

Curriculum Vita

personality

Full name: Mohammad Zhiani
Professor of Physical Chemistry
(Surface Electrochemistry, Electrochemical Energy
production; Fuel cells, Electrolyzers)

birthday: 11/07/1975

Address:

1- *Department of Chemistry, Tarbiat Modares University (TMU), P.O. Box 14115-175, Tehran, Iran*

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Education

2010- Summer sabbatical in ICCOM CNR- Italy

2006- 2008 :

Postdoc – CNR- Florance- Italy.
& Acta- SpA high-tech society in Lavoria (Pisa).

Developing new electrocatalysts and MEAs for Fuel cells, (PEMFC, DMFC, DAFC) single and stack cells, Ammonia and water electrolyzers, Ethanol reforming

2000 – 2005:

Ph.D. (Physical Chemistry), University of Tarbiat Modarres, Tehran, Iran.
GPA: 17.09/20

Thesis Title: Design and Construction of novel membrane electrode assembly nanostructure in polymer electrolyte fuel cell & characterization of physico-chemical properties using electrochemical and spectroscopic techniques.
Grade: 19.9/20.

1998 – 2000:

M.Sc. Physical Chemistry), University of Tarbiat Modarres, Tehran, Iran. GPA: 17.52/20.00.

Project: Design and Construction of Phosphoric Acid Fuel Cell using GDE modified with conductive polymer. Grade: 19.5/20.

1994-1998

B.Sc(pure Chemistry), University of Tabriz, Tabriz, Iran. GPA: 16 34/20.00.

Project: Design and Construction of pH sensor using *polyaniline film*.
Grade: 20/20.

Awards and Honors

- Selected project, National, 2nd Elm Ta Amal-1390 (2011)
- Selected Researcher in Isfahan State – 1391 (2012)

Work experience

- **June 2024 up to now** (for 9 months) as a invited Prof. under president international fellowship initiative (PIFI-CAS-China)
- **October 2020 up to now** , Full professor of Physical chemistry in Tarbiat Modares University, Tehran, Iran
- **October 2018 up to October 2020**– Full professor of Physical chemistry in Isfahan University of Technology, Isfahan, Iran
- **November 2013 up to October 2018**– Associate professor of Physical chemistry in Isfahan University of Technology, Isfahan, Iran
- **February 2008 up to December 2013**—Assistant professor of Physical chemistry in Isfahan University of Technology, Isfahan, Iran
- **2010; Summer sabbatical stage** ; ICCOM- CNR Florence Italy
- **May 2006 – February 2008**, Member of R&D group of ACTA S.P.A in Italy and as a Posdoc student in ICCOM-CNR, Florence, Italy.
- *Developing new electrocatalysts and MEAs for Fuel cells, (PEMFC, DMFC, DAFC) single and stack cells, Ammonia and water electrolyzers, Ethanol reforming*
- **September 2004 – May 2006** , Material Group, R&D Center, Iran Khodro Co.
- **October 2003- September 2004** – Hybrid Vehicle Group ,Electronic and Electric Dept., R&D Center, Iran Khodro Co.
- *Research on different type of battery and fuel cell for application in hybrid vehicles.*
- **January 2000 – October 2003**, Member of MEA group ,Fuel Cell Dept., R&D Center, Iran Khodro Co.
- *Research on different methods for preparation and evaluation of MEA in PEMFC .*

Teaching

- Oct 2020 up to now , Tarbiat Modares University, Tehran, Iran

& February 2008- Oct 2020 , Isfahan university of Technology,

Graduate courses : a - Electrochemical energy materials (PhD)

(Fuel cells, Electrolyzers, Surfactants,...)

b- Surface Chemistry (MS)

c- Hydrogen and fuel cell (Msc)

d- New aspect in Electrochemistry (PhD)

e- H₂ & Fuel Cell

Under Graduate courses: a- Physical Chemistry for engineering

b- Physical Chemistry II

c- General chemistry for engineering

d- new aspect in chemistry

e- surface chemistry and solid state

November. 2004 – May 2006, Physical chemistry Instructor . Islamic republic educational center, Tehran,, Iran.

Sep. 2001 – sep. 2002, Teaching Assistant (New aspect of physical chemistry) at Educational center of brilliant talents, Tehran, Iran.

1. November. 2004 – May 2006, Physical chemistry Instructor . Islamic republic educational center, Tehran,, Iran.

2. Sep. 2001 – sep. 2002, Teaching Assistant (New aspect of physical chemistry) at Educational center of brilliant talents, Tehran, Iran.

Skills

- *Developing of new electro-catalysts and MEA for different types of fuel cells (PEMFC, DMFC, DAFC)*
- *Construction and Evaluation of Electrolyzers (AEMWE, PEMWE, HER & OER catalysts)*
- *Hydrogen generators: (PEMWE, AEMWE, performance analysis & diagnosis)*
- *Preparation, Evaluation and performance analysis of Batteries*
- *Fuel Cell & Batteries & Electrolyzers Testing and Diagnostic*

Publication

67. Tauseef Munawar, Ambreen Bashir, Muhammad Rafaqat, Lisha Shen , Zhiming Tu, Mohammad Zhiani, Faisal Iqbal, Chang-Feng Yan, Metal oxide/chalcogenide/hydroxide catalysts for water electrolysis, 2025, Int.J. Hyd. Energy, Inpress
66. Tauseef Munawar, Ambreen Bashir, Faisal Iqbal, Muhammad Rafaqat, Changqing Guo, Mohammad Zhiani, Chenglin Zhao Yongfeng Tong, Shoukat Alim Khan, Muammer Koc, Chang-Feng Yan, g-C₃N₄-modulated CdS-V₂O₅/g-C₃N₄ nanosheets as efficient alkaline OER and HER electrocatalyst for water-splitting, Fuel 385 (2025) 134100.
65. Marzieh Gholamian, Mohammad Zhiani, Mohammad Mohammadi Taghiabadi c, Evaluation of an air-breathing anion-exchange membrane fuel cell based on Pd_{0.9}–Cu_{0.1}/rGO anode catalyst for low ethanol sensing, Fuel 382 (2025) 133357.
64. Kourosh Firuz, Mohammad Zhiani, Hussein Gharibi, Changfeng Yan, Tauseef Munawar, Zhida Wang, Yan Shi, Effective MOF-derived electrocatalysts based on nitrogen and different, transient metal doped (M: Ni, Co, and Fe) for oxygen reduction reaction toward direct ethanol fuel cell, International Journal of Hydrogen Energy 91 (2024) 1343–1354.
63. Shengxiong Yang, Zheyang Zhang, Alexandra M. Oliveira, Shibo Xi, Mohammad Zhiani, Jian Zhang, Zhengkai Tu, Fei Xiao, Shuai Wang, Yushan Yan, and Junwu Xiao “Accelerating Hydrogen Desorption of Nickel Molybdenum Cathode via Copper Modulation for Pure-Water-Fed Hydroxide Exchange Membrane Electrolyzer,” Adv Funct Mater (impact factor : 18.5) , Adv. Funct. Mater. 2024, 34, 2313275.
62. K. F. Tadavani, M. Zhiani, H. Gharibi, and H. B. Dehkordi, (Dec. 2023) , “Preparation of a High-Performance Fe–N–C Electrocatalyst from an MOF Precursor for ORR Toward Zinc–Air Batteries,” Energy & Fuels (impact factor: 5.4), Energy Fuels 2023, 37, 19092–19102.
61. K Firouz Tadavani, A Abdolmaleki, H Najafi Fath Dehghan, MR Molavian, Multication Anion Exchange Membranes with Robust Chemical Stability and High Conductivity: Effect of the Equatorial Position on Membrane Alkaline, Stability, K Firouz Tadavani, A Abdolmaleki, H Najafi Fath Dehghan, MR Molavian, ACS Applied Energy Materials, 2023
- 60, S Kiani, H Gharibi, S Javadian, M Zhiani, H Kashani, The effect of the SEI layer on the electrochemical impedance in the graphite/Li [Ni_{0.5}Mn_{0.3}Co_{0.2}] O₂ lithium-ion full cells S Kiani, H Gharibi, S Javadian, M Zhiani, H Kashani, Applied Surface Science, 157638, 2023
59. Dehkordi, M Zhiani, A novel Ir–Ru-based nanoparticle supported on ordered electrochemically, synthesized TiO₂-nanotube as a highly active and stable

oxygen evolution reaction catalyst for water, International Journal of Hydrogen Energy, 2023

58. M Zhiani, MM Taghiabadi, MH Bagherabadi, Optimization of Ni-Mo-Coated Stainless Steel as a High-Performance, Cathode in Alkaline Water Electrolysis, Electroanalysis 14 (3), 473-483, 2023.

57. HN Fath Dehghan, A Abdolmaleki, **M Zhiani**, Highly Conducting Poly (arylene-imidazolium) Anion Exchange Membranes, Containing Thin-Span Channels Constructed by Cation–Dipole Interaction, ACS Applied Polymer Materials 5 (3), 1965-1976

56. S. M.Seyed Bagheri, H.Gharibi, **M. Zhiani** Introduction of a A new active and stable cathode catalyst based on bimetal-organic frameworks/PPy-sheet for alkaline direct ethanol fuel cell, International Journal of Hydrogen Energy Volume 47, Issue 56, 2022, Pages 23552-23569. <https://doi.org/10.1016/j.ijhydene.2022.05.142>

55. M. Jafari, H. Gharibi, M. Kazemi, A. Heydari, **M. Zhiani**, M. J Parnian-nitrogen co-doped hierarchical porous carbon derived from the bimetallic metal-organic framework as ORR electrocatalyst for passive alkaline direct ethanol fuel cell, Journal of Electroanalytical Chemistry, Volume 920, 2022, 116620. <https://doi.org/10.1016/j.jelechem.2022.116620>

54. Leila Rostami, Masoud Haghshenasfard, Morteza Sadeghi, **Mohammad Zhiani** ‘A 3D CFD model of novel flow channel designs based on the serpentine and the parallel design for performance enhancement of PEMFC’ Energy, Volume 258, 2022, 124726. <https://doi.org/10.1016/j.energy.2022.124726>

53- Fatemeh Arshadi Hussein Gharibi, Ali Morsali, **M. Zhiani**, A novel electrocatalyst based on Fe-ZIF-PPY nanocomposite for oxygen reduction reaction in air-breathing direct-ethanol fuel cell, Applied Surface Science, Volume 584, 15 May 2022, 152529. <https://doi.org/10.1016/j.apsusc.2022.152529>

52- **Mohammad Zhiani**, Saeid Barzi, Amirhossein Azhari, Ex vivo energy harvesting by a by-pass depletion designed abiotic glucose fuel cell operated with real human blood serum, Journal of Power Sources Volume 521, 15 February 2022, 230972. <https://doi.org/10.1016/j.jpowsour.2021.230972>

51- **Mohammad Zhiani**, Marzieh Gholamian, Saeid Barzi, Pd electrodeposition on a novel substrate of reduced graphene oxide/ poly(melem-formaldehyde) nanocomposite as an active and stable catalyst for ethanol electrooxidation in alkaline media ,International Journal of Hydrogen , Volume 47, Issue 6, 19 January 2022, Pages 3801-3813. <https://doi.org/10.1016/j.ijhydene.2021.11.033>

50- H Gharibi, N Dalir, M Jafari, MJ Parnian, **M Zhiani**, Engineering dual metal single-atom sites with the nitrogen-coordinated nonprecious catalyst for oxygen reduction reaction (ORR) in acidic electrolyte, Applied surface

science, [Volume 572](#), 15 January 2022, 151367

49- M Gholamian, **M Zhiani**, S Barzi, A comparative study of Pd/rGO and Pd–Cu/rGO toward electrooxidation of low ethanol concentrations for fuel cell-based breath alcohol analyzer application

48- Z Karami, M Youssefi, K Raeissi, **M Zhiani**, Effect of the morphology of silver layer on electrical conductivity and electrochemical performance of silver/reduced graphene oxide/cotton fabric composite as a flexible , Journal of Energy Storage , Volume 42, October 2021, 103042...

