

CURRICULUM VITA

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GUIDING PRINCIPLE: To always innovate and develop

CURRENT POSITION

Associate Professor of Chemical Engineering at King Saud University.

EDUCATION

Ph.D. Chemical Engineering, University of Colorado, Boulder, USA, 2001
Thesis Advisors: Prof. Klaus D. Timmerhaus and Prof. Richard D. Noble
M.Sc. Chemical Engineering, University of Colorado, Boulder, USA, 1992
B.Sc. Chemical Engineering, King Saud University, KSA, 1990

HONORS AND AWARDS

- Distinguished Award from BAE Systems for the best graduation project, college of engineering, KSU, spring semester, 2016.
- Distinguished Award from BAE Systems for the best graduation project, college of engineering, KSU, fall semester, 2015.
- Gold Medal, 41st International Exhibition of Inventions in Geneva, Switzerland, 2013
- King Saud University Medal for the distinguished Scientific Research, 2012
- Gold Medal, 40th International Exhibition of Inventions in Geneva, Switzerland, 2012
- Saudi Ambassador's Honor Award, Master Degree, University of Colorado, Boulder, 1992
- First Class Honor, B.Sc. degree, King Saud University, 1990

EXPERIENCE AND CONSULTING

2001- Now	Faculty Member at Chemical Engineering Dept., King Saud University
2005-Now	Consultant, Global ChemTech Company, Saudi Arabia.
2008-2012	Consultant, King Abdulaziz City for Science & Technology

BOARD MEMBER

2014-Now	ALITCO (Aldrees Industrial and Trading Co.)
2011-2014	Saudi Chemical Engineering Society
2008-2011	Saudi Chemical Engineering Society

RESEARCH INTERESTS

- Process Synthesis and Integration
- Simulation, Modeling and Optimization
- Chemical Process Development
- Membrane Technologies
- Desalination (MSF, MED, RO, FO)
- Sustainable Energy
- Economic Evaluation and Profitability Analysis

GRANTS

- Utilizing Nanoporous Membrane Technology for Nitrogen Removal from Saudi Natural Gas, King Abdullah Institute for Nanotechnology, 2008-2010, S.R. 227,000
- Optical media storage made of polycarbonate, SABIC, 2007-2008, S.R. 125,000
- Manufacturing of foodstuff containers packaging, drinking water bottles, and other commodities from polycarbonate, SABIC, 2007-2008, S.R. 125,000
- Performance of Polymer Modified Bitumen (PMB) Based on Local Bituminous Materials, Ministry of Transport, 2007-2008, S.R. 75,000
- Production of Detergent Alcohols in Saudi Arabia from Linear Alpha Olefins (LAO), SABIC, 2005-2006, S.R. 120,000
- Production of Plasticizer Alcohols in Saudi Arabia from Linear Alpha Olefins (LAO) SABIC, 2004-2005, S.R. 120,000
- Production of ADA in Saudi Arabia Using C12 and C14-C18 Alpha Olefins, SABIC, 2004-2005, S.R. 125,000
- Production of Alkenyl Succinic Anhydride in Saudi Arabia Using C12 and C14-C18 Alpha Olefins, SABIC, 2004-2005, S.R. 125,000
- Membrane Technology for Hydrogen Separation in Ethylene Plants, SABIC, 2003-2005, S.R. 50,000
- Separation of Propane/Propylene Using Membrane/Distillation Hybrid Systems, Eng. Research Center, KSU, 2001-2003, S.R. 48,000

PATENTS

US PATENTS

- Composite Catalyst and Using the Same for Making Isoropyl Alcohol, US Patent No. 8,362,302, Jan. 29, 2013.
- Synthesizing and Utilizing Novel Ruthenium Nanoparticle-Activated Charcoal-Nano-Zinc Oxide Composite Catalyst, US Patent No. 8,110,708, Feb 07, 2012.
- Low Pressure One-Step Gas-Phase Process for Production of Methyl Isobutyl Ketone, US Patent No. 8,101,805, Jan. 24, 2012.
- Synthesizing and Utilizing Novel Nano Crystalline Zinc Chromite Supported Nano Palladium Catalyst, US Patent No. 7,951,976, May 31, 2011.

