

# Curriculum Vitae



## Personal Information:

**Name:** Hamidreza Farnoush  
**Birth:** 16/09/1983  
**Nationality:** Iranian  
**Marital Status:** Married  
**Academic Position:** Assistant Professor  
**Work Address:** Department of Metallurgy and Materials Engineering, Faculty of Engineering, University of Kashan, Qotb Ravandi Blvd., P.O. Box: 87317-51167 Kashan, Iran.  
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## Objectives and Major Interests:

Mechanical Behavior of Materials, Coatings & Surface Modifications, Synthesis of Nanomaterials, Solid Oxide Fuel Cells, Biomaterials, Powder Metallurgy, Corrosion Behavior, Tribology

## Education:

2001-2005 **BSc** in Materials Science and Engineering, Department of Mining and Metallurgical Engineering, **Amirkabir University of Technology**, Tehran, Iran  
2005-2008 **MSc** in Materials Science and Engineering, Department of Materials Science and Engineering, **Sharif University of Technology**, Tehran, Iran  
2008-2013 **PhD** in Materials Science and Engineering, Department of Mining and Metallurgical Engineering, **Amirkabir University of Technology**, Tehran, Iran

## Honors:

2008-2013 **Top 1<sup>st</sup> ranked PhD student** in Materials Science and Engineering, Amirkabir University of Technology  
2001-2005 **Top 1<sup>st</sup> ranked undergraduate student** in Materials Science and Engineering, Amirkabir University of Technology  
2017, 2021 **Teaching Excellence Award**, University of Kashan, Faculty of Engineering

## **Teaching Experiences:**

- 2014-present      **Diffusion in Solids**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2014-present      **Advanced Powder Metallurgy**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2014-present      **Advanced Kinetics of Materials**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2013-present      **Advanced Methods in Materials Characterization Lab.**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2015-present      **Mechanical Behavior of Materials**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2016-present      **Heat Treatment**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2017-present      **Heat Treatments Lab.**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2016-present      **Powder Metallurgy**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2017-present      **Non-ferrous Extractive Metallurgy**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2016-present      **Mechanical Behavior of Materials Lab.**, Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2015-present      **Statics and Mechanics of Materials**, Department of Chemical Engineering and Industrial Engineering Department, *University of Kashan*
- 2014-present      **Statics**, Department of Mining Engineering and Department of Metallurgy and Materials Engineering, *University of Kashan*
- 2008- 2013      **Mechanical Behavior of Materials Lab.**, Department of Mining and Metallurgical Engineering, *Amirkabir University of Technology*
- 2008- 2013      Teaching Assistant of **Mechanical Properties of Materials I**, Department of Mining and Metallurgical Engineering, *Amirkabir University of Technology*

- 2008-present      **Materials Science**, Mechanical Engineering Department, *IAU (Central Tehran Branch)* and Industrial Engineering Department, *University of Kashan*
- 2008-present      **Engineering Graphics I & II**, Mechanical Engineering Department, *IAU (Central Tehran Branch)*
- 2005-2007         **Fabrication of Casting Models**, *Sharif University of Technology*

