



Mehran Rezaei

Chemical Engineering Department - University of Kashan

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Birthday: 20/09/1977

Material Status: Married

Nationality: Iranian

Present Position: Assistant Professor in Chemical Engineering

Education

Ph.D. Chemical Engineering, Iran University of Science and Technology, 2002-2007.

M.Sc. Chemical Engineering, Iran University of Science and Technology, 2000-2002.

B.Sc. Chemical Engineering, Isfahan University, 1996-2000.

Research Experiences

Synthesis of Heterogeneous Catalysts.

Synthesis gas production via reforming reactions.

Nanomaterials Preparation (Zirconia, Alumina and etc.)

Synthesis of adsorbents for bleaching of edible oils.

Studies on the selection of deflocculants materials for ceramic suspension.

Optimization of rheological properties of ceramic suspension.

Design a pilot plant for production of acid activated clay.

Enhancement of spray dryer capacity.

Plasma catalytic process for treatment of exhaust gases.

Industrial Experiences

Oil and Gas Industries Development Co., 2006-Present.

State Key Laboratory for Heavy Oil Processing, Key Laboratory of Catalysis, CNPC, China, 2005-2006.

Haldor Topsoe A/S company, Denmark, 2005.

Iran Barit Company, 2003-2005.

Ross Kimia Company, 2001-2003.
Karkanehe Chini Iran, 2000.

Graduate and Undergraduate Courses

Basic Principles and Calculations in Chemical Engineering
Construction Processes I & II
Advanced Chemical Reaction Engineering.
Heterogeneous catalysis
Nanocatalysis

Awards and honors

Research Excellence Award in 2010, University of Kashan (Faculty of Engineering).
Research Excellence Award in 2008, University of Kashan (Faculty of Engineering).
Teaching Excellence Award in 2008, University of Kashan (Faculty of Engineering).
Distinguished as one of the top 20 researchers in the field of nanotechnology in Iran, 2008.
Distinguished as one of the top 15 researchers in the field of nanotechnology in Iran, 2007.
Member of Youth Researcher Club, 2007 Up to now
Khwarizmi Youth Award (Rank. 3, Fundamental researches), 2007.
Awarded as the best student of the chemical engineering department, IUST University, 2007.
Awarded as the best student of the chemical engineering department, IUST University, 2001.
Awarded as the best student of the chemical engineering department, IUST University, 2000.

Publications

Journal Papers

1. **M.Rezaei**, S.M.Alavi, S.Sahebdehfar, Zi-Feng Yan, Nanocrystalline zirconia as support for nickel catalyst in methane reforming with CO₂, Energy & Fuels 20 (2006) 923-929
2. **M.Rezaei**, S.M.Alavi, S.Sahebdehfar, Zi-Feng Yan, Tetragonal nanocrystalline zirconia powder with high surface area and mesoporous structure, Powder Technology 168 (2006) 59-63.
3. **M.Rezaei**, S.M.Alavi, S.Sahebdehfar, Zi-Feng Yan, Syngas production by methane reforming with carbon dioxide on noble metal catalysts, Journal of Natural Gas Chemistry 15 (2006) 327-334.
4. **M.Rezaei**, S.M.Alavi, S.Sahebdehfar, Liu Xinmei, Ling Qian, Zi-Feng Yan, CO₂-CH₄ reforming over nickel catalysts supported on mesoporous nanocrystalline zirconia with high surface area, Energy&Fuels 21 (2007) 581-589..
5. **M.Rezaei**, S.M.Alavi, S.Sahebdehfar, Zi-Feng Yan, J.H. Jacobsen, H. Teunissen, J.Sehested, Synthesis of pure tetragonal zirconium oxide with high surface area, Journal of Materials Science 42 (2007) 1228-1237.
6. **M.Rezaei**, S.M.Alavi, S.Sahebdehfar, Zi-Feng Yan, Effect of process parameters on the synthesis of mesoporous nanocrystalline zirconia with triblock copolymer as template, Journal of porous materials, 15 (2008) 171-179
7. **M.Rezaei**, S.M.Alavi, S.Sahebdehfar, Zi-Feng Yan, Mesoporous nanocrystalline zirconia powders: A promising support for nickel catalyst in CH₄ reforming with CO₂, Materials Letters 61 (2007) 2628-2631

