Naeimeh Sadat Peighambardoust



PERSONAL INFORMATION

Koc University Boron and Advanced Materials Applications and Research Center (KUBAM), Rumelifeneri Yolu, Sariyer, Istanbul-34450, Turkey

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Gender: Female Date of birth: 30, Mar., 1986

SCIENTIFIC MOTIVATION

My primary motivation in science is to conduct groundbreaking interdisciplinary research by combining basic and applied concepts of chemistry, physics, and materials science.

EDUCATION AND QUALIFICATION

11/2019 - Present	Postdoctoral Researcher, Koc University Boron and Advanced
	Materials Applications and research Center (KUBAM)
	Istanbul, Turkey.
	Research Title: "Electro- and Photo-catalysis behavior of metal
	diborides and MOFs towards Water Splitting"
	Advisor: Dr. Umut Aydemir
11/2018 - 10/2019	Postdoctoral Researcher, Koc University Surface and Technology
	Center (KUYTAM), Istanbul, Turkey.
	Research title: "Electrochemical studies of High Entropy Alloys"
	Advisor: Dr. Amir Motallebzadeh
9/2014 - 7/2018	Ph.D. in Materials Science and Engineering, University of Tabriz,
	Tabriz, Iran.
	GPA: 18.13/20 (Dissertation grade is not included)
	Dissertation: "Fabrication and optimization of TiO ₂ nanotube
	electrodes for using in photoelectrochemical cells"
	Advisor: Dr. Shahin Khameneh asl
9/2009 - 11/2011	M.Sc. in Materials Science and Engineering, Sahand University of
	Technology, Tabriz, Iran.
	GPA: 18.68/20 (Dissertation grade is not included)
	Thesis: "Investigation on the effects of multi-step anodic oxidation on
	the geometry, surface and morphological properties of titanium oxide
	nanotube arrays"
	Advisor: Prof. Dr. Farzad Nasirpouri
9/2005 - 8/2009	B.Sc. in Materials Science and Engineering, Sahand University of
	Technology, Tabriz, Iran.

GPA: 17.47/20 Thesis: "Chemical Analysis in extractive metallurgy" Advisor: Dr. Javad Moghaddam

FELLOWSHIPS AND AWARDS

- **2021** Recipient of the Koc University Seed Research Fund 2021 as a Principal Investigator.
- **2019** Employed as a postdoctoral researcher by Koc University.
- **2018** Recipient of the Scientific and Technological Research Council of Turkey (TUBITAK) Postdoctoral Grant.
- **2014** Full scholarship for Ph.D. study at University of Tabriz.
- **2011** 1st Rank among the Material Science graduates at Sahand University of Technology.
- 2009 Full scholarship for M.Sc. study at Sahand University of Technology.
- **2009** 1st Rank among the Material Science graduates at Sahand University of Technology.

TEACHING EXPERIENCE

2016-2018	Teaching assistant of Corrosion, Undergraduate course, University of Tabriz,
	Tabriz.
2015-2018	Instructor of Powder Metallurgy, Surface and Coating, Metallurgy science and
	Heat treatment, Undergraduate course, Payame Noor University (PNU), Tabriz.
2010-2012	Teaching assistant of Metal forming, undergraduate course, Sahand University
	of Technology, Tabriz.

RESEARCH EXPERIENCE

- ✓ Coating
- ✓ Surface Engineering
- ✓ Semiconductors and Optical Physic
- ✓ Nanomaterials
- ✓ Electrochemistry
- ✓ Electrochemical and EIS analysis
- ✓ Photoelectrochemical Cells (Solar cells, Water splitting, Dye degradation)
- ✓ Metal Organic Frameworks

PUBLICATIONS SUMMARY

Number of citations: 251 (260), h-index: 9 (7) Source: Google Scholar (Web of Science) Author of 22 peer-reviewed articles published in scientific journals such as *Electrochimica Acta (IF: 6.901), Inorganic Chemistry (IF: 5.165), Solar Energy (IF: 4.674), Alloy and compounds (IF: 4.175), ChemElectroChem (IF: 4.59), Scientific reports (IF: 4.379),* Materials Characterization (*IF: 4.342), Intermetallics (IF: 3.758), Surface and Coating Technology (IF: 4.158), Thin solid films (IF: 2.183), etc.*

The journals reviewed include: Surface and Coating Technology, Corrosion Science

PUBLICATIONS

Journal Publications

22. Evaluating Electrocatalytic Activity of Metal-Substituted Hafnium Diboride (Hf_{1-x}TM _xB₂; TM = Ni and Co) toward Water Splitting, **Naeimeh Sadat Peighambardoust**,

Ebrahim Sadeghi, Busra Mete, M. Baris Yagci, Umut Aydemir, Journal of Alloys and Compounds, (2022) Accepted, In Press.

