M.S. Thesis, Chemical Engineering, Supervisor.

13. Nabeel S. Abu-Ghander, "*Removal of Heavy Metal Ions using a Novel Intergated Electrolytic-Electrodialytic Process*", December 2003, Supervisor.
14. Tareg M. Al-Soudani , "*Isomerization and separation using a pressure swing adsorption reactor*", December 2003, Co-supervisor.
15. Mohammed Inam, "*Fuel Cell Testing of composite SPEEK-Y-zeolite/HPA membranes for methanol fuel cell*", Co-Supervisor.
16. Mohammed Abdul Kareem, "*Influence of Polymer Structure on the Conformations of Polyolefin Melts and their blends: Molecular dynamics simulation Study*", M.S. Thesis, Chemical Engineering June 2007. *Committee Member*.
17. Parvez, Mohammad Anwar, "Rheology of Metallocene Polyethylenes with Controlled Long Chain Branching", June 2008, Thesis, Chemical Engineering, *Thesis Committee Member*.
18. Rizwan Ahmed Khan, "*Metal Incorporation in MCM-41 for Hydrodesulfurization*", January 2003, *Committee Member*.
19. Tayyab Hameed, "*Rheological and MD Simulation study of the miscibility of metallocene LLDPE in LDPE*", January 2003, *Committee Member*.
20. Ashraful\_islam, "*Influence of Branching on Structure-Property Relationships of metallocene LLDPE* ", 2005, *Committee Member*.
21. Khaled M. Al-Dossary, "*Development of a Solid-Liquid Mass Transfer Probe based on Limiting Diffusion Current: Application in Stirred Tanks*", *Committee Member*

## **Professional Affiliation**

Member of the following professional societies

- American Institute of Chemical Engineers
- American Chemical Society
- Canadian Catalysts Society
- Electrochemical Society
- Saudi Council of Engineers

## **International Scientific Committee Member**

- Advisory Board Member, Asian Journal of Chemistry,
- Member of Organizing and Technical Committee, International Conference on Advancements in Chemical and Petrochemical Processes (ACAPE-2020), Aligarh Muslim University, Aligarh, India, February 22-24, 2020.
- Co-organizer of First Workshop on Membrane based RO Desalination, April, 2019, Qatar University.
- Scientific Committee of 1<sup>st</sup> Saudi Renewable Energy Conference, KFUPM, Dhahran, Saudi Arabia, February 2011.
- First International workshop for fuel cells, 2009.
- 4<sup>th</sup> Saudi Engineering Conference, 2005
- International Scientific Committee, 7<sup>th</sup> International Conference on Membrane Science & Technology, Malaysia, May 2009.
- 8<sup>th</sup> International Conference on Membrane Science & Technology, Indonesia, Nov 2011.
- International Conference on Chemistry in Industry, 2007.
- Saudi-Japanese Symposium, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2007, 2008.

## **Academics**

**Chairman of Chemical Engineering Integrated Design Course (Capstone Design) for the last five years (2007-2012).**

### **COURSES TAUGHT**

1. CHE 204: Transport Phenomenon I(Fluid Mechanics)
2. CHE 300: Transport Phenomenon II( Heat Transfer)
3. CHE 304: Transport Phenomenon III( Mass Transfer)
4. CHE 306: Stagewise Operations
5. CHE 402: Kinetics and Reactor Design
6. CHE 425: Engineering Economics and Design Principles
7. CHE 430: Separation Processes
8. CHE/ME 531: Advanced Materials
9. CHE/ME 431: Desalination Technologies
10. CHE/ME 532: Membrane Technology
11. CHE 440: Catalysis and Catalytic Processes
12. CHE 495: Integrated Design Course (capstone design)
13. CHE 580: Heterogeneous Catalysis
14. CHE 530: Advanced Reactor Design
15. CHE 560: Advanced Separation Processes
16. CHE 325: Chemical Eng. Computing Laboratory
17. CHE 309: Chemical Eng. Laboratory I

### **SHORT COURSES OFFERED TO THE LOCAL INDUSTRY**

1. *Fundamentals of Catalysis (four times)*  
May 12-17, 2002, and May 7-11, 2005, and May 2007, 2009,2011.  
In-house course for Saudi Arabian Oil Co. (Saudi Aramco)
2. *Industrial Catalytic Reactors*  
April 9-13, 2005
3. *Element of Applied Process Engineering*  
September, 2003
4. *Membrane Separation Processes(two times)*
5. *Wastewater Treatment*  
October 26-30, 2002.

