

# ELNAZ ASGHARI

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**Full Name** : Elnaz Asghari

**Date of birth** : 1979/09/20

**Marriage Status:** Married

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**Scientific Position:**

Assistant Professor: 2010-2016

Associate professor; 2016-now

**Department:** Physical Chemistry Department, Chemistry Faculty, University of Tabriz

**Other:** Virtual invited researcher to the research lab of Professor Bruno G. Pollet, 1<sup>st</sup> June 2020- 30<sup>th</sup> May 2021  
Norwegian University of Science and Technology (NTNU), Trondheim, Norway;

**Educations:**

	Major	Title of Thesis	Institution	Average Score
<i>PhD</i>	Physical Chemistry	Investigation of the influence of hydrodynamic conditions on corrosion of steel and aluminum and performance of some inorganic and organic inhibitors	Univ. of Tabriz-Iran, 2006-2009	<i>19.58/20</i> <i>(First grade)</i>
<i>M.Sc</i>	Physical Chemistry	Investigation of the deoposition of polyaniline on indium-tin oxide and its photovoltaic properties	University of Tabriz-Iran, 2002-2005	<i>18.99/20</i> <i>(First grade)</i>
<i>B.Sc</i>	Applied Chemistry		University of Tabriz-Iran, 1998-2002	<i>17.84/20</i> <i>(First grade)</i>

## Teaching experiences:

From 2005 until now

- Electrochemical impedance spectroscopy, PhD of Physical chemistry, University of Tabriz, Iran
- Advanced corrosion 2, PhD of Physical chemistry, University of Tabriz, Iran
- Surface Chemistry and Catalysis, PhD of Physical chemistry, University of Tabriz, Iran
- Surface chemistry, M.Sc of Physical Chemistry, University of Tabriz, Iran
- New topics in physical chemistry, M.Sc of Physical Chemistry, University of Tabriz, Iran
- Physical chemistry II, B.Sc of Chemistry, University of Tabriz, Iran
- Physical chemistry, B.Sc of Chemical Engineering, University of Tabriz, Iran
- General chemistry, B.Sc of Applied and Pure Chemistry, University of Tabriz, Iran
- Safety in chemical labs, B.Sc of Applied Chemistry, University of Tabriz, Iran
- Analytical chemistry, B.Sc of Chemical Engineering, Sahand University of Technology, Tabriz, Iran
- Environmental chemistry, B.Sc of Applied Chemistry, Payam Noor University of Iran

## Main Research Interests:

- ❖ Electrodeposition of thin coatings, polymers and inorganic nanostructures for energy systems
- ❖ Fabrication of electrocatalysts for energy storage devices; water splitting hydrogen production, supercapacitors, solar cells and batteries
- ❖ Electrochemical synthesis of nanomaterials, carbon quantum dots, chalcogenides and metal oxides
- ❖ Electrodeposition of thin electron/hole transport layers for solar cells and photovoltaic devices
- ❖ Electrochemical synthesis and properties of conductive polymers
- ❖ Nanocomposites with carbon based nanomaterials such as Graphene and carbon quantum dots
- ❖ The use of all electrochemical techniques like voltammetry and electrochemical impedance spectroscopy for energy systems

## Papers published in the International Journals

1. M Mirzaei-Saatlo, S Faraji, M Fakhraei, S Moradi-Alavian, E Asghari, H. Shekaari, Phase change ionogel based choline formate as a green solid-state electrolyte with novel poly (aniline-co-4-nitroaniline) electrode material for flexible supercapacitors; *Journal of Energy Storage* 82, 2024, 110534
2. M Mirzaei-Saatlo, E Asghari, H Shekaari, BG Pollet, R Vinodh, Performance of ethanolamine-based ionic liquids as novel green electrolytes for the electrochemical energy storage applications; *Electrochimica Acta* 474, 2024, 143499