EUROPEAN PATENTS

- Low Pressure One-Step Gas-Phase Process for Production of Methyl Isobutyl Ketone, EP Patent No. 2532642A2, Nov. 13, 2013.
- Synthesizing and utilizing novel ruthenium nanoparticle-activated charcoal-nano-zinc oxide composite catalyst, EP Patent No. 2517788A1, Oct. 31, 2012.
- Synthesis and Use of a Nano-Crystalline Zinc Chromite Catalyst, Compromising Nano-Palladium, EP Patent No. 2418017A1, Feb. 15, 2012.

JAPANESE PATENTS

- Apparatus, Method and One-Step Gas-Phase Process, JP Patent No. JP201225496, Dec. 27, 2012.
- Composite Catalyst, Process for Producing the Same, and Method for Using the Same, JP Patent No. JP2012232288, Nov. 29, 2012.
- Catalyst, Method for Manufacturing Catalyst and Process, JP Patent No. JP2012040548, March 1, 2012.

SAUDI PATENTS

- Synthesizing and utilizing novel nano-crystalline zinc chromite supported nano palladium catalyst, Saudi Patent No. 4950, July 24, 2016

WORK EXPERIENCE AND ACTIVITIES

- Post-Graduate Supervision: Four Master Thesis.
- Invited Speaker, Saudi International Conference for Water Technology, Riyadh, 21 Nov., 2011.
- Principal Investigator of KSU team, Joint Research with Nanyang University, Singapore, 2009-2011.
- Distinguished Invited Speaker, 7th International Conference on Membrane Science and Technology (MST 2009), Utilization & Applications of Membrane Technology in Saudi Arabia, 12-15 May, 2009, Kuala Lumpur, Malaysia.
- Scientific Committee member, 7th International Conference on Membrane Science and Technology (MST 2009), 12-15 May, 2009, Kuala Lumpur, Malaysia.
- Scientific committee member, 1st International Laboratory Technology Conference & Exhibition (LABTECH 2008), October 20-22, 2008, Bahrain.
- Peer reviewing of several conferences and Journals including Construction & Building Materials (ISI journal).

INSTITUTIONAL & PROFESSIONAL SERVICES

2014-now	Committee Member – Graduation Projects, Chemical Engineering Dept.
2014-now	Committee Member – Annual Reports, Chemical Engineering Dept.
2010-2012	Committee Member – Scholarship Program, College of Engineering
2008-2013	Committee Coordinator – Teaching Assistants & Scholarship
2008-2010	Committee Member, Chemical Engineering Labs
2003-2008	Committee Coordinator – Graduation Projects, Chemical Engineering
2003-2006	Committee Member – Students Affairs, College of Engineering
2002-2005	Coordinator, Computer Lab of Chemical Engineering