### **Course Coordination**

- i. Coordinated CHE 495, 2006-2012.
- ii. Coordinated CHE 204, 2005-06
- iii. Coordinated CHE 325 in terms 011,012 and 021
- iv. Coordinated a short course on Membrane Separation Processes 2003.
- v. Coordinated a short course on Membrane Separation Processes, 2005

### **Academic Training**

Attended the following academic workshops and courses:

1. *Designing courses for Significant Learning*, September 3-5, 2006  
Instructor: Prof. Lee Flink, University of Oklahoma, USA
2. *Introduction to WbCT*, July 10-14, 2004,  
Academic Development Center, KFUPM, Dhahran.
2. *Workshop on Critical Thinking*, September 7-10, 2003  
Instructor: Prof. R. J. Swartz, Director, National center for Teaching Thinking, USA
3. *Increasing Effectiveness as a University Teacher*, September 9-11, 2002  
Instructors: Prof. H.I. Ellington and Shirley Earl, Gordon University, UK.
4. *How to be an effective University Teacher*, September 7-8, 2002  
Instructors: Prof. H.I. Ellington and Shirley Earl, Gordon University, UK.
5. *Striving for Excellence in University Teaching and Learning*, August 27-29, 2001  
Instructor: Prof. S.J. Piccini, University of Ottawa, Canada.
6. *Workshop on Enhancing Students Learning*, March 26, 2002,  
Academic Development Center, KFUPM, Dhahran.
7. *Workshop on Preparing to Teach*, August 26-27, 2001,  
Academic Development Center, KFUPM, Dhahran.

### **Administration/Services**

Served in the following Departmental-level, College-level and University Committees:

#### **i) University Standing Committees**

1. Member of Qatar University Research Support Committee
2. Member of Qatar University Innovation and Patents committee  
Member, KFUPM Research Advisor Committee, headed by His Excellency the Rector of university.
2. Member, Board of Directors, Center of Research Excellence in Renewable Energy, KFUPM., May 2008 to 2012
3. Member, Executive Board, Center of Research Excellence in Renewable Energy KFUPM, April 2008 to 2012.
4. Member of the Technical Innovation center in Carbon Capture and Sequestration Executive committee.
5. Member, Revision of PhD program requirements at KFUPM, formed by the Rector, Jan 2008.

#### **ii) University Ad hoc Committees**

1. Chair of the Promotion Committee of QU faculty for Professor.  
KACST Proposal coordination Committee (First five year science plan) formed by Vice Rector for Applied Research
2. KACST Desalination proposal committee formed by Vice Rector for Applied Research, Ad Hoc Committee, March/April 2007, team member.
3. Member, Evaluation of Applications for University Excellence in Research Award, formed by the Dean of Scientific Research, March 2010.
4. Member, Committee for the policy and procedures for Centers of Research Excellence appointed by the VR Research



5. *Member*, Promotion Committee formed by Vice Rector for Applied Research, 2005-2012.

### **iii) Department/College Committees**

1. Recruitment Committee
  2. Program Assessment and ABET Committee.
  3. Chemical Engineering Department Council
  4. Research Committee
  5. Graduate Admissions Committee
  6. Computer Management Committee
  7. Continuing Education Committee
  8. Laboratory and Safety Committee
  9. Curriculum Committee
  10. College Specials Functions Committee
- 
1. Academic Advisor for Chemical Engineering Students
  2. Coop Advisor
  3. Summer Training advisor

### **Organization of Conferences/Workshops**

Organised workshops/conferences for the center of Research Excellence in Renewable Energy at KFUPM, was the chairman and member of the organizing committee for the workshops. The first workshop was for the establishment of the center.

1. 1<sup>st</sup> Saudi Renewable Energy conference, February 2011, KFUPM, Saudi Arabia.
2. First workshop for the Center of Research Excellence in Renewable Energy (CoRe-RE), November 2007.
3. CoRe-RE second workshop on Advances in Fuel Cells, November 2008
4. CoRe-RE 3rd workshop on Advances in Renewable Energy, November 2009
5. MIT-KFUPM Workshop on clean water and clean energy, Jan. 2010.
6. KFUPM-NUS workshop for research collaboration, KFUPM, Saudi Arabia, 2010
7. CoRe-RE 4th workshop on Advances in Solar Energy, April 2010.
8. MIT-KFUPM Workshop on clean water and clean energy, Jan. 2010, 2011.

### **Other Services**

#### **i) Establishment of Center of Excellence in Renewable Energy at KFUPM**

I was part of the team who actively participated in the establishment of the center awarded by the Ministry of Higher Education starting from proposal writing for the establishment of center to the complete center formation. The center started in 2008.

#### **ii) Establishment of Fuel Cell Research Lab at CoRe-Renewable Energy at KFUPM**

Established the state-of-the-art fuel cell research lab in the center at KFUPM.

### iii) Establishment of Technical Innovation Center in Carbon Capture and Sequestration at KFUPM

I was part of the team who actively participated in the establishment of the center awarded by the KACST of Saudi Arabia starting from proposal writing for the establishment of center to the complete center formation. The center started in 2012.

### Research Projects and Grants in Canada, Australia, Saudi Arabia and Qatar

1. Design of novel nanoporous architectures functionalized with ZnO nanoparticles for industrial production of fine chemicals Zinc Oxide Australia, 2013-2014.
2. CO<sub>2</sub> Capture and *in situ* conversion of CO<sub>2</sub> to hydrocarbons by solar energy, funded by Technical Innovation Center (TIC) on Carbon Capture and Sequestration, KACST, Govt. of Saudi Arabia, 2012-2014 (*in collaboration with the University of Queensland*).
3. Modified composite membranes and alloy catalysts for PEM/DMFC, National Science, Technology and Innovation Plan and KACST Collaborative Grant, September, 2011-September 2013, Budget SAR 2.0 million(*in collaboration with the University of Queensland*).
4. Novel composite membranes and carbon nanotubes based electrocatalyst for PEM fuel cells, National Science, Technology and Innovation Plan and KACST Collaborative Grant, September, 2009- September 2012, Budget SAR 2.0 million.
5. Development of New Generation Reverse Osmosis (RO) Membranes for Seawater Desalination, National Science, Technology and Innovation Plan and KACST Collaborative Grant, September, 2009- September 2012, Budget SAR 2.0 million.(*This project is in collaboration with the university of Ottawa, Canada*)
6. Electrochemical conversion of carbon-dioxide to hydrocarbons using solid electrolyte, National Science, Technology and Innovation Plan and KACST Collaborative Grant, September, 2009- September 2012, Budget SAR 2.0 Million.
7. Multi- Scale Design of Next Generation Reverse Osmosis (RO) Membranes for Seawater Desalination, KFUPM-MIT Research Collaboration, Budget SAR 5.0 Million, September 2008-September 2014. (*This project is in collaboration with MIT Center for Clean Water and Clean Energy,Massachussettes Institute of Technology (MIT), USA*)
8. Performnace Evaluation and Testing of New membranes and electro-catalyst for fuel cells, Center of Research Excellence in Renewable Energy, Budget SAR 2,751,500, October 2008 – May2012 (*This project is in collaboration with National Institute of Materials Science, Japan's top research center*).
9. Membrane and Cell Development for the Electrochemical Cell conversion of CO<sub>2</sub> to Hydrocarbons, Center of Research Excellence in Renewable Energy, Budget SAR 2,810,250, October 2008 – May2012.
10. Simulation-Aided Characterization of Bio-inspired Separation Membranes for Water Purification, KFUPM DSR project (Consultant), August 2011-June 2012.
11. Separation of Binary Organic Mixtures using Novel Composite Polymeric Membranes by Pervaporation, KFUPM, DSR Research Grant, Budget SR 425,000, May 30, 2006, duration: 3 years.
12. Synthesis, Thermal, and Rheological Characterization of Composite Membranes for Fuel Cell Applications, KFUPM, Fast Track, Budget SR75,000 April 1, 2002 – Spetember 30, 2003.
13. Development of New Polymer Composite Membranes for Direct Methanol Fuel Cell, KFUPM-ARI Grant, Budget SR 75,000, November 2002 - December 2003.

14. Investigation of the Influence of Molecular Structure on Molecular Characteristics of metallocene LLDPE by NMR, Light Scattering, DSC, and MD Simulation Techniques, KACST grant, October 2003-August 2006, Budget SR 867,000.
15. Development of Highly Conductive Composite Membranes for Medium Temperature PEM Fuel Cell. KFUPM, DSR Research Grant no. 294 , Budget SR 638,700, November 2005-May 2008.
16. Methanol Permeation through PEMFC: Evaluation of Electrochemical Techniques, SABIC Research Grant no. SABIC-2005-20 (SR75000), Sept.1, 2005-August 31, 2006.
17. CHE 204 Transport Phenomena I”, Online Course, KFUPM-DAD funded project, January-December 2007.
18. Development of zeolite based polymer membranes for use in methanol Oxidation fuel cell, Laval University Canada, **Natural Resources Canada**, NRC Grant, 1995-1997.
19. Development of composite polymer membranes, Laval University, Canada, **NSERC Grant, Canada**, 1997-1999.
20. Synthesis and characterization of Mesoporous Molecular Sieves and Aluminophosphate molecular sieves (VAPO-5, 11,17,31),Laval University, Canada **NSERC**,, 1998-1999
21. Saudi-Japanese Research Project on Heavy Oil Upgrading , Funded by Petroleum Energy Center, Japan, 1994-2000, Team member
22. Pilot Plant Testing of Competitive Hydrotreating Catalysts, Saudi Aramco grant, 1991-93, Task Leader
23. Performance Evaluation of Naphtha Reforming Catalysts, Saudi Aramco grant 1992-94, Team member
24. Performance Evaluation of Steam Reformer Catalysts, Saudi Aramco grant, 1994-95, Task Leader
25. Synthesis of Zeolites for Catalytic Applications, KFUPM grant, 1992-94, Team member
26. Pilot Plant Testing of Naphtha Hydrodesulfurization Catalysts, Jeddah Refinery grant, 1993-94, Task Leader.