- Tailoring the Morphology of Cost-Effective Vanadium Diboride Through Cobalt Substitution for Highly Efficient Alkaline Water Oxidation, Ebrahim Sadeghi, Naeimeh Sadat Peighambardoust, Umut Aydemir, Inorganic chemistry 60 (2021) 19457–19466.
- **20.** Microwave-assisted auto-combustion synthesis of binary/ternary Co_xNi_{1-x}Ferrite for electrochemical hydrogen and oxygen evolution, Sanaz Chamani, Maasoumeh Khatamian, Naeimeh Sadat Peighambardoust, Umut Aydemir, ACS Omega 6 (2021) 33024–33032.
- **19.** Metal-Substituted Zirconium Diboride ($Zr_{1-x}TM_xB_2$; TM = Ni, Co, and Fe) as Cheap and High-Performance Bifunctional Electrocatalyst for Water Splitting, Busra Mete, **Naeimeh Sadat Peighambardoust**, Samet Aydin, Ebrahim Sadeghi, and Umut Aydemir, Electrochimica Acta 389 (2021) 138789.
- 18. In vitro biocompatibility evaluation of Ti1.5 Zr Ta0.5Nb0.5Hf0.5 refractory high-entropy alloy film for orthopedic implants: microstructural, mechanical properties and corrosion behavior, Naeimeh Sadat Peighambardoust, Armin Asghari Alamdari, Ugur Unal, Amir Motallebzadeh, Journal of Alloys and Compounds 883 (2021) 160786.
- Electrophoretic deposition and characterization of self-doped SrTiO₃ thin films, Naeimeh Sadat Peighambardoust, Umut Aydemir, Turkish Journal of Chemistry 45 (2021) 323-332.
- 16. Pulsed electric current sintering of TiB₂ based ceramics using nitride additives, Naeimeh Sadat Peighambardoust, C Cevik, T Assar, S Jung, SY Lee, JH Cha, Synthesis and sintering 1 (2021) 28-33.
- **15.** Metal doped layered MgB₂ nanoparticles as novel electrocatalysts for water splitting, Ebrahim Sadeghi, **Naeimeh Sadat Peighambardoust**, Masoumeh Khatamian, Ugur Unal, Umut Aydemir, Scientific reports 11 (2021) 3337.
- 14. Nitrogen increases corrosion resistance of CoCrNi medium entropy alloy in sulfuric acid solution, Igor Moravcik, Naeimeh Sadat Peighambardoust, Amir Motallebzadeh, Larissa Moravcikova-Gouvea, Ivo Dlouhy, Dierk Raabe, Zhiming Li, Materials Characterization, 172 (2021) 110869.
- 13. The rechargeable aluminum-ion battery with different composite cathodes: A review, Leyla Saei Fard, Naeimeh Sadat Peighambardoust, Ho Won Jang, Alireza Dehghan, Niloufar Nehzat Khosh Saligheh, Marjan Iranpour, Mitra Isvand Rajabi, Journal of Composites and Compounds 2 (2020) 138-146.
- Blue TiO₂ Nanotube Arrays as Semi-Metallic Materials with Enhanced Photoelectrochemical Activity towards Water Splitting, Naeimeh Sadat Peighambardoust, Umut Aydemir, Turkish Journal of Chemistry, 44 (2020) 1642-1654,
- Electro spark deposition of WC–TiC–Co–Ni cermet coatings on St52 steel, Hossein Aghajani, Ebrahim Hadavand, Naeimeh Sadat Peighambardoust, Shahin Khameneh-asl, Surfaces and Interfaces 18 (2020) 100392.
- 10. Microstructural, mechanical and electrochemical characterization of TiZrTaHfNb and Ti1.5ZrTa0.5Hf0.5Nb0.5 refractory high-entropy alloys for biomedical applications, Amir Motallebzadeh, Naeimeh Sadat Peighambardoust, Saad Sheikh, Hideyuki Murakami, Sheng Guo, Demircan Canadinc, Intermetallics 113 (2019) 106572.
- **9.** The effect of doping concentration of TiO₂ nanotubes on energy levels and its direct correlation with photocatalytic activity, **Naeimeh Sadat Peighambardoust**, Shahin Khameneh-asl, Mehri Maghsoudi, Thin Solid Films 690 (2019) 137558.