3. E. Mahmoudi, E Asghari, N Delibaş, A Niaei ; Application of response surface methodology for optimization of the test condition of oxygen evolution reaction over La<sub>0.8</sub>Ba<sub>0.2</sub>CoO<sub>3</sub> perovskite-active carbon; *Scientific Reports* 13 (1),2023, 22878
4. S Moradi-Alavian, A Kazempour, M Mirzaei-Saatlo, H Ashassi-Sorkhabi, E. Asghari, Promotion of hydrogen evolution from seawater via poly (aniline-co-4-nitroaniline) combined with 3D nickel nanoparticles; *Scientific Reports* 13 (1),2023, 21486
5. Mohammad Ahangari, Jafar Mostafaei, Hamid Zakerifar, Ali Sayyah, Nagihan Delibas, Ali Coruh, Elham Mahmoudi, Elnaz Asghari, Aligholi Niaei; The effect of Palladium doping on the structural properties and supercapacitor performance of La<sub>0.8</sub>Sr<sub>0.2</sub>Cu<sub>0.7</sub>Mn<sub>0.3</sub>O<sub>3</sub> and La<sub>0.8</sub>Sr<sub>0.2</sub>Cu<sub>0.4</sub>Mn<sub>0.6</sub>O<sub>3</sub> as electrode materials, *Electrochimica Acta*,470 (2023) 143274; <https://doi.org/10.1016/j.electacta.2023.14327>
6. Elham Mahmoudi, Jafar Mostafaei, Christoph Griesser, Maged F. Bekheet, Nagihan Delibas, Simon Penner, Elnaz Asghari, Ali Coruh, Aligholi Niaei; LaCoO<sub>3</sub>-BaCoO<sub>3</sub> porous composites as efficient electrocatalyst for oxygen evolution reaction; *Chemical Engineering Journal* 473 (2023) 144829. <https://doi.org/10.1016/j.cej.2023.144829>
7. Mahdiyeh Sadeshi-Amjadi, Habib Ashassi-Sorkhabi, MirGhasem Hosseini, Bruno G Pollet, Elnaz Asghari; N/S-RCQD@NiCo<sub>2</sub>S<sub>4</sub> nanocomposite with wrinkled nanosheet-like edges as an anode for water splitting; *Journal of Energy Storage* 72,(2023) 108364. <https://doi.org/10.1016/j.est.2023.108364>
8. Saeid Faraji, Hemayat Shekaari, Mohammed Taghi Zafarani-Moattar, Masumeh Mokhtarpour, Elnaz Asghari; Thermal properties of phase change materials ionic liquid/fatty acids for thermal energy storage applications; *Journal of Energy Storage* 67,(2023), 107464; <https://doi.org/10.1016/j.est.2023.107464>
9. Mohammad Ahangari, Jafar Mostafaei, Ali Sayyah, Elham Mahmoudi, Elnaz Asghari, Ali Coruh, Nagihan Delibas, Aligholi Niaei; Investigation of structural and electrochemical properties of SrFexCo<sub>1-x</sub>O<sub>3-δ</sub> perovskite oxides as a supercapacitor electrode material; *Journal of Energy Storage* 63, (2023) 107034; <https://doi.org/10.1016/j.est.2023.107034>
10. Habib Ashassi-Sorkhabi, Amir Kazempour, Saleh Moradi-Alavian, Elnaz Asghari, Jacob J Lamb; 3D nanostructured nickel film supported to a conducting polymer as an electrocatalyst with exceptional properties for hydrogen evolution reaction; *International Journal of Hydrogen Energy*, 48 (77), (2023) 29865-29876; <https://doi.org/10.1016/j.ijhydene.2023.04.139>
11. Meysam Mirzaei-Saatlo, Hajar Jamali, Saleh Moradi-Alavian, Elnaz Asghari, Reza Teimuri-Mofrad, Mehdi D Esrafil; 4-Ferrocenylbutyl-based corrosion inhibitors for mild steel in acidic solution; *Materials Chemistry and Physics* 293, (2023), 126895; <https://doi.org/10.1016/j.matchemphys.2022.126895>