**Research Experiences:**

- 2016-present      *Fabrication and High-temperature Performance of Solid Oxide Fuel Cell with Doped-Nanostructured Mn-Co Spinel Oxide Protective Coatings on Metallic Interconnects*, Niroo Research Institute
- 2016-2018         *Fabrication of Graded Electrophoretic Deposition Apparatus*, University of Kashan
- 2013-2018         *Designing and Manufacturing of SOFC Power Unit by Using Natural Gas*, Niroo Research Institute
- 2011-2013         PhD Thesis: “*Graded and Layered Electrophoretic Deposition of HA/TiO<sub>2</sub> Nanoparticles on Ti6Al4V Substrates with Refined Microstructure*”, Department of Mining and Metallurgical Engineering, Amirkabir University of Technology
- 2012-2013         *Surface Modification of CP-Ti Substrate by Combining Micro-arc Oxidation and Electrophoretic Deposition*, Istanbul Technical University
- 2011-2013         *Fabrication of Ti–CaP Nanocomposite Layer by Friction Stir Processing*, Amirkabir University of Technology
- 2012-2013         *Biomimetic Synthesis of Nano-hydroxyapatite Coatings on Friction Stir Processed Ti-6Al-4V Substrates*, Amirkabir University of Technology
- 2012-2013         *Sol-gel Derived Nano-hydroxyapatite Film on Friction Stir Processed Ti-6Al-4V Substrate*, Amirkabir University of Technology
- 2008-2010         *Fabrication of Nanostructured Al-AlN Composite by Mechanical Alloying*, Materials & Energy Research Center (MERC)
- 2009-2010         *Thermokinetic Study on Oxidation Behavior of AlN Nanoparticles*, Materials & Energy Research Center (MERC)

- 2005-2008 MSc Thesis: “*The Effect of Dynamic Strain Aging on Fatigue Properties of Ferrite-Bainite Dual-Phase Steels*”, Department of Materials Science and Engineering, Sharif University of Technology
- 2004-2005 BSc Thesis: “*Hot Deformation Characteristics of 2205 Duplex Stainless Steel Based on the Behavior of Constituent Phases*”, Department of Mining and Metallurgical Engineering, Amirkabir University of Technology

**Publications in JCR-indexed journals:**

1. H. Farnoush, M. Farnak, H. Abdoli, A Fluid-Flow Approach in Oxidation Evaluation of SUS 430 Steels Coated by Fe/Mn-modified MnCo<sub>2</sub>O<sub>4</sub> for Solid Oxide Fuel Cell Application, *International Journal of Hydrogen Energy* 52 D (2024) 905–915.
2. N. Ramezannejad, H. Farnoush, Effect of graphene oxide on micro-tribological and electrochemical properties of electrophoretically deposited HA–TiO<sub>2</sub>-GO composite coatings, *Processing and Application of Ceramics* 16 [1] (2022) 30–41..
3. M. Salehi, S. H. Li, M. Gupta, H. Farnoush, S. Maleksaeed, N. M. L. Sharon, Rapid densification of additive manufactured magnesium alloys via microwave sintering, *Additive Manufacturing*, 37, (2021) 101655.
4. P. Eshghinejad, H. Farnoush, M. S. Bahrami, H.R. Bakhsheshi-Rad, E. Karamian, X.B. Chen, Electrophoretic deposition of bioglass/graphene oxide composite on Ti-alloy implants for improved antibacterial and cytocompatible properties, *Materials Technology* 35 (2020) 69-74.
5. H. Abdoli, S. Molin, H. Farnoush, Effect of interconnect coating procedure on solid oxide fuel cell performance, *Materials Letters* 259 (2020) 126898.
6. S. Hosseini, H. Farnoush, Characterization and in vitro bioactivity of electrophoretically deposited Mn-modified bioglass-alginate nanostructured composite coatings, *Materials Research Express* 6 (2019) 025404.
7. M. Salehi, S. Maleksaeedi, H. Farnoush, N. M. L. Sharon, G. K. Meenashisundaram, M. Gupta, An Investigation into Interaction Between Magnesium Powder and Ar gas: Implications for Selective Laser Melting of Magnesium, *Powder Technology* 333 (2018) 252–261.
8. H. Farnoush, Z. Rezaei, Effect of suspension stability on bonding strength and electrochemical behavior of electrophoretically deposited HA-YSZ nanostructured composite coatings, *Ceramics International* 43 (2017) 11885–11897.