8. **M.Rezaei**, S.M.Alavi, S.Sahebdelfar, Zi-Feng Yan, Synthesis of mesoporous nanocrystalline zirconia with tetragonal crystallite phase by using ethylene diamine as precipitation agent, *Journal of material science*, 42 (2007) 7086-7092.
9. **M.Rezaei**, S.M.Alavi, S.Sahebdelfar , Liu Xinmei, Zi-Feng Yan, Mesoporous nanocrystalline zirconia powders and their applications in methane reforming with carbon dioxide, *Drying technology*, Accepted.
10. **M.Rezaei**, S.M.Alavi, S.Sahebdelfar, Zi-Feng Yan, CO₂ reforming of CH₄ over nanocrystalline zirconia-supported nickel catalysts, *Appl. Catal. B.*, 77 (2007) 346.
11. **M.Rezaei**, S.M.Alavi, S.Sahebdelfar, Zi-Feng Yan Synthesis of ceria doped nanozirconia powder by a polymerized complex method, *Journal of Porous Materials*, 16 (2009) 497–505.
12. **M.Rezaei**, S.M.Alavi, S.Sahebdelfar, Zi-Feng Yan, Effects of K₂O promoter on the activity and stability of nickel catalysts supported on mesoporous nanocrystalline zirconia in CH₄ reforming with CO₂, *Energy&Fuels*, 22(4) (2008) 2195.
13. **M.Rezaei**, S.M.Alavi, S.Sahebdelfar, Zi-Feng Yan , Effect of CO₂ content on the activity and stability of nickel catalyst supported on mesoporous nanocrystalline zirconia, *Journal of Natural Gas Chemistry*, 2008, 17 (2008) 278.
14. E. Navaei, M.R. Golmohammadi, **M. Rezaei**, H. Navaei, A. Mardanloo, S. Habibzad, M. Didari, Preparation and Thermal Treatment of Pd/Ag Composite Membrane by Sequential Electroless Plating Technique, *Journal of Natural Gas Chemistry*, 17 (2008) 321.
15. E. Navaei, **M. Rezaei**, H. Navaei, Zi-Feng Yan, Synthesis of Nanocrystalline MgAl₂O₄ Spinel by Using Ethylene Diamine as Precipitation Agent, *Chemical Engineering Communications*, 196 (2009) 1417-1424.
16. M. Akia, S.M. Alavi, **M. Rezaei**, Zi-Feng Yan, Synthesis of high surface area as an efficient catalyst support for dehydrogenation of n-docecane, *Journal of Porous Materials*, 2009, In press.
17. M. Akia, S.M. Alavi, **M. Rezaei**, Zi-Feng, Optimizing the sol gel parameters on the synthesis of mesostructure nanocrystalline gamma-alumina, *Microporous and Mesoporous Materials*, 122 (2009) 72–78 .
18. **M.Rezaei**, S.M.Alavi, S.Sahebdelfar, Zi-Feng Yan , A highly stable catalyst in methane reforming with carbon dioxide, *Scripta Materialia*, 61 (2009) 173–176.
19. E. Navaei, **M. Rezaei**, Mesoporous nanocrystalline MgAl₂O₄ spinel and its applications as support for Ni catalyst in dry reforming, *Scripta Materialia*, *Scripta Materialia*, 61 (2009) 212–215.
20. Fereshteh Meshkani, **Mehran Rezaei**, Facile Synthesis of Nanocrystalline Magnesium Oxide with High Surface Area, *Powder Technology*, In Press, 2009.
21. Fereshteh Meshkani, **Mehran Rezaei**, Facile Synthesis of Nanocrystalline Magnesium Oxide with High Surface Area, *Powder Technology*, 196 (2009) 85–88.
22. Fereshteh Meshkani, **Mehran Rezaei**, Effect of process parameters on the synthesis of nanocrystalline magnesium oxide with high surface area and plate-like shape by surfactant assisted precipitation method, 199 (2010) 144–148