12. Habib Ashassi-Sorkhabi, Amir Kazempour, Saleh Moradi-Alavian, Elnaz Asghari, Rajangam Vinodh and Bruno G. Pollet; Electrodes Derived From Conducting Polymers and their Composites for Catalytic Conversion of Carbon Dioxide; *Journal of The Electrochemical Society* 169 (2022), 124509 <https://doi.org/10.1149/1945-7111/aca830>
13. Sanaz Chamani, Ebrahim Sadeghi, Naeimeh Sadat Peighambardoust, Fatmanur Doganay, Gizem Yanalak, Zafer Eroglu, Emre Aslan, Elnaz Asghari, Onder Metin, Imren Hatay Patir, Umut Aydemir, Maasoumeh Khatamian; Photocatalytic hydrogen evolution performance of metal ferrites/polypyrrole nanocomposites; *International Journal of Hydrogen Energy* 47 (77), (2022) 32940-32954; <https://doi.org/10.1016/j.ijhydene.2022.07.193>
14. Habib Ashassi-Sorkhabi, Amir Kazempour, Jafar Mostafaei, Elnaz Asghari; Impact of ultrasound frequency on the corrosion resistance of electroless nickel-phosphorus-nanodiamond plating; *Chemical Review and Letters* 5 (3), (2022), 187-192; [10.22034/crl.2022.345098.1169](https://doi.org/10.22034/crl.2022.345098.1169)
15. Sara Abolghasemi Fakhri, Habib Ashassi-Sorkhabi, Elnaz Asghari, MohammadTaghi Taghizadeh, Hakimeh Javan; Edge-halogenated graphene nanosheets as an efficient metal-free electrocatalyst for hydrogen evolution reaction; *International Journal of Hydrogen Energy* 47 (35), (2022) 15731-15741; <https://doi.org/10.1016/j.ijhydene.2022.03.136>
16. Habib Ashassi-Sorkhabi, Jafar Mostafaei, Amir Kazempour, Elnaz Asghari; Ultrasonic-assisted deposition of Ni-P-Al<sub>2</sub>O<sub>3</sub> coating for practical protection of mild steel: Influence of ultrasound frequency on the corrosion behavior of the coating; *Chemical Review and Letters* 5 (2), (2022) 127-132; [10.22034/crl.2022.336981.1161](https://doi.org/10.22034/crl.2022.336981.1161)
17. Elnaz Asghari, Muhammad Imran Abdullah, Faranak Foroughi, Jacob J. Lamb, Bruno G. Pollet, Advances, Opportunities and Challenges of Hydrogen and Oxygen Production from Seawater Electrolysis: An Electrocatalysis Perspective, "Current Opinions in Electrochemistry", 31 (2022), 100879; <https://doi.org/10.1016/j.coelec.2021.100879>
18. Mohammad Ahangari, Elham Mahmoodi, NAGİHAN DELİBAŞ, Jafar Mostafaei, Elnaz Asghari, Aligholi Niaei; Application of SrFeO<sub>3</sub> perovskite as electrode material for supercapacitor and investigation of Co-doping effect on the B-site; *Turkish Journal of Chemistry* 46 (5), (2022), 1723-1732; DOI 10.55730/1300-0527.3475
19. Javan Hakimeh, Asghari Elnaz, Ashassi-Sorkhabi Habib, Design of new anodic bimetallic nanocatalyst composed of Ni–Cu supported by reduced carbon quantum dots for the methanol oxidation reaction, *Diamond & Related Materials* 115 (2021) 108348; <https://doi.org/10.1016/j.diamond.2021.108348>


20. MohammadTaghi Zafarani-Moattar, Hemayat Shekaari, Asma sadrmousavi Dizaj, Elnaz Asghari; Effect of choline chloride based deep eutectic solvents on lithium perchlorate+ propylene carbonate solutions: Thermodynamic, transport, electrochemical and computational study; Journal of the Taiwan Institute of Chemical Engineers 128 (2021), 20-29; <https://doi.org/10.1016/j.jtice.2021.09.007>
21. Javan Hakimeh, Asghari Elnaz, Ashassi-Sorkhabi Habib, Fabrication And Electrochemical Kinetics Studies Of Reduced Carbon Quantum Dots- Supported Palladium Nanoparticles As Bi-functional Catalysts In Methanol Oxidation And Hydrogen Evolution Reactions, Synthetic Metals, 254 (2019) 153-163.
22. H Ashassi-Sorkhabi, P Salehi-Abar, E Asghari, A Kazempour , Structural Effect On The Thermodynamic And Electrochemical Properties Of Pyrene-Based Hole Transport Materials, Journal Of Molecular Liquids 285,(2019) 338-346.
23. H Ashassi-Sorkhabi, S Moradi-Alavian, R Jafari, A Kazempour, E Asghari , Effect of amino acids and montmorillonite nanoparticles on improving the corrosion protection characteristics of hybrid sol-gel coating applied on AZ91 Mg alloy, Materials Chemistry and Physics 225, (2019) 298-308.
24. Asghari Elnaz, Ashassi Sorkhabi Habib, Rezaei-Moghadam Babak, Charmi gholamreza, Jabbari Shiva, A facile electrochemical strategy for synthesis of 3D nanodimensional polypyrrole structures using self-assembled layers of pyrrole monomers, PROGRESS IN ORGANIC COATINGS, 101, 130-141, 2016
25. Ashassi Sorkhabi Habib, Rezaei-Moghadam Babak, Asghari Elnaz, Bagheri Robabeh, Kabiri Roya, Sonoelectrosynthesized polypyrrole-graphene oxide nanocomposite modified by carbon nanotube and Cu<sub>2</sub>O nanoparticles on copper electrode for electrocatalytic oxidation of methanol, Journal of the Taiwan Institute of Chemical Engineers, 69, 118-130, 2016
26. Ashassi Sorkhabi Habib, Rezaei-Moghadam Babak, Asghari Elnaz, Bagheri Robabeh, Hosseinpour Zahra, Fabrication of bridge like Pt@MWCNTsCoS<sub>2</sub> electrocatalyst on conductive polymer matrix for electrochemical hydrogen evolution, CHEMICAL ENGINEERING JOURNAL, 308, 275-288, 2017
27. Ashassi Sorkhabi Habib, Rezaei-Moghadam Babak, Asghari Elnaz, Electrosynthesis of polypyrrole–nanodiamond composite film under ultrasound irradiation: Promotion for methanol electrooxidation by gold and Cu<sub>2</sub>O nanostructures, Journal of the Taiwan Institute of Chemical Engineers, 6, 263-270, 2017
28. Asghari Elnaz, Malekian Sonia, Improvement of the electrocatalytic performance of platinum-free hierarchical Cu/polypyrrole/NiOx anode for methanol oxidation via changing the morphology of polypyrrole sublayer by self-assembled pyrrole monomers and overoxidation, SYNTHETIC METALS, 229, 57-64, 2017