47- K Firouz Tadavani, A Abdolmaleki, MR Molavian, **M Zhiani**, New Strategy Based on Click Reaction for Preparation of Cross-Linked Poly (Benzimidazolium-Imide) as an Anion-Exchange Membrane with Improved Alkaline Stability

46- Z Karami, M Youssefi, K Raeissi, **M Zhiani**, An efficient textile-based electrode utilizing silver nanoparticles/reduced graphene oxide/cotton fabric composite for high-performance wearable supercapacitors, Electrochimica Acta, Volume 368, 1 February 2021, 137647.

45- S Kamali, **M Zhiani**, H Tavakol, Synergism effect of first row transition metals in experimental and theoretical activity of NiM/rGO alloys at hydrogen evolution reaction in alkaline electrolyzer, Renewable Energy

Volume 154, July 2020, Pages 1122-1131

44-**M Zhiani**, S Barzi, M Gholamian, A Ahmadi, Synthesis and evaluation of Pt/rGO as the anode electrode in abiotic glucose fuel cell: Near to the human body physiological condition, International Journal of Hydrogen Energy, Volume 45, Issue 24, 5 May 2020, Pages 13496-13507

43- F Madadi, A Rezaeian, H Edris, **M Zhiani** ,Improving performance in PEMFC by applying different coatings to metallic bipolar plates

42- S Barzi, **M Zhiani**, A Ahmadi , Evaluation of carbon supported Fe–Co electrocatalyst for selective oxygen reduction to use in implantable glucose fuel cell, ,International Journal of Hydrogen Energy, Volume 44, Issue 59, 29 November 2019, Pages 31515-31524.

41. Mohammad Mohammadi Taghiabadi, **Mohammad Zhiani**, Valter Silva. **Effect of MEA activation method on the long-term performance of PEM fuel cell**, Applied Energy, 242 (2019) 602-11

Doi: 10.1016/j.apenergy.2019.03.157

40. Mohammad Mohammadi Taghiabadi, **Mohammad Zhiani**. **Degradation analysis of dead-ended anode PEM fuel cell at the low and high thermal and pressure conditions**, International Journal of Hydrogen Energy, 44 (2019)

39. Sharif Jannat, Hamed Rashtchi, Masoud Atapour, Mohammad Ali Golozar, **Mohammad Zhiani**, Preparation and performance of nanometric Ti/TiN multi-layer physical vapor deposited coating on 316L stainless steel as bipolar plate for proton exchange membrane fuel cells, Journal of Power Sources, Volume 435, 30 September 2019.

Doi; 10.1016/j.jpowsour.2019.226818

38. Koorosh Firouz Tadavani, Amir Abdolmaleki, Mohammad Reza Molavian, **Mohammad Zhiani**, A mechanically robust multication double-network polymer as an anion-exchange membrane: High ion conductivity and excellent chemical stability, Polymer, Volume 178, 12 September 2019,

<https://doi.org/10.1016/j.polymer.2019.121608>

37. M. Jafari, H. Salamati, **M. Zhiani**, E. Shahsavari. **Enhancement of an IT-SOFC cathode by introducing YSZ: Electrical and electrochemical properties of $\text{La}_{0.6}\text{Ca}_{0.4}\text{Fe}_{0.8}\text{Ni}_{0.2}\text{O}_3$ -d-YSZ composites**, International Journal of Hydrogen Energy, 44 (2019) 1935-66

Doi: 10.1016/j.ijhydene.2018.10.151

36. **Mohammad Zhiani**, Amir Abedini, Somayeh Majidi. **Comparison of Electro-Catalytic Activity of Fe-Ni-Co/C and Pd/C Nanoparticles for Glucose Electro-Oxidation in Alkaline Half-Cell and Direct Glucose Fuel Cell**, Electrocatalysis, 9 (2018) 735-43