- 8. An overview of methods for increasing the efficiency of dye sensitive solar cells through titanium dioxide photoelectrodes optimization, Shahin Khamaneh Asl, Mehri Maghsoodi, Naeimeh-Sadat Peighambardoust, Journal of Renewable and Innovative Energies 5 (2018) 45-56.
- 7. Improved efficiency in front-side illuminated dye sensitized solar cells based on free standing one-dimensional TiO₂ nanotube array electrodes, Naeimeh Sadat Peighambardoust, Shahin Khameneh-asl, Raheleh Mohammadpour, Shahab khameneh asl, Solar Energy 184 (2019) 115-126.
- **6.** Fabrication of doped TiO₂ nanotube array films with enhanced photo-catalytic activity, **Naeimeh Sadat Peighambardoust**, Shahin Khameneh-asl, Adib Khademi, AIP Conference Proceedings 1920 (2018) 020004.
- 5. Band-gap Narrowing and Electrochemical Properties in N-doped and Reduced Anodic TiO₂ Nanotube Arrays, Naeimeh Sadat Peighambardoust, Shahin Khameneh-asl, Raheleh Mohammadpour, Shahab khameneh-asl, Electrochem. Acta 270 (2018) 245-255.
- Improved performance of anodic titanium oxide nanotube arrays synthesized by sonoelectrochemical anodization method for dyesensitized solar cells, Naeimeh Sadat Peighambardoust, Shahin Khameneh-Asl, Hamid Azimi, Appl. Phys. A 123.5 (2017) 345 355.
- **3.** Structural defect-induced band-gap narrowing in dopant-free anodic TiO₂ nanotubes, Farzad Nasirpouri, **Naeimeh Sadat Peighambardoust**, Alexander Samardak, Alexey Ognev, Vladimir Korochentsev, Ivan Osmushko, Russell Binions, Chem.Electro.Chem., 4 (2017) 1227-1235.
- Electropolishing behaviour of pure titanium in perchloric acid–methanol–ethylene glycol mixed solution, N.-S. Peighambardoust, F. Nasirpouri, Transactions of the IMF 92 (2014) 132-139.
- Manipulating morphology, pore geometry and ordering degree of TiO₂ nanotube arrays by anodic oxidation, Naeimeh-Sadat Peighambardoust, Farzad Nasirpouri, Surface & Coatings Technology 235 (2013) 727–734.

As Submitted Papers

- **3.** Photocatalytic Hydrogen Evolution Activities of Spinel Ferrites and their Composites of Polypyrrole, Sanaz Chamani, Maasoumeh Khatamian, **Naeimeh Sadat Peighambardoust**, Umut Aydemir, International Journal of Hydrogen Energy, Submitted.
- 2. Perovskite Quantum Dots for Advancement of Functional Electronic Systems, Naeimeh Sadat Peighambardoust, Ebrahim Sadeghi, Umut Aydemir, Sadra Sadeghi, Sedat Nizamoglu, Energy and Environment Science, Submitted.
- Morphological evolution of sol-electrophoretic deposited ZnO nanostructures on anodic TiO₂ nanotubes for back-side illuminated dye-sensitized solar cells, Samaneh Babaie Aghdam, Naeimeh Sadat Peighambardoust, Farzad Nasirpouri, Chemical Eng J, Submitted.

Conference Papers

4. Electrochemical Properties of blue TiO₂ nanotube array films, **Naeimeh Sadat Peighambardoust**, Shahin Khameneh-asl, Raheleh Mohammadpour, Shahab Khameneh asl, ICNS7, 2018, Tehran, Iran

- **3.** An Investigation on Electrocatalytic Properties of N-doped Titanium Dioxide Nanotube Arrays Decorated with Nickel Nanoparticles, Shahin Khameneh asl, **Naeimeh Sadat Peighambardoust**, Mojtaba Sarbaze, ECASIA 2017, Montpellier, France
- **2.** Fabrication of Nitrogen-doped TiO₂ nano-tube arrays films with enhanced photo-catalytic activity, Shahin Khameneh-asl, Adib Khademi, **Naeimeh Sadat Peighambardoust**, NANOTR-11 Congress, 23-25 June 2015, Ankara, Turkey.
- 1. The effect of surface preparation of titanium on structure of anodic titanium oxide nanotube arrays, **Naeimeh sadat Peighambardoust**, Farzad Nasirpouri, UFGNSM2011, 2-3 November 2011, Tehran, Iran.

PROFESSIONAL SERVICE

Iranian National Standards Organization

Membership in Scientific Board for definition of national standard Examples of national standard provided by me:

- Ship and Marine Technology-Searchlights for high-speed craft/ BS ISO 17884
- Ships and marine technology Night vision equipment for high-speed craft Operational and performance requirements, methods of testing and required test results/ ISO_16273

LANGUAGES

Farsi: Native, Azeri: Native, Turkish: Advanced, English: Advanced.

COMPUTER SOFTWARE SKILLS

Clemex Vision, ZView, Xpert-XRD, XPS Avantage, Photoshope, Origin.

ANALYSIS APPARATUS SKILLS

BET analysis, Thermo Scientific XPS analysis, UV/Vis spectrophotometer, PL Analysis, AFM analysis, XRD analysis, FTIR Analysis.