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29. Ashassi Sorkhabi Habib, Asghari Elnaz, Effect of hydrodynamic conditions on the inhibition performance of L-methionine as a “green” inhibitor, *Electrochimica Acta* 54 (2), 162-167, 2008
  30. Ashassi Sorkhabi Habib, Asghari Elnaz, Electrochemical corrosion behavior of Al7075 rotating disc electrode in neutral solution containing L-glutamine as a green inhibitor, *Journal of applied electrochemistry* 40 (3), 631-637, 2010
  31. Ashassi Sorkhabi Habib, Asghari Elnaz, Influence of flow on the corrosion inhibition of St52-3 type steel by potassium hydrogen-phosphate, *Corrosion science* 51 (8), 1828-1835, 2009
  32. Ashassi Sorkhabi Habib, Asghari Elnaz, Effect of solution hydrodynamics on corrosion inhibition performance of zinc sulfate in neutral solution *Journal of The Electrochemical Society* 159 (1), C1-C7, 2011
  33. Ashassi Sorkhabi Habib, Asghari Elnaz, Mirmohseni Abdolreza, Photovoltaic Properties of Polyaniline-copoly (butyl acrylate/vinyl acetate) Composite, *Iranian Polymer Journal* 17 (9), 711-719, 2008
  34. Ashassi Sorkhabi Habib, Asghari Elnaz, Ejbari Parisa, Electrochemical Studies of Adsorption and Inhibitive Performance of Basic Yellow 28 Dye on Mild Steel Corrosion in Acid Solutions, *ACTA CHIMICA SLOVENICA*, 58, 270-277, 2011
  35. Ashassi Sorkhabi Habib, Asghari Elnaz, La'le Badakhshan Parisa, Potentiostatic and cyclic voltammetric deposition of nanostructured manganese oxide for supercapacitor applications, *Current Applied Physics*, 2, 187-191, 2014
  36. Ashassi Sorkhabi Habib, Asghari Elnaz, Mina Mohammadi, Effects of Solution Hydrodynamics on Corrosion Inhibition of Steel by Citric Acid in Cooling Water, *Journal of Materials Engineering and Performance*, 8, 2992-3000, 2014
  37. Ashassi Sorkhabi Habib, Asghari Elnaz, Bakhshi Rana, Electrochemical Studies of Copper Corrosion Inhibition in Aqueous Solution by Basic Red 46 Dye and Evaluation of the Inhibitor Adsorption Behavior, *International Research Journal of Pure & Applied Chemistry*, 4, 846-858, 2014
  38. Ashassi Sorkhabi Habib, Asghari Elnaz, Mozaffari Zeinab, Individual and combined effects of fluid flow and inhibitor concentration on inhibition of St-37 steel corrosion using K<sub>3</sub>PO<sub>4</sub> in neutral solution, *protection of metals and physical chemistry of surfaces*, 51, 651-658, 2015