9. H. Farnoush, J. Aghazadeh Mohandesi, H. Cimenoglu, Micro-scratch and corrosion behavior of functionally graded HA-TiO<sub>2</sub> nanostructured composite coatings fabricated by electrophoretic deposition, *Journal of the Mechanical Behavior of Biomedical Materials* 46C (2015) 31–40.
10. H. Farnoush, G. Aldic, H. Cimenoglu, Functionally graded HA-TiO<sub>2</sub> nanostructured composite coating on Ti-6Al-4V substrate via electrophoretic deposition, *Surface and Coatings Technology* 265C (2015) 7–15.
11. H. Farnoush, F. Muhaffel, H. Cimenoglu, Fabrication and characterization of nano-HA-45S5 bioglass composite coatings on calcium-phosphate containing micro-arc oxidized CP-Ti substrates, *Applied Surface Science* 324C (2015) 765–774.
12. M. Salehi, H. Farnoush, A. Heydarian, J. Aghazadeh Mohandesi, Improvement of mechanical properties in the functionally-graded aluminum matrix nanocomposites fabricated via a novel multistep friction stir processing, *Metallurgical and Materials Transactions B* 46 (2015) 20–29.
13. M. Salehi, H. Farnoush, J. Aghazadeh Mohandesi, Fabrication and characterization of functionally graded Al-SiC nanocomposites by using a novel multistep friction stir processing, *Materials and Design* 63 (2014) 419–426.
14. H. Farnoush, A. Abdi Bastami, A. Sadeghi, J. Aghazadeh Mohandesi, F. Moztarzadeh, Tribological and corrosion behavior of friction stir processed Ti-CaP nanocomposites in simulated body fluid solution, *Journal of the Mechanical Behavior of Biomedical Materials* 20 (2013) 90–97.
15. H. Farnoush, J. Aghazadeh Mohandesi, D. H. Fatmehsari, Effect of particle size on the electrophoretic deposition of hydroxyapatite coatings: a kinetic study based on a statistical analysis, *International Journal of Applied Ceramic Technology* 10 (2013) 87–96.
16. H. Farnoush, A. Sadeghi, A. Abdi Bastami, F. Moztarzadeh, J. Aghazadeh Mohandesi, An innovative fabrication of nano-HA coatings on Ti-CaP nanocomposite layer using a combination of friction stir processing and electrophoretic deposition, *Ceramics International* 39 (2013) 1477–1483.
17. A. Abdi Bastami, H. Farnoush, A. Sadeghi, J. Aghazadeh Mohandesi, Sol-gel derived nano-hydroxyapatite film on friction stir processed Ti-6Al-4V substrate, *Surface Engineering* 29 (2013) 205–210.
18. H. Farnoush, J. Aghazadeh Mohandesi, D. H. Fatmehsari, F. Moztarzadeh, Modification of electrophoretically deposited nano-hydroxyapatite coatings by wire brushing on Ti-6Al-4V substrates, *Ceramics International* 38 (2012) 4885–4893.

19. H. Farnoush, J. Aghazadeh Mohandesi, D. H. Fatmehsari, F. Moztarzadeh, A kinetic study on the electrophoretic deposition of hydroxyapatite-titania nanocomposite based on a statistical approach, *Ceramics International* 38 (2012) 6753–6767.
20. H. Farnoush , D. H. Fatmehsari, A. Ekrami, The effect of pre-straining at intermediate temperatures on the mechanical behavior of high-bainite dual phase (HBDP) steels, *Materials Science and Engineering A* 543 (2012) 224–230.
21. H. Farnoush, D. H. Fatmehsari, J. Aghazadeh Mohandesi, H. Abdoli, Evaluation of strengthening behavior of Al–AlN nanostructured composite by the use of modified Heckel model and response surface methodology, *Journal of Alloys and Compounds* 517 (2012) 45–53.
22. H. Abdoli, H. Farnoush, H. Asgharzadeh, S.K. Sadrnezhad, Effect of high-energy ball-milling on compressibility of a nanostructured composite powder, *Powder Metallurgy* 54 (2011) 24–29.
23. H. Farnoush, A. Momeni, K. Dehghani, J. Aghazadeh Mohandesi, H. Keshmiri , Hot deformation characteristics of 2205 duplex stainless steel based on the behavior of constituent phases, *Materials and Design* 31 (2010) 220–226.
24. H. Abdoli, H. Farnoush, E. Salahi, K. Pourazrang, Study of the densification of a nanostructured composite powder, Part I: effect of compaction pressure and reinforcement addition, *Materials Science and Engineering A* 486 (2008) 580–584.
25. H. Abdoli, E. Salahi, H. Farnoush, K. Pourazrang, Evolutions during synthesis of Al–AlN nanostructured composite powder by mechanical alloying, *Journal of Alloys and Compounds* 461 (2008) 166–172.

### **Conference Publications:**

Synthesis of manganese-cobalt powder modified with iron and yttrium co-dopants as coatings on solid oxide fuel cell interconnects, *5<sup>th</sup> Hydrogen & Fuel Cell Conference (HFCC5)*, **16-17 February 2021**, Tehran, Iran.

Synthesis of cobalt-manganese spinel oxide particles modified by samarium for solid oxide fuel cell application, *8<sup>th</sup> Iran International Conference & Exhibition on Materials Science & Metallurgical Engineering (IMAT 2019)*, **7-9 October 2019**, Tehran, Iran.

Optimization of temperature and welding time of WC-8Co composite microstructure made by fast hot pressing method, *8<sup>th</sup> Iran International Conference & Exhibition on*

*Materials Science & Metallurgical Engineering (IMAT 2019)*, **7-9 October 2019**, Tehran, Iran.

Synthesis of Manganese-Cobalt (MCO) Spinel Particles and Investigation of the Effect of Adding Copper and Samarium Elements on Its Crystal Structure for Solid Oxide Fuel Cell Application, *6<sup>th</sup> Nanotechnology Conference in Power and Energy*, **9-11 September 2019**, Tehran, Iran.

Characterization of (Ni, Nd) Co-doped Mn-Co spinel nanopowders for SOFC application, *International Conference on Renewable Energy & Distributed Generation of Iran (ICREDG 2019)*, **11-12 June 2019**, Tehran, Iran.

Characterization of Bredigite-Chitosan Nanostructured Composite Coatings on AZ31 Magnesium Alloy for Biomedical Applications, *19<sup>th</sup> Iranian National Seminar on Surface Engineering*, **13-14 February 2019**, Isfahan, Iran.

Characterization of Electrophoretically Deposited Akermanite-Chitosan Composites on AZ31 Magnesium Alloy, *19<sup>th</sup> Iranian National Seminar on Surface Engineering*, **13-14 February 2019**, Isfahan, Iran.

Characterization of sol-gel derived Ni-modified Mn-Co spinel nanopowders for SOFC application, *6<sup>th</sup> Annual Clean Energy Conference*, **27-28 February 2019**, Shiraz, Iran

Micro-scratch Behavior of Friction Stir Processed Al-SiC Nanostructured Composites, *6<sup>th</sup> International Conference on Composites: Characterization, Fabrication and Application (CCFA-6)*, **11-12 December 2018**, Tehran, Iran

Increasing Osteoconduction and Osseointegration of Titanium Surface by a Novel Surface Treatment Coated by Hydroxyapatite-Nanoclay Composite, *6<sup>th</sup> International Conference on Composites: Characterization, Fabrication and Application (CCFA-6)*, **11-12 December 2018**, Tehran, Iran

Electrophoretic Deposition of Cu-doped Mn-Co Spinel Oxide Nanostructured Coatings on SUS 430 Alloy for Solid Oxide Fuel Cell Interconnect Application, *7<sup>th</sup> International Conference on Materials Engineering and Metallurgy (IMAT 2018)*, **9-10 October 2018**, Tehran, Iran.

Synthesis and Characterization of Bioactive Sr-doped Bredigite  $\text{Ca}_7\text{MgSi}_4\text{O}_{16}$  Nanopowders via Sol-gel Auto-combustion Method, *7<sup>th</sup> International Congress on Nanoscience & Nanotechnology (ICNN 2018)*, **26-28 September 2018**, Tehran, Iran.

Synthesis and characterization of Cu-doped  $(\text{Mn, Co})_3\text{O}_4$  spinel nanopowders for solid oxide fuel cell (SOFC) application, *6<sup>th</sup> International Conference on Powder Metallurgy for Automotive Parts (PMAUTO 2018)*, **16-18 March 2018**, Isfahan, Iran.

Increasing Adhesion of Hydroxyapatite-Nanoclay Composite Coatings on Titanium Substrates by a Novel Surface Treatment, *7<sup>th</sup> International Conference on Nanostructures*, **27 February-1 March 2018**, Tehran, Iran.

Electrochemical Behavior of Mn-modified Bioglass/Alginate Composite Coatings, *3<sup>rd</sup> National Conference of Materials Engineering, Metallurgy and Mining*, **25 February 2018**, Ahvaz, Iran.

Synthesis and Characterization of Mn-modified Bioglass for Biomedical Application, *3<sup>rd</sup> National Conference of Materials Engineering, Metallurgy and Mining*, **25 February 2018**, Ahvaz, Iran.

Electrophoretic Deposition of Co-doped Lanthanum Strontium Titanate nanoparticles as Diffusion Barrier Layers on SUS 430 Interconnects for Solid Oxide Fuel Cell Application, *6<sup>th</sup> International Conference on Materials Engineering and Metallurgy (IMAT 2017)*, **28-29 October 2017**, Tehran, Iran.

Fabrication and Characterization of Nanostructured Copper-Graphene Oxide Composite via Friction Stir Processing, *6<sup>th</sup> International Conference on Materials Engineering and Metallurgy (IMAT 2017)*, **28-29 October 2017**, Tehran, Iran.

Electrochemical Characterization of Multi-Metal Oxide Anodes in Electrowinning Process of Copper, *6<sup>th</sup> International Conference on Materials Engineering and Metallurgy (IMAT 2017)*, **28-29 October 2017**, Tehran, Iran.

Transient Liquid Phase Bonding of Similar Titanium/Titanium Joints, *6<sup>th</sup> International Conference on Materials Engineering and Metallurgy (IMAT 2017)*, **28-29 October 2017**, Tehran, Iran.

Hot Compression Behavior of Severe Plastic Deformed AA6061-SiC Nanostructured Composites, *5<sup>th</sup> International Conference on Composites: Characterization, Fabrication and Application (CCFA-5)*, **20-21 December 2016**, Iran University of Science & Technology, Iran

Influence of Hot-wall Plasma Nitriding Treatment on Fatigue Behavior of 1.6582 Steel, *5<sup>th</sup> International Conference on Science and Engineering*, **13 December 2016**, Paris, France.

Mechanical Properties of Nanostructured HA-YSZ Composite Coatings on Ti-6Al-4V, *6<sup>th</sup> International Congress on Nanoscience and Nanotechnology (ICNN 2016)*, **26-28 October 2016**, Kharazmi University, Iran

Synthesis and Characterization of Nanostructured Ce-modified (Mn,Co)<sub>3</sub>O<sub>4</sub> Spinel for Solid Oxide Fuel Cell Application, *6<sup>th</sup> International Congress on Nanoscience and Nanotechnology (ICNN 2016)*, **26-28 October 2016**, Kharazmi University, Iran



Synthesis and Characterization of Nanostructured  $\text{Fe}_x\text{Mn}_{1.5-x/2}\text{Co}_{1.5-x/2}\text{O}_4$  Spinel for Solid Oxide Fuel Cell Application, *4<sup>th</sup> Nanotechnology Conference in Power and Energy*, **23-24 August 2016**, Niroo Research Institute, Iran

Synthesis and Characterization of Nanostructured  $\text{Y}_x\text{Mn}_{1.5-x/2}\text{Co}_{1.5-x/2}\text{O}_4$  Spinel for Solid Oxide Fuel Cell Application, *5<sup>th</sup> International Conference on Nanostructures (ICNS5)*, **7-10 March 2016**, Kish Island, Iran

Fabrication and Characterization of Mn-modified  $\text{MnCo}_2\text{O}_4$  Spinel Coatings on Solid Oxide Fuel Cell Interconnects, *16<sup>th</sup> Iranian National Seminar on Surface Engineering*, **16-18 February 2016**, IHSRC Corporation, Iran

Cu-doped Nano-  $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$  Protective Coatings on Metallic Interconnects for Solid Oxide Fuel Cell Application, *5<sup>th</sup> International Biennial Conference on Ultrafine Grained and Nanostructured Materials (UFGNSM15)*, **11-12 November 2015**, University of Tehran, Iran

Nano-45S5 Bioglass Coating on the Modified CP-Ti Substrate by MAO and EPD Processes, *5<sup>th</sup> International Biennial Conference on Ultrafine Grained and Nanostructured Materials (UFGNSM15)*, **11-12 November 2015**, University of Tehran, Iran

The Effect of Titania on the Micro-scratch Behavior of HA- $\text{TiO}_2$  Nanostructured Composite Coatings Fabricated by Electrophoretic Deposition, *1<sup>st</sup> International Conference on Advanced Ceramics*, **4-6 May 2015**, Materials & Energy Research Center (MERC), Iran.

Fabrication and Characterization of Electrophoretically Deposited Functionally Graded HA/ $\text{TiO}_2$  Nanostructured Coatings, *1<sup>st</sup> International Conference on Advanced Ceramics*, **4-6 May 2015**, Materials & Energy Research Center (MERC), Iran.

Enhancements of Corrosion Behavior and Bioactivity in HA- $\text{TiO}_2$  Nanostructured Composite Coatings Fabricated by Electrophoretic Deposition, *1<sup>st</sup> International Conference on Advanced Ceramics*, **4-6 May 2015**, Materials & Energy Research Center (MERC), Iran.

Characterization and Corrosion Behavior of Electrophoretically Deposited HA-BG Nanostructured Composite on the Modified CP-Ti Substrate, *NCWNN1394*, **20-21 May 2015**, Kharazmi University, Iran.

Surface Modification of CP-Ti Substrate by Combining Micro-arc Oxidation and Electrophoretic Deposition, *9<sup>th</sup> Coatings Science International*, **24-28 June 2013**, Noordwijk, Netherlands.

Corrosion Behavior of the Sol-gel Derived Nano-hydroxyapatite Film on the Modified Titanium Substrate, *14<sup>th</sup> National Corrosion Congress*, **14-16 May 2013**, University of Tehran, Iran.

Fabrication of Ti–CaP Nanocomposite Layer by Friction Stir Processing, *11<sup>th</sup> Condensed Matter Physics Conference of Iran*, **7-8 January 2013**, Shahrood University of Technology, Iran.

Electrophoretic Deposition of Hydroxyapatite-Titania Nanocomposites on Ti-6Al-4V Substrates, *4<sup>th</sup> International Congress on Nanoscience and Nanotechnology*, **8-10 September 2012**, University of Kashan, Iran.

Biomimetic Synthesis of Nano-hydroxyapatite Coatings on Friction Stir Processed Ti-6Al-4V substrates, *4<sup>th</sup> International Congress on Nanoscience and Nanotechnology*, **8-10 September 2012**, University of Kashan, Iran.

An Oxidation Kinetic Model for AlN Nanopowders, *7<sup>th</sup> Iranian Ceramic Congress*, **28-29 April 2009**, University of Shiraz, Iran.

Thermokinetic Study on Oxidation Behavior of Aluminum Nitride Powders, *1<sup>st</sup> National Congress of Refractory*, **14-15 April 2009**, Materials & Energy Research Center (MERC), Iran.

### **Patents:**

Fabrication of Ti-CaP Nanocomposite by Friction Stir Processing, National Patent, ID: 80062, **2013**.

Fabrication of Titania-Hydroxyapatite Nanocomposite by Friction Stir Processing, National Patent, ID: 80039, **2013**.