Doi:10.1007/s12678-018-0483-1

35. Fariba Jalili, **Mohammad Zhiani**, Saeedeh Kamali. **Preparation and evaluation of a new hybrid support based on exfoliation of graphite by ball milling for Ni nanoparticles in hydrogen evolution reaction**, International Journal of Hydrogen Energy, 43 (2018) 21187-95

Doi: 10.1016/j.ijhydene.2018.09.202

34. Mohammad Mohammadi Taghiabadi, **Mohammad Zhiani**, Mahboobeh Shahfiei. ***Influence of the Cathode Catalyst Layer Void Volume on the Short-term and Long-term Performance of PEM Fuel Cell***, Fuel Cells, 18 (2018) 731-41

DOI: 10.1002/fuce.201800023

33. Mohammad Reza Movahedi, Amir Abdolmaleki,, Hamidreza Gharibi,, Koorosh FirouzTadavani , **Mohammad Zhiani**, *Two highly strong semi-IPNs for proton exchange membrane fuel cell (PEMFC) application*, Materials today Communication, 15 (2018) 94-99

Doi:10.1016/j.mtcomm.2018.03.001

32. Hamed Rashtchi, Yasna Acevedo Gomez, Keyvan Raeissi, Morteza Shamanian, Björn Eriksson, **Mohammad Zhiani**, Carina Lagergren and Rakel Wreland Lindström, *Performance of a PEM Fuel Cell Using Electroplated Ni–Mo and Ni–Mo–P Stainless Steel Bipolar Plates*, Journal of Electrochemical Society, 164, (2017)1427-1436
doi: 10.1149/2.0771713jes

31. Valter Silva, Daniela Eusébio, João Cardoso, **Mohammad Zhiani**, Somayeh Majidi, *Targeting optimized and robust operating conditions in a hydrogen-fed Proton Exchange Membrane Fuel Cell*, Energy Conversion and Management, 154 (2017) 149-156
doi.org/10.1016/j.enconman.2017.10.053

30. **Mohammad Zhiani**, Fariba Jalili, Saeede Kamali, *In situ cathode polarization measurement in alkaline anion exchange membrane water electrolyzer equipped with a PdNiFeCo/C-Ceria hydrogen evolution electrocatalyst*, International Journal of Hydrogen Energy 42 (2017) 26563-26574
DOI: 10.1016/j.ijhydene.2017.09.038

29. Mohammad Reza Molavian, Amir Abdolmaleki, Koorosh Firouz Tadavani, **Mohammad Zhiani**, *A new sulfonated poly(ether sulfone) hybrid with low humidity dependence for high temperature proton exchange membrane fuel cell applications*, Applied Polymer, 34 (2017) 45342
doi.org/10.1002/app.45342

28. Koorosh Firouz Tadavani, Amir Abdolmaleki, Mohammad Reza Molavian, Sedigheh Borandeh, Elahe Sorvand, and **Mohammad Zhiani**, *Synergistic behavior of phosphonated and sulfonated groups on proton conductivity and their performance for high-temperature proton exchange membrane fuel cells (PEMFCs)* Synergistic behavior of phosphonated and sulfonated groups on proton conductivity and their performance for high-temperature proton exchange membrane fuel cells (PEMFCs), Energy Fuels, 31 (2017, 11460–11470
DOI: 10.1021/acs.energyfuels.7b01065

27. **Mohammad Zhiani**, Saeedeh kamali, *Synergistic Effect of Ceria on the Str. Evolution Activity of Nickel Nanoparticles Grown on the Reduced Graphene Oxide* Chemistry A, 5, (2017),8108-8116.
DOI: 10.1039/c7ta00146k.

26. **Mohammad Zhiani**, Fariborz Chitsazadeh, *Synergistic Ion Intercalations for of Li-Doped Graphene Nanosheets as an Efficient Electrocatalyst for Oxygen Red* Volume 8, Issue 2, pp 170–177.

25. **M. Zhiani**, I. Mohammadi, S. Majidi, *Membrane electrode assembly steaming as a novel pre-conditioning procedure in proton exchange membrane fuel cell*, International Journal of Hydrogen Energy, Volume 42, Issue 7,

24. S. Meghdadi, M. Amirnasr, **M. Zhiani**, F. Jalili, M. Jari, M. Kiani (2016) **Facile Synthesis of Cobalt Oxide Nanoparticles by Thermal Decomposition of Cobalt(II) Carboxamide Complexes: Application as Oxygen Evolution Reaction Electrocatalyst in Alkaline Water Electrolysis**, *Electrocatalysis*, 2017, Volume 8, Issue 2, pp 122–131.
23. **M. Zhiani**, S. Majidi, V. B. Silva, H. Gharibi (2016) **Comparison of the performance and EIS (electrochemical impedance spectroscopy) response of an activated PEMFC (proton exchange membrane fuel cell) under low and high thermal and pressure stresses**, *Energy*, 97, 560-567
22. **M. Zhiani**, S. Kamali, S. Majidi (2016) *In-plane gas permeability and thought-plane resistivity of the gas diffusion layer influenced by homogenization technique and its effect on the proton exchange membrane fuel cell cathode performance*, *International Journal of Hydrogen Energy*, 41, 1112-1119
21. A. Abdolmaleki, **M. Zhiani**, M. Maleki, S. Borande (2015) **Preparation and evaluation of sulfonated polyoxadiazole membrane containing phenol moiety for PEMFC application**, *Polymer*, 75, 17-24
20. **M. Zhiani**, I. Mohammadi and N. Salehi (2015) **Carbon supported Fe–Co nanoparticles with enhanced activity and BH₄[–] tolerance used as a cathode in a passive air breathing anion exchange membrane direct borohydride fuel cell**, *RSC Adv.*, 5, 23635-23645
DOI: 10.1039/C4RA12857E
19. **Zhiani, M.**, Majidi, S., Rostami, H., Taghiabadi, M.M. **Comparative study of aliphatic alcohols electrooxidation on zero-valent palladium complex for direct alcohol fuel cells**
(2015) *International Journal of Hydrogen Energy*, 40 (1), pp. 568-576.
DOI: 10.1016/j.ijhydene.2014.10.144
18. **Zhiani, M.**, Majidi, S. **Effect of gas diffusion electrode pre-treatment by ultrasonic bath cleaning technique on proton exchange membrane fuel cell performance**
(2014) *International Journal of Hydrogen Energy*, 39 (24), pp. 12870-12877.
DOI: 10.1016/j.ijhydene.2014.06.092
17. **Zhiani, M.**, Majidi, S., Taghiabadi, M.M. **Comparative study of on-line membrane electrode assembly activation procedures in proton exchange membrane fuel cell**

(2013) Fuel Cells, 13 (5), pp. 946-955.

DOI: 10.1002/fuce.201200139

16. Mallakpour, S., **Zhiani, M.**, Barati, A., Rostami, H. **Improving the direct methanol fuel cell performance with poly(vinyl alcohol)/titanium dioxide nanocomposites as a novel electrolyte additive**

(2013) International Journal of Hydrogen Energy, 38 (28), pp. 12418-12426.

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15. **Zhiani, M.**, Majidi, S. **Effect of MEA conditioning on PEMFC performance and EIS response under steady state condition**

(2013) International Journal of Hydrogen Energy, 38 (23), pp. 9819-9825.

DOI: 10.1016/j.ijhydene.2013.05.072

14. **Zhiani, M.**, Jalili, J., Rezaei, B., Taghiabadi, M.M. **Methanol electrooxidation on synthesized PtRu nanocatalyst supported on acetylene black in half cell and in direct methanol fuel cell**

(2013) International Journal of Hydrogen Energy, 38 (13), pp. 5419-5424.

DOI: 10.1016/j.ijhydene.2012.12.088

13. **Zhiani, M.**, Rostami, H., Majidi, S., Karami, K. **Bis (dibenzylidene acetone) palladium (0) catalyst for glycerol oxidation in half cell and in alkaline direct glycerol fuel cell**

(2013) International Journal of Hydrogen Energy, 38 (13), pp. 5435-5441.