39. Asghari Elnaz, Ashassi Sorkhabi Habib, Vahed Akram, Rezaei-Moghadam Babak, Charmi Gholamreza, The use of a hierarchically platinum-free electrode composed of tin oxide decorated polypyrrole on nanoporous copper in catalysis of methanol electrooxidation, *THIN SOLID FILMS*, 598, 6-15, 2016
40. Ashassi Sorkhabi Habib, Lale Badakhshan Parisa, Asghari Elnaz, Electrodeposition of three dimensional-porous NiNi(OH)<sub>2</sub> hierarchical nano composite via etching the NiZnNi(OH)<sub>2</sub> precursor as a high performance pseudo capacitor, *CHEMICAL ENGINEERING JOURNAL*, 299, 282-291, 2016
41. Asghari Elnaz, Ashassi Sorkhabi Habib, Ahangari Maryam, Bagheri Robabeh, Optimization of a Three-Component Green Corrosion Inhibitor Mixture for Using in Cooling Water by Experimental Design, *Journal of Materials Engineering and Performance*, 25, 1416-1425, 2016.
42. Asghari Elnaz, Golizadeh maryam, Ashassi Sorkhabi Habib, Tartaric Acid as a Non-toxic and Environmentally-Friendly Anti-scaling Material for Using in Cooling Water Systems: Electrochemical and Surface Studies, *JOURNAL OF MATERIALS ENGINEERING AND PERFORMANCE*, 25, 4230-4238, 2016
43. Ashassi Sorkhabi Habib, Rezaei-Moghadam Babak, Asghari Elnaz, Bagheri Robabeh, Abdoli Leili, Synthesis of Au Nanoparticles by Thermal, Sonochemical and Electrochemical Methods: Optimization and Characterization, *physical chemistry research*, 3, 24-34, 2014

#### Papers Presented in the International Conferences

1. Lale Badakhshan Parisa, Ashassi Sorkhabi Habib, Asghari Elnaz, ***Asian Nano Forum Conference 2015***, "Bubble dynamic template assisted electrodeposition of 3D porous Micro-Nanostructured Ni-MnOx for supercapacitor applications", **8-11 March 2015, Kish-Iran**
2. Ashassi Sorkhabi Habib, Rezaei Mogadam Babak, Asghari Elnaz, Taghizadeh Mohammad Taghi, Bagheri Robabeh, ***4th International Conference and Exhibition on Materials Science & Engineering***, "Preparation of polypyrrole-Diamond/Au/Cu<sub>2</sub>O nanocomposite modified electrode and study of its electrocatalytic activity for methanol oxidation, **14-16 September 2015, Orlando, Florida, USA.**
3. Ashassi Sorkhabi Habib, Asghari Elnaz, Vahed Akram, Rezaei Mogadam Babak, Bagheri Robabeh, ***NanoOstrava 2015***, "Direct electrochemical synthesis of tin oxide nanoparticles on polypyrrole coated porous copper substrates", **18-21 May 2015, Ostrava, Czech Republic.**
4. Asghari Elnaz, Ashassi Sorkhabi Habib, Charmi Gholamreza, ***5th International Biennial Conference on Ultrafine Grained and Nanostructured Materials, UFGNSM15***, "The Effect of Synthesis Conditions on Particle Size and Electrochemical Behaviors of Molybdenum Oxide Nanoparticles", **11-12 November 2015, Tehran, Iran.**

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5. Ashassi Sorkhabi Habib, Lale Badakhshan Parisa, Asghari Elnaz, **5th International Biennial Conference on Ultrafine Grained and Nanostructured Materials, UFGNSM15**, "Fabrication of 3D porous Nickel foam structures: the influence of some deposition parameters on the foam structure and the capacitive behavior of subsequently prepared Ni-MnOx nano composite", **11-12 November 2015, Tehran, Iran.**

#### **Papers Presented in the National Conferences**

1. Ashassi Sorkhabi Habib, Asghari Elnaz, 6th Annual Seminar of Electrochemistry of Iran, poster presentation, brief article, Influence of Solution Hydrodynamics on the Corrosion Inhibition of St52-3 Steel Rotating Disc Electrode in 1M HCl by Poly Ethylene Glycol 10000, 2011/10/09, 2011/10/11
2. Ashassi Sorