Reza Taherian

(Associate Professor) Material Science & Engineering group, Faculty of Chemical and Materials Engineering Shahrood University of Technology, Shahrood, Iran from 2012 up to now
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EDUCATION

Dr . Reza Taherian was received Materials Engineering from Iran University of Science and Technology in Materials Engineering Science (1993- 1998). MSc degree was recieved in Materials Engineering from Isfahan University of Technology by thesis title "Investigation in thermomechanical behavior of NiCrMoV steel and hot-radial- forging simulation by dilatometery-deformation apparatus" (2002-2004).
Ph.D. degree was received in Materials Engineering Science from Shiraz University by thesis title "Manufacturing and modeling of polymer based nanocomposite bipolar plates in order to utilize in PEM fuel cells"(2006-2011).

Dr. Reza Taherian has been directly contact with the industry since 1998 and in 2000 cooperated with Alda Casting and Mahdi Tools Companies in the field of production of casting parts and heat treatment and forging parts. His expert project was in the field of making aluminum/copper bimetals, which was made by cold roll welding method.

In his master's project, the thermomechanical operations of high-strength steel NiCrMoV were studied and several international and conference papers were published. A patent has been filed for the etching of ultra-clean steel.

In a doctoral project, he has researched in the manufacture of polymer composite parts by carbon fibers for use in hydrogen fuel cell bipolar plates and measurement of mechanical and electrical properties. The result was publishing several articles in the high-ranked journals, one patent and manufacturing a single-cell fuel cell.

Various entrepreneurship awards were also obtained. He has spent his Necessity period in Malayer City Power Refinery as a technical inspection expert. He has been working as a faculty member of Shahrood University of Technology since 2012 and since then he has published about 20 articles in the best international journals in the field of adhesives and polymer composites.

In this period, some projects have been performed which has been mainly in the field of manufacturing and production of materials. Some of the most important of them have been followed: Manufacturing of antibacterial adhesives, dielectric insulators, carbon polymer membranes with high conductivity and porosity, making lead glass, making electrically conductive adhesives, making electrical insulation and thermal conductivity adhesives, making polyurethane foams with Silver adhesive coating to protect against electromagnetic waves (EMI) has carried out various projects for industry and academia and has been in close contact with industrial centers in this regard.

He published a book on the electrical conductivity of composites in Elsevier in 2018, which received the Book of the Year award from Sharood University of Technology. In 2020, he was recognized Top 2% of World's Scientists.

RESEARCH INTERESTS

Composites

1) Manufacturing of functional adhesives, polymer based nanocomposites reinforced by carbon allotropies such as graphene, carbon nanotube, and carbon fibers
2) Investigation on electrical/thermal properties of materials, gas permeability, and mechanical properties
3) Conductive adhesives and study on stability, homogeneity, electrical conductivity, and durability of solvent-based polymers and water-based polymer containing conductive fillers such as carbon, silver and copper
4) Recycling the polymers
5) Break pads

Honors

Scientist 2% year 1400
Scientist 2% in 1399
Researcher of the year Shahroud University of Technology in 1398

Editorial Board

1) Advances in Applied NanoBio-Technologies
2) Materials Science: Advanced Composite Materials

JOURNAL REVIEWER

- Composites Part A: Applied Science and Manufacturing
- Journal of Power Source
- International Journal of Hydrogen Energy
- Iranian Polymer Journal
- Polymer Composite
- Journal of Materials Processing of technology
- Applied Polymer
- Journal of Composite Science and Technology
- Journal of energy research
- Inorganic and organometallic polymers and materials
- Journal of Applied Biomaterials & Functional Materials
- materials chemistry and physics

LECTURES

Work shopping on "Nanotehnology application", Damghan University, Iran, 2012

Description: definition of nanotechnology and Nanomaterials, Methods of making the nanomaterial, Methods for nanomaterials synthesis, Methods for nanomaterials characterization

Responsibility at the University

1- Associate professor of faculty of Materials Engineering

2- Head of Polymer Research Laboratory

3- Head of metal casting and solidification laboratory

TEACHING EXPERIENCE

1) 11 year experience on teaching the following courses in Shahrood University of technology:
Polymer and composites – organic chemistry – manufacturing methods of composites

2) 10 years of experience on teaching the following courses In Azad University of Shahrood University: mechanical properties of materials, physical metallurgy of materials, surface coating on metals, advanced formability of ceramics, errors in determining, material analyses, material science, nonferrous metals

ADMINISTRATIVE ACTIVITIES

1) 2008 up to now: Managing Director of company established in Science and Technology Park with title of "Energy Gostar Pilvaran" that is active in the field of Functional adhesives especially Manufacturing conductive adhesives, conductive paints, conductive pastes, and conductive inks.
2) Working in R&D of Petroleum Refinery Complex, Iran, 2005-2006

3) 2005: An agreement project on "Material selection for corrosion resistant metals", Petroleum Refinery Complex, Iran
4) 2002-2004: Project executive at Isfahan Alloy Steel Complex titled "thermomechanical behavior of special steel 1.6959" Iran

5) 1998: Project executive at Alda casting company titled "manufacture of Al/Cu bimetals by using cold roll welding method", Iran

RESEARCH ASSISTANT

1- Conducting more than 10 master students on the below subjects:
- Manufacturing break pads composites made of phenolic resin reinforced by different filler materials
- Manufacturing and investigation of properties of thermally conductive adhesives made of Epoxy as binder and different oxides, graphite, and fly ash as fillers

-Manufacturing and investigating on the electrical, mechanical, and physical properties of polymer/carbon composites
- Manufacturing and investigating on the electrical, mechanical, and physical properties of composite dielectrics
- Manufacturing and investigating on the electrical, mechanical, and physical properties of Ag and Cu reinforced adhesives, conductive inks, conductive paints
- Manufacturing and investigating on the electrical, mechanical, and physical properties of filament wound carbon fiber and fiber glass on the metallic composite tubes,…

2- Conducting 4 students in project of "manufacture and the physical and mechanical properties of polymer composites containing carbon nanotubes and carbon fibers" (2006-2011)

5- Conducting a graduate student in project of "manufacture of nano asphalt by using nano-materials such as nano silica" 2007

6- Conducting a graduate student in the project of "thermodynamic properties of a ultra- high strength metal in a national research project" 2002-2005

7- Conducting two undergraduate students in the project of "study on thermodynamic properties Of metals" 2002-2004

ACADEMIC HONORS

1) Book of the Year Award from the Shahrood University of Technology (2019)
2) Top 2% of World's Scientists (2020)
3) Entrepreneurship Award in making PEM fuel cell containing nanocomposite plates, Iran, 2008

Patents

1) Establishment of a Patent on manufacturing of a low cost, light, novel sandwich nanocomposite manufactured by carbon cloth and polymer-based composite in order to utilize in bipolar plates of PEMFC, Iran, 2011
2) Establishment of a Patent on finding a solution for etching 1.6959 and drawing CCCT curves, Iran, 2004

PUBLICATIONS

Published Book

1. Reza Taherian, Ayesha Kausar, "**Electrical Conductivity in Polymer-Based Composites: Experiments, Modelling, and Applications**", *Elsevier, William Andrew, Plastics Design Library, 432 pages, 2018.*
2. *Book chapter:* Reza Taherian, Ayesha Kausar, Polymer/fullerene Nanocomposites for Fuel Cells, Published in book of **"Fullerenes in Polymers"** *2023.*

Journal Papers

1. *A.Gafti, R, Taherian, S.R. Kiahoseini*, "**Chemical composition optimization of nanocomposites used for shed and core of outdoor composite insulators"**, *Fronteries of Materials*, 9, 1-11, 2022

2. *Z.Samiei, R. Taherian*, **"Manufacturing and Properties of Polyurethane Adhesives Reinforced with Spherical and Flake Copper Powder Prepared by Dry and Wet Milling Methods"** ,*International Journal of Adhesion and Adhesives*, 1,1, 1-29, 2022

3. *Z. Samiei , R.Taherian*, "**Effect of electric field-induced alignment of conductive fillers in polyurethane"**, *Materials Chemistry and physics*, 267, 124577, 2021

4. *H.Yadegari, R.Taherian, S.Dariush*i, "**Investigation on Mechanical Properties of Hybrid Aluminum/Composite Tubes manufactured by Filament Winding and Hand Lay-up ",** *Polymers and Polymer Composites*, 2021

5. *H.Komeili, R. Taherian*, "**Manufacturing Non-woven Media with Cellulose Fiber, Carbon Fiber, and Polypropylene Fiber Used in HEPA Filters"**, *Advances in Applied NanoBio-Technologies*, 2(2)48, 2021.

6. *R.Taherian, M. Mohammadi, Z. Samiei*, "**Investigation of Graphite Conductive Adhesive Coated on SS316L Used for Bipolar Plates of Proton Exchange Membrane Fuel Cell**", *Journal of Adhesion Science and Technology*, 2021

7. *F.S.Hoseinin, R. Taherian, A,Atashi,* **"Manufacturing and Properties of Poly Vinyl Alcohol/Fibrin Nanocomposite Used for Wound Dressing**", Advances in Applied NanoBio-Technologies, 2021

8. A. Khodaddi, R. Taherian," **Investigation on the Radiation Shielding Properties of Lead Silicate Glasses Modified by ZnO and BaO**", *Materials Chemistry and Physics*, 2020

9. M.M. Ghorbani, *R.Taherian*, M. Mohammadi, M. Bozorg , "**Investigation of Physical and Electrical Properties of TiN-Coated SS316L as Bipolar Plate of Proton Exchange Membrane Fuel Cells**", *Surface Engineering*, 2020

10. R.Taherian, Z. Samiei ,"**Investigation on Electrical Properties of Polyvinyl Acetate/Graphite Adhesive by Joule Heating and Hall Effect Tests**", *Materials Today Communications*, 2020

11. *B. Sedaghat, R.Taherian, S.A. Hosseini, S.M. Mousavi,* "Rheological properties of bitumen containing nanoclay andorganic warm-mix asphalt additives", Construction and Building Materials, 2020

*12. S.Simaafrookhteh, R.Taherian, M. Shakeri,"***Stochastic microstructure reconstruction of a binder/carbon fiber/expanded graphite carbon fiber paper for PEMFCs applications: mass transport and conductivity properties***"*, *Journal of The Electrochemical Society*, 166, 7, 2019.

13. R.Taherian, M.M. Ghorbani, M.Bozorg, "**Investigation on physical and electrochemical properties of TiN-coated Monel alloy used for bipolar plates of proton exchange membrane fuel cell**", *Materials Chemistry and Physics, 238, 2019*

14. M. Mohammadi, M. Goodarzi, R. Taherian, **"Investigation of the electrical properties and corrosion resistance of TiN coating deposited by reactive sputtering on the titanium bipolar plate, used in polymeric fuel cell"**, *Iranian Journal of Ceramic Science & Engineering, 7(4) 2019*

15. *Reza Taherian, M. M. Ghorbani, Seyed Rahim Kiahosseini,* **"A new method for optimal fabrication of carbon composite paper as gas diffusion layer used in proton exchange membrane of fuel cells"** *Journal of Electroanalytical Chemistry, 2018*

16. *R.Taherian, et al*. "**Fabrication and investigation of polymer-based carbon composite as**
17. **gas diffusion layer of proton exchange membrane of fuel cells**", *Materials Science: Advanced Composite Materials, 2018*

18. *R.Taherian, M.M.Ghorbani*, "**Investigation of the Electrical Properties of Polymer/Carbon Composites Exposed to Joule Heating and Heat Treatment",** *ECS Journal of Solid State Science and Technology*, **6** (6) M1-M9, 2017

19. *A.Soleymani, R.Taherian, S.Manafi*, "**The Effects of Co-Mn-Ti and Zn-Mg-Ti Substitutions on the Structural, Magnetic and Physical Properties of Barium Hexaferrites Synthesized by the Co- precipitation Method**", IEEE Magnetics Letters, Accepted, (IF=2), 2016

20. S. Aryani, R Taherian **"Investigation manufacture and properties of Inconel alloy plate with conductive coating used for metallic bipolar plates membrane cell",** *An International Multidisciplinary Research e-Journal*, 2016

21. *R. Taherian,* **Experimental and Analytical Model for the Electrical Conductivity of Polymer-Based Nanocomposites,** Journal of composite Science of Technology, 2015

22. *R.Taherian and M. Nasr,* **Performance and material selection of nanocomposite bipolar plate in proton exchange membrane fuel cells**, Int. J of Energy Research, 2013

23. *R.Taherian, M. J. Hadianfard, A. N. Golikand,* **"Manufacture of a polymer- based carbon nanocomposite as bipolar plate of proton exchange membrane fuel cells",** Materials and Design 49,242–251, 2013

24. *R.Taherian, A. N. Golikand, Mohammad Jaffar Hadianfard* , "**Preparation and Properties of a Novel Phenolic/Graphite Nanocomposite Bipolar Plate for Proton Exchange Membrane Fuel Cell",** ECS Journal of Solid State Science and Technology, 1, M39-M46, 2012

25. *R. Taherian, A. N. Golikand, M. J.Hadianfard* , **"A new equation for predicting electrical conductivity of carbon-filled polymer composites used for bipolar plates of fuel cells"**, *Appl.Polymer Science*, 128, *1497-1509, 2012*

26. *R.Taherian, A. N.Golikand, M. J. Hadianfard* , "**the effect of mold pressing pressure and composition on properties of nanocomposite bipolar plate for proton exchange membrane fuel cell"** Journal of Material & design, 32, 3883–3892, 2011

27. *R. Taherian, M. Moradzaman, M. J. Hadianfard, A. N. Golikand ,"* **The Optimization of Ball Milling Method in Preparation of Phenolic/Functionalized Multi-Wall Carbon Nanotube Composite and Comparison with Wet Method**" International Journal of Engineering Research in Africa, 5, 16-29, 2011

28. *R.Taherian,* **Development of an Equation to Model Electrical Conductivity of Polymer-Based Carbon Nanocomposites, ,** *ECS Journal of Solid State Science and Technology*, **3** (6) M26-M38, 2014

29. *R. Taherian, R. Shateri, Abbas Najafizadeh*, " **Drawing of CCCT diagrams by static deformation and consideration deformation effect on martensite and bainite transformation in NiCrMoV stee**l, Journal of Material processing of Technology, 2008

30. *R.Taherian, A. Najafizadeh, M. Shamanian and R. Shateri* "**Drawing of CCCT Diagrams and Investigation of the Deformation Effects on Martensite and Bainite Transformations in NiCrMoV steel**" Esteghlal, Journal of Engineering, I.U.T., vol. No. 1, 25, pp. 149-165, 2006

31. *M.Mohammadi, M.Goodarzi, R.Taherian*," **consideration of electrical and corrososion properties of TiN-coated titanium based bipolar plate of PEMFC by sputtering method"**, Science and cetamic engineering, 2019

32. *S.Manafi, R.Taherian, I. Farahbakhsh*, "**Microstructure and properties of nanocomposite of Al_2O_3/CNT by SPS method**" Nanomaterials, 2015

Conference paper

1. R. Taherian, et al., "**Gas permeability and electrical conductivity properties of a novel gas diffusion layer of PEM fuel cells, 17th** Fluid dynamics conference, Shahrood University,27-29 August, 2017

2. F. Hoseini, R. Taherian, A. Atashi, M. Manoochehri, **"Investigating the Function and Microstructural Properties of Fibrin adhesive as a Type of Natural Adhesive and a Blood Bonder",** The 3th International Conference on Modern Finding in Sciences and Technology, Qhom, 1395

3. F. Hoseini, R. Taherian, A. Atashi, M. Manoochehri, **Study and microstructural properties of polyvinyl alcohol/fibrin nanocomposite,** The 3th International Conference on Modern Finding in Sciences and Technology, Qhom, 1395

4. R.Taherian, M.Jaffar Hadianfard, A.Nozad Golikand, "**Manufacture and Characterization of Sandwiched Polymer Nanocomposite for Using in Bipolar Plate of PEMFC**" The 2nd Conference on Hydrogen and Fuel Cell, K. N. Toosi University of Technology, 2012.

5. R. Taherian, M. Jaffar Hadianfard, A. Nozad, A. R. Gholami,"**Comparison of Weight, Cost and Durability of Composite Bipolar Plate with Graphitic and Metallic Bipolar Plates in PEMFC",** The 2nd Conference on Hydrogen and Fuel Cell, K. N. Toosi University of Technology, 2012.

6. R. Taherian, G. Karimi, A. Gholami, M.J. Hadianfard, A. Nozad Golikand, "**The Effect of Ohmic Resistances and Clamping Pressure on the Performance of Proton Exchange Membrane Fuel Cell**", The 2nd Conference on Hydrogen and Fuel Cell, K. N. Toosi University of Technology, 2012.

7. R.Taherian, A.R. Gholami, G.R.Karimi, M.J.Hadianfard, A.Nozad Golikand, ," **The Effect of Ohmic Resistances and Clamping Pressure on the Performance of Proton Exchange Membrane Fuel Cell**",The 7th International Chemical Engineering Congress and Exhibition (IChEC 2011),Kish Iland, Iran, 2011.

8. R.Taherian, H.Hamedinia, M.J. Hadianfard, A.Nozad Golikand, **"manufacture and properties of polymer based nanocomposite to be used in bipolar plate of PEMFC",** 5th Joint Conference of Iranian Metallurgical Engineers Society and Iranian Foundry men's Society, Isfahan, Iran, 2011.

9. R. Taherian, Mozhgan Moradzaman, Mohammad Jaffar Hadianfard, Ahmad Nozad Golikand ," **Investigation of effect of ball milling and functionalizing on electrical, thermal and Mechanical properties of phenolic resin/MWCNT composite"** The 2nd International Conference on Composites:Characterization, Fabrication and Application Dec. 27-30, 2010, Kish Island, Iran.

10. R. Taherian, A. Najafizadeh and R. Shateri, "Simulation of Radial Forging by Triple Hot Compression Tests" 83 Steel Symposium, Organized by Iron and Steel Society of Iran, pp. 345-365, 1-2 March 2005, Yazd, Iran;1-5.

11. R. Taherian, A. Najafizadeh and R. Shateri, "**Study of Phase Transformation Behavior Between Deformed and Undeformed NiCrMoV Steel by Comparison Between CCCT and CCT Diagrams**" 83
Steel Symposium, Organized by Iron and Steel Society of Iran, pp. 412-421, 1-2 March 2005, Yazd, Iran

12. R. Taherian, A. Najafizadeh and R. Shateri, "**Prediction of Flow Stress of NiCrMoV Steel Under Hot Compression Tests by Neural Network"** 83 Steel Symposium, Organized by Iron and Steel Society of Iran, pp.722-731, 1-2 March 2005, Yazd, Iran

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