SELECTED PUBLICATIONS

1. Elizabeth Arkhangel'sky, Filicia Wicaksana, **Abdulrahman A. Al-Rabiah**, Saeed M. Al-Zahrani and Rong Wang, "Understanding the interaction between biomacromolecules and their influence on forward osmosis process", *Desalination* 385 (2016), pp 12–23.
2. **Abdulrahman A. Al-Rabiah**, Omar Y. Abdelaziz, Enrique M. Montero and Mohamed S. Aazam, *Petroleum Science and Technology*, Vol. 34, No. 4, 20 March 2016, pp 321-327.
3. **Abdulrahman A. Al-Rabiah**, Abdelhamid M. Ajbar, Moustafa A. Soliman, Fahad A. Almalki, and Omar Y. Abdelaziz, "Modeling of nitrogen separation from natural gas through nanoporous carbon membranes", *Journal of Natural Gas Science and Engineering*, 26 (2015), pp 1278-1284
4. Abdulaziz A. Bagabas, Mohamed Mokhtar, Vagif M. Akhmedov, Katabathini Narasimharao, Sulaiman N. Basahel and **Abdulrahman Al-Rabiah**, "Ru–C–ZnO Composite Catalysts for the Synthesis of Methyl Isobutyl Ketone via Single Step Gas Phase Acetone Self-Condensation", *Catalysis Letters*, July 2014, Volume 144, Issue 7, pp 1278-1288.
5. Elizabeth Arkhangel'sky, Susan Sulaiman Lay, Filicia Wicaksana, **Abdulrahman A. Al-Rabiah**, Saeed M. Al-Zahrani and Rong Wang, "Impact of intrinsic properties of foulants on membrane performance in osmotic desalination applications", *Separation and Purification Technology*, Volume 123, 26 February 2014, pages 87-95
6. Arkhangel'sky, E., Wicaksana, F., Tang, C., **Al-Rabiah, A.**, Al-Zahrani, S. and Wang, R., "Combined organic–inorganic fouling of forward osmosis hollow fiber membranes", *Water Research*, Vol. 46, Issue 19, 1 Dec 2012, pp. 6329-6338.
7. Arkhangel'sky, E., Wicaksana, F., Chou, S., **Al-Rabiah, A.**, Al-Zahrani, S. and Wang, R., "Effects of Scaling and Cleaning on the Performance of Forward Osmosis Hollow Fiber Membranes", *Journal of Membrane Science*, Vol. 415-416, 1 Oct. 2012, pp. 101-108
8. **Al-Rabiah, A. A.** and A. Ajbar, "Study of the Operability of a Continuous Bioreactor for the Pre-Fermentation of Cheese" *Engineering in Life Sciences*, 2007, 7, No. 6, 1-11
9. Abashar, M.E.E.; **Al-Rabiah, A.A.** "Production of Ethylene and Cyclohexane in a Catalytic Membrane Reactor", *Chemical Engineering and Processing*, Vol. 44, Issue 11, 1 November 2005, pp. 1188-1196.
10. Abashar, M.E.E.; **Al-Rabiah, A.A.**, "Novel Multi-shell Membrane Reactors for Efficient Dehydrogenation of Ethylbenzene", *Engineering Sciences, Journal of KSU*, Vol. 18, No.1, 2005.
11. W.A. Al-Masry, N.M. Ghasem, K.A. Al-Sugair, A.A. Ibrahim and **Al-Rabiah A. A.**, "Effect of Increasing Temperatures on the Viscosity of Xanthan Gum Solutions", *J. Saudi Chem. Soc.*, Vol. 9, No. 1 (2005), pp. 197-202

SELECTED PROCEEDINGS AND CONFERENCES

1. Al-Rabiah, A. A., "Modeling and Simulation of n-Butane/1-Butene Separation Using Facilitated Transport Membranes", International Congress on Membranes and Membrane Processes (ICOM 2011), Amsterdam, Netherlands, July 23-29, 2011

2. Al-Rabiah, A. A., Ajbar, A. and Soliman, M. "Mathematical Modeling of Gas Permeation in Nanoporous Carbon Membranes" International Congress on Membranes and Membrane Processes, Amsterdam, Netherlands, July 23-29, 2011
3. Al-Rabiah, A. A. and Ajbar A. ," Dusty Gas Model for Nanoporous Carbon Membrane Used for Nitrogen Removal from Natural Gas", The 7th International Conference on Membrane Science & Technology (MST2009), Kuala Lumpur, Malaysia, 12-15 May 2009.
4. Al-Rabiah, A. A., Al-Malki, F. A., and Ajbar, A. "Removal of Nitrogen from Saudi Natural Gas Utilizing Nanoporous Carbon membrane", The International Conference on Nanotechnology: Opportunities and Challenges" (ICON008), Jaddah, Saudi Arabia, 17-19 June 2008.
5. Al-Rabiah, A. A., "Optimization of a Commercial Olefin Plant Using Pinch Analysis," CHISA 2004, Session H1, Paper 6, 22-26 August 2004, Prague - Czech Republic.
6. Al-Rabiah, A. A., "Membrane Technology for Hydrogen Separation in Ethylene Plants," 4th Ibero-American Congress on Membrane Science and Technology (CITEM), Brazil, July 16-18, 2003.
7. Al-Rabiah, A. A., "The Use of Hybrid Membrane/Distillation System for the Ethane/Ethylene Separation in Olefin Plants," 4th Ibero-American Congress on Membrane Science and Technology (CITEM), Brazil, July 16-18, 2003.
8. Al-Rabiah, A. A., "Membrane Technology for Hydrogen Separation in Ethylene Plants," 4th European Congress of Chemical Engineering, Spain, September 21-24, 2003.
9. Al-Rabiah, A. A., "The Use of Hybrid Membrane/Distillation System for the Ethane/Ethylene Separation in Olefin Plants," 4th European Congress of Chemical Engineering, Spain, September 21-24, 2003.
10. Al-Rabiah, A. A., "Heat Integration of the Commercial Ethylene Process," 4th European Congress of Chemical Engineering, Spain, September 21-24, 2003.
11. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Membrane Technology Use in Low-Temperature Hydrogen Recovery Section of the Ethylene Process," ICR0433, XXI IIR International Congress of Refrigeration, Washington, DC, USA, August 17-22, 2003.
12. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Design and Retrofit of the Refrigerated C2 Splitter in an Ethylene Plant with a New Hybrid Separation System," 6th World Congress of Chemical Engineering, Melbourne, Australia, September 23-27, 2001.
13. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Membrane Technology for Hydrogen Separation in Ethylene Plants," 6th World Congress of Chemical Engineering, Melbourne, Australia, September 23-27, 2001.
14. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Retrofit Analysis of Replacing the C2 Splitter in an Existing Ethylene Plant with a Hybrid Separation System," 76th Annual Meeting of American Association for Advancement of Science, Physical Sciences Session, Paper No.5, Las Cruces, New Mexico, April 9-12, 2000.
15. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Retrofit of the Refrigerated C2 Splitter in an Ethylene Plant with a New Separation System," AIChE 2000 Spring National Meeting, Paper 55e, Atlanta, GA, March 5-9, 2000.

16. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Modeling and Simulation of Several Hybrid Distillation Systems for the Ethane/Ethylene Separation," AIChE Annual Meeting, Paper 221j, Dallas, Texas, November 1-5, 1999.
17. A. A. Al-Rabiah, K. D. Timmerhaus, and R. D. Noble, "Modeling and Simulation of Several Hybrid Distillation Systems for the Ethane/Ethylene Separation," Proceedings of 20th International Congress of Refrigeration, Session T1.5, Paper No. 070, Sydney, Australia, September 19-24, 1999.
18. A. A. Al-Rabiah, K. D. Timmerhaus, and R. D. Noble, "Investigation of Several Hybrid Distillation Systems for the Ethane/Ethylene Separation," The International Congress on Membranes and Membrane Processes (Icom99), Session P5 (Hybrid Processes), Paper No. 2, Toronto, Canada, June 12-18, 1999.
19. A. A. Al-Rabiah, K. D. Timmerhaus, and R. D. Noble, "The Use of Hybrid Distillation for the Ethane/Ethylene Separation," 75th Annual Meeting of American Association for Advancement of Science, Paper No. 128, Santa Fe, New Mexico, April 11-15, 1999.
20. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Investigation of Several Hybrid Distillation Systems for the Ethane/Ethylene Separation," AIChE Spring National Meeting, Paper 93b, Houston, Texas, March 14-18, 1999.
21. A. A. Al-Rabiah and K. D. Timmerhaus, "Development of a Hybrid Propane/Propylene Splitter in the Ethylene Process," 74th Annual Meeting of American Association for Advancement of Science, Physical, Engineering and Information Sciences Session, Paper No. 2, Grand Junction, Colorado, May 17- 21, 1998.
22. A. A. Al-Rabiah, K. D. Timmerhaus, and R. D. Noble, "Utilization of a Hybrid Membrane System in Ethylene Production," Presented at the Tenth Annual Meeting of the North American Membrane Society (NAMS 98), Hybrid Processes Session, Paper No.3, Cleveland, May 16-20, 1998.
23. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Utilization of a Hybrid Membrane System in Olefin Production," Proceedings of the 8th Ethylene Producers' Conference, Vol. 5, 619-624, AIChE, New York, NY, 1996.
24. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Utilization of a Hybrid Membrane System in Olefin Production," Proceedings of 5th World Congress of Chemical Engineering, Vol. 4, 335-340, San Diego, CA, July 1996.
25. Al-Rabiah, A. A., Timmerhaus, K. D., and Noble, R. D., "Membrane/Distillation Hybrid Design for Propane/Propylene Separation," AIChE Spring National Meeting, Paper 63e, New Orleans, February 25-29, 1996.
26. Al-Rabiah A. A. and Soliman, M., "Heat Exchange Network Design for Ethylene Plants," Proceedings of the third Engineering Conference, College of Engineering, Vol. 1, 201-207, King Saud University, Riyadh, Saudi Arabia (1991)