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12. Kakaei, K., **Zhiani, M.** **new method for manufacturing graphene and electrochemical characteristic of graphene-supported Pt nanoparticles in methanol oxidation**

(2013) Journal of Power Sources, 225, pp. 356-363.

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11. **Zhiani, M.**, Gharibi, H., Kakaei, K. **Performing of novel nanostructure MEA based on polyaniline modified anode in direct methanol fuel cell**

(2012) Journal of Power Sources, 210, pp. 42-46.

DOI: 10.1016/j.jpowsour.2012.02.081

10. Gharibi, H., Kakaei, K., **Zhiani, M.**, Taghiabadi, M.M. **Effect of**

polyaniline-doped trifluoromethane sulfonic acid nanofiber composite film thickness on electrode for methanol oxidation

(2011) International Journal of Hydrogen Energy, 36 (20), pp. 13301-13309.

DOI: 10.1016/j.ijhydene.2010.09.080

9. Zhiani, M., Gasteiger, H.A., Piana, M., Catanorchi, S. Comparative study between platinum supported on carbon and non-noble metal cathode catalyst in alkaline direct ethanol fuel cell (ADEFC)

(2011) International Journal of Hydrogen Energy, 36 (8), pp. 5110-5116. DOI: 10.1016/j.ijhydene.2011.01.079

8. Zhiani, M., Gharibi, H., Kakaei, K. Optimization of Nafion content in Nafion-polyaniline nano-composite modified cathodes for PEMFC application

(2010) International Journal of Hydrogen Energy, 35 (17), pp. 9261-9268. DOI: 10.1016/j.ijhydene.2010.04.019

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(2010) International Journal of Hydrogen Energy, 35 (17), pp. 9298-9305. DOI: 10.1016/j.ijhydene.2010.03.050

6. Gharibi, H., Kakaei, K., Zhiani, M. Platinum nanoparticles supported by a vulcan XC-72 and PANI doped with trifluoromethane sulfonic acid substrate as a new electrocatalyst for direct methanol fuel cells

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5. Bambagioni, V., Bianchini, C., Marchionni, A., Filippi, J., Vizza, F., Teddy, J., Serp, P., Zhiani, M. Pd and Pt-Ru anode electrocatalysts supported on multi-walled carbon nanotubes and their use in passive and active direct alcohol fuel cells with an anion-exchange membrane (alcohol = methanol, ethanol, glycerol)

(2009) Journal of Power Sources, 190 (2), pp. 241-251.

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4. Kheirmand, M., Gharibi, H., Abdullah Mirzaie, R., Faraji, M., Zhiani, M. Study of the synergism effect of a binary carbon system in the nanostructure of the gas diffusion electrode (GDE) of a proton exchange membrane fuel cell

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3. Gharibi, H., **Zhiani, M.**, Mirzaie, R.A., Kheirmand, M., Entezami, A.A., Kakaei, K., Javaheri, M. **Investigation of polyaniline impregnation on the performance of gas diffusion electrode (GDE) in PEMFC using binary of Nafion and polyaniline nanofiber**

(2006) Journal of Power Sources, 157 (2), pp. 703-708.

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2. Gharibi, H., **Zhiani, M.**, Entezami, A.A., Mirzaie, R.A., Kheirmand, M., Kakaei, K. **Study of polyaniline doped with trifluoromethane sulfonic acid in gas-diffusion electrodes for proton-exchange membrane fuel cells**

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1. Gharibi, H., Mirzaie, R.A., Shams, E., **Zhiani, M.**, Khairmand, M. **Preparation of platinum electrocatalysts using carbon supports for oxygen reduction at a gas-diffusion electrode**

(2005) Journal of Power Sources, 139 (1-2), pp. 61-66.