23. A. Keshavarz, **M. Rezaei**, F. Yaripour, Nanocrystalline γ - Al_2O_3 : A Highly Potential Catalyst for Dimethyl Ether Synthesis, Powder Technology, 199 (2010) 176–179.
24. E. Navaei, **M. Rezaei**, H. Navaei, Synthesis of Mesoporous Nanocrystalline MgAl_2O_4 Spinel via Surfactant Assisted Precipitation Route, Powder Technology, 198 (2010) 275-278.
25. Fereshteh Meshkani, **Mehran Rezaei**, Nickel Catalyst supported on Magnesium oxide with High Surface Area and Plate-Like Shape: A Highly Stable and Active Catalyst in Methane Reforming with Carbon Dioxide, Journal of Natural Gas Chemistry, Accepted, 2010.
26. A. Keshavarz, **M. Rezaei**, F. Yaripour, Preparation of γ - Al_2O_3 catalyst using different procedures for methanol dehydration to dimethyl ether, Journal of Natural Gas Chemistry, Accepted, 2010.
27. **M. Rezaei**, M. Khajenoori, B. Nematolahi, Synthesis of High Surface Area Nanocrystalline MgO by Pluronic P123 Triblock Copolymer Surfactant, Powder Technology 199 (2010) 176–179.
28. F. Meshkani, **M. Rezaei**, Nanocrystalline MgO supported nickel-based bimetallic catalysts for carbon dioxide reforming of methane, International Journal of Hydrogen Energy, 35 (2010) 10295-10301.
29. **M. Rezaei**, M. Khajenoori, B. Nematolahi, Combined Dry Reforming and Partial Oxidation of Methane to Synthesis Gas on Noble Metal Catalysts, International Journal of Hydrogen Energy, 2010, In Press.
30. **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Zi-Feng Yan, Synthesis of nanocrystalline zirconia powders as support for nickel catalysts and a comparative investigation between their activities with noble metals in methane reforming with CO_2 , In Preparation.
31. **M. Rezaei**, S.M. Alavi, A. Taeb, S. Sahebdehfar, An assessment between conventional existing technologies for producing synthesis gas, In Preparation.
32. **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Zi-Feng Yan, A comparison between the role of basic oxides as promoter and support modifiers for nickel catalyst in methane reforming with carbon dioxide, In Preparation.

Conference Papers

1. **M. Rezaei**, S.M. Alavi, A. Taeb, S. Sahebdehfar, A Comparison between combined processes for producing of synthesis gas, 9th Chemical Engineering Congress, IUST University, Tehran, Iran, 2004.
2. **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Preparation of nanocrystallite of zirconium oxide by hydrolysis of ZrOCl_2 solution in the reverse micelle system, First international congress of nanotechnology and its application in Petroleum, Gas and Petrochemical industries, Tehran, Iran, 2007.
3. **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Zi-Feng Yan, CO_2 reforming of methane to syngas over highly active and stable nickel catalyst supported on mesoporous nanocrystalline zirconia, First international congress of nanotechnology and its application in Petroleum, Gas and Petrochemical industries, Tehran, Iran, 2007.
4. **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Zi-Feng Yan, Synthesis of nano zirconia powders by sucrose as a chelating agent and template materials and their applications for CH_4/CO_2 reforming, Submitted to the 5th International Chemical Engineering Congress (ICChEC 2008).

5. **M. Rezaei**, Traditional applications for industrial clays, 7th World Congress of chemical engineering, Glasgow, 2005.
6. **M. Rezaei**, S.M. Alavi, A. Taeb, S. Sahebdehfar, A Comparison between combined processes for producing synthesis gas, 9th Chemical Engineering Congress, IUST University, Tehran, Iran, 2004.
7. N. Habibi, **M. Rezaei**, Methods for treatment of contaminated water and soil with MTBE, 9th Chemical Engineering Congress, IUST University, Tehran, Iran, 2004.
8. **M. Rezaei**, S.H. Jazayeri, Raw materials selection for chemical stoneware, 9th Chemical Engineering Congress, IUST University, Tehran, Iran, 2004.
9. **M. Rezaei**, N. Habibi, MTBE and Human Health, 8th Chemical Engineering Congress, Mashhad University, Iran, 2003.
10. **M. Rezaei**, A. Taeb, Plasma catalytic treatment of volatile organic compounds, 8th Chemical Engineering Congress, Mashhad University, Iran, 2003.
11. **M. Rezaei**, H. Jazayeri, Production of Alum, 8th Chemical Engineering Congress, Mashhad, Iran, 2003.
12. **M. Rezaei**, A. Taeb, Non-thermal plasma treatment of automotive exhaust gases, 44th Scandinavian Conf. on Simulation and Modeling SIMS2003, Vasteras, Sweden
13. **M. Rezaei**, H. Jazayeri, Studies on the acid activation of Bentonite Clays, 15th International Congress of Chemical and Process Engineering, 25 - 29 August 2002, Praha, Czech Republic
14. **M. Rezaei**, H. Jazayeri, Anti acid tile production, 7th Chemical Engineering Congress, Tehran University, Iran, 2002.
15. **M. Rezaei**, H. Jazayeri, M.M. Rezaei, Activation of Bentonite based on the Isomorphous substitution on clay minerals, 7th Chemical Engineering Congress, Tehran University, Iran, 2002.
16. M.M. Rezaei, **M. Rezaei**, M.T. Beheshti, Modeling and Neural Network of Steam Pressure in Drum Boilers, 7th Chemical Engineering Congress, Tehran University, Iran, 2002.
17. M.M. Rezaei, **M. Rezaei**, Modeling of Drum Boiler, 7th Chemical Engineering Congress, Tehran University, Iran, 2002.
18. **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Zi-Feng Yan, Synthesis of nano zirconia powders by sucrose as a chelating agent and template material and their applications for CH_4/CO_2 reforming, 5th International Chemical Engineering Congress & exhibition (ICChEC 2008), 2008.
19. M. Akia, **M. Rezaei**, S.M. Alavi, Synthesis of mesoporous nanocrystalline γ -Alumina by sol-gel method with using cationic surfactant, 5th International Chemical Engineering Congress & exhibition (ICChEC 2008), 2008.
20. M. Akia, **M. Rezaei**, S.M. Alavi, Synthesis of nano crystalline sized gamma-alumina with thermal stability by sol-gel method, 2nd Conference on NanoStructures - NS 2008, 2008.
21. E. Navaei, M.R. Golmohammadi, **M. Rezaei**, H. Navaei, A. Mardanloo, M. Didari, Preparation of Pd/Ag composite membrane by sequential electroless plating technique for H_2 separation in steam reforming process, International catalysis conference (ICC2008), Shahid beheshti university, Tehran, Iran.

22. **M. Rezaei**, H. Navaei Alvar, M.R. Golmohammadi, A. Mardanloo, E. Navaei alvar, H. Feyzollahzadeh, An overview to development of direct reduction of iron catalysts (Midrex catalysts), International catalysis conference (ICC2008), Shahid beheshti university, Tehran, Iran.
23. M. Didari, H. Navaei Alvar, **M. Rezaei**, A. Mardanloo, H. Feyzollahzadeh, E. Navaei Alvar, S. Habibzad, M. R. Golmohammadi, An overview to development of steam reforming catalyst for syngas production by Sarv Oil & Gas Industries Development Co., 1st Iranian petrochemical conference, Tehran, Iran, 2008.
24. E. Navaei Alvar, **M. Rezaei**, Novel synthesis method of Nanocrystalline MgAl_2O_4 spinel via surfactant assisted precipitation route, Materials research bulletin, submitted.
25. E. Navaei Alvar, **M. Rezaei**, H. Navaei, A. Mardanloo, H. Feyzollahzadeh, M.R. Golmohammadi, Investigation on the structural properties of nanocrystalline MgAl_2O_4 spinel powder synthesized by surfactant assisted precipitation method, 12th Iranian Chemical Engineering Congress, 2008, Sahand University of Technology.
26. E. Navaei Alvar, **M. Rezaei**, H. Navaei, A. Mardanloo, H. Feyzollahzadeh, M.R. Golmohammadi, New synthesis method of nanocrystalline MgAl_2O_4 spinel by using ethylene diamine as precipitation agent, 12th Iranian Chemical Engineering Congress, 2008, Sahand University of Technology.
27. **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Studies on carbon deposition in CO_2 reforming of methane over nickel catalysts, 12th Iranian Chemical Engineering Congress, 2008, Sahand University of Technology.
28. **M. Rezaei**, Making a bleaching clay based on the bentonitic clays, 12th Iranian Chemical Engineering Congress, 2008, Sahand University of Technology.
29. **M. Rezaei**, **Production of bleaching earth for decolorizing of edible oils**, 6th International Chemical Engineering Congress & exhibition (IChEC 2009), 2009.
30. F. Meshkani, **M. Rezaei**, Synthesis of Nanocrystalline Magnesium Oxide with Plate-Like Shape, 6th International Chemical Engineering Congress & exhibition (IChEC 2009), 2009.
31. **M. Rezaei**, Investigation on the coke formation over $\text{Ni-CeO}_2/\text{ZrO}_2$ catalyst in dry reforming reaction by thermal gravimetric analysis (TGA), 6th International Chemical Engineering Congress & exhibition (IChEC 2009), 2009.
32. F. Meshkani, **M. Rezaei**, Nanotechnology: Applications in Heterogeneous Catalysis, 6th International Chemical Engineering Congress & exhibition (IChEC 2009), 2009.
33. F. Meshkani, **M. Rezaei**, Nanotechnology Synthesis of Nanostructured Magnesium Oxide with Polyvinyl alcohol and Sucrose as Surfactant and Chelating Agent, 6th International Chemical Engineering Congress & exhibition (IChEC 2009), 2009.
34. M. Khajenoori, B. Nematollahi, M. Rezaei, Combined Dry Reforming and Partial Oxidation of Methane to Synthesis Gas on Noble Metal Catalysts, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.
35. F. Meshkani, **M. Rezaei**, Stable Nickel Catalyst Supported on Nanocrystalline MgO in Methane Reforming with Carbon Dioxide, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.

36. F. Meshkani, **M. Rezaei**, Preparation of NiO-MgO Catalysts for Dry Reforming Reaction, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.
37. M. Khajenoori, B. Nematollahi, M. Rezaei, Preparation of Noble Metal Nanocatalysts and their Applications in Catalytic Partial Oxidation of Methane, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.
38. M. Khajenoori, B. Nematollahi, M. Rezaei, Investigation of Thermodynamic analysis in methane Partial Oxidation for syngas production, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.
39. M. Rezaei, Synthesis of nanocrystalline zirconia in reverse micelle system, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.
40. M. Khajenoori, B. Nematollahi, M. Rezaei, Synthesis of High Surface Area Nanocrystalline MgO With Polymeric Surfactant, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.
41. F. Massodiyeh, M. Rezaei, پایداری کاتالیست‌های نانوذرات فلزات واسطه, 13th Iranian Chemical Engineering Congress, 2010, Razi University, Kermanshah, Iran.

۴۲. احمد رضا کشاورز، **مهران رضایی**، فریدون یاری پور، گاما آلومینای نانوکریستالی جهت سنتز غیر مستقیم دی متیل اتر، دومین همایش ملی سوخت، انرژی و محیط زیست، ۱۳۸۹.

۴۳. احمد رضا کشاورز، **مهران رضایی**، فریدون یاری پور، دی متیل اتر (DME) سوخت پاک قرن ۲۱، دومین همایش ملی سوخت، انرژی و محیط زیست، ۱۳۸۹.

Patents

- 1- **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Preparation of stable zirconium oxide as catalyst support with precipitation method, Local Patent (40162), 2007.
- 2- **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Preparation of promoted nickel catalyst supported on zirconium oxide for production of synthesis gas, Local Patent (41155), 2007.
- 3- **M. Rezaei**, S.M. Alavi, S. Sahebdehfar, Preparation of Nanocrystalline Zirconia with ethylene diamine as template and precipitation agent. 2007.

Invited reviewer for scientific journals

- 1- Energy&Fuels
- 2- Journal of Porous Materials
- 3- Drying Technology: An International Journal
- 4- Materials Research Bulletin
- 5- Journal of Molecular Catalysis A: Chemical
- 6- Chemical Engineering Communications
- 7- Microporous and Mesoporous Materials
- 8- Applied Catalysis B: Environmental

- 9- International Journal of Hydrogen Energy
- 10- Catalysis Today
- 11. Power Sources
- 12. Fuel Processing Technology
- 13. Colloids and Surfaces A: Physicochemical and Engineering Aspects
- 14. Bioresource Technology
- 15. Catalysis Letters