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1- PEM Fuel Cells; Theory and Practice, By: F.Barbir, Translated in persian by: M.Zhiani

Book

More than 20 Projects in PEMFC(MEA preparation&diagonistic), Electrolyzers (PEMWE, AEMWE) and Li/SOCl₂ Battery, selected are;

Research Projects

- 1- Fisibility study and conceptual design of an air indipendent propulsion system based on fuel cell , 1388-1390, Shahin shahr – Subsea institue
- 2- Design and construction of a fuel cell test staion with capacity of 100W , 1390-1391, Iran National Science Fundation (INSF)
- 3- Design and construction of a charger based on muti fuel air breathing fuel cell ,1392 -1392, Iran National Science Fundation (INSF)
- 4- MEA development for **Air beathing direct alcohole fuecells**
- 5- MEA development for **Implantable Glocuse fuel cell,**
- 6- H₂ generator preparation base on AEMWE with capacity of 300ml/min.

Conferences

1. *Synthesis and evaluation of Fe/rGO electro catalyst by different reducing agents for HER in alkaline media*, 4th Hydrogen & Fuel Cell conference, 2017
2. *Comparison of nickel copper and brass sheets as electrodes for oxygen evolution reaction in alkaline media*, 4th Hydrogen & Fuel Cell conference, 2017
3. *Study of hydrogen evolution reaction activity on nickel copper brass stainless steel in alkaline media*, 4th Hydrogen & Fuel Cell conference, 2017
- 4- *Decreasing the effect of Kinetic polarization by using reduced graphene oxide as an electrocatalyst for cathode support in lithium thionyl chloride battery*, 12th I Biennial Electrochemistry seminar 2017
- 5- *Evaluation of alkaline hydrogen evolution reaction enhancing on Ni-Co/rGO in comparision to Ni/rGO*, 12th I Biennial Electrochemistry seminar 2017
6. *Preparation and Evaluation of Nanocomposite Membranes Based on Sulfonated Graphene Oxide and Carbon Nanotube for Aluminum Air Batteries*, 12th Iranian Electrochemistry seminar, 2016
7. *OPTIMIZATION OF CATALYST LAYER NAFION CONTENT IN PEMFC CATHODE ELECTRODE MADE BY BALLARD CARBON PAPER AS ELECTRODE SUBSTRATE*, 19th Iranian Physial chemistry seminar, 2016
8. *Effect of operation conditions of the MEA activation procedure on the PEMFC performance EndFragment*, 3rd Hydrogen & Fuel Cell confrence, 2016
9. *Electrochemical Analysis of Anodic Catalysts in Direct Borohydride Fuel Cell*, 8th Iranian Fuel Cell seminar, 2016
10. *Effect of Potential Cyclic and External Humidity Injection on Proton Exchange Membrane Fuel Cell Performance*, 8th Iranian Fuel Cell seminar, 2016
11. *Investigation of Electrochemical Impedance Spectroscopy Responce of Membrane Electrode Assembly with Time in the PEMFCs*, 8th Iranian Fuel Cell seminar, 2016
12. *Analysis of Membrane Electrode Assembly Performance with Time in the PEMFC*, 8th Iranian Fuel Cell seminar, 2016
13. *Evaluation of a Porous Nano Structure Electrode Base on Pt-Free Nano Catalyst for Direct 2-Propanol Fuel Cell*, 8th Iranian Fuel Cell seminar, 2016
14. *Effect of operation conditions of the MEA activation procedure on the PEMFC performance*, 3th Hydrogen & Fuel Cell Conference, 2015, IROST, Tehran
15. *Preparation and evaluation of Copper particles on reduced graphene oxide as an efficient electrocatalyst for enhancing electrochemical performance of the Lithium-Thionyl Chloride Batteries*, Graphen Malaysia, 2016

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5- Design and Construction of novel membrane electrode assembly nanostructure using modified electrodes.
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6- Gas Supply Subsystem for fuel cell application
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7- Construction of Hydrogen Gas Generator by using Anion Exchange Membrane and non-Precious Metals
No: 92179- Country: Iran

8- Development a Process for MEA Construction by Using Graphene Nano-particles in Decathlon Method
No: 88794-Country: Iran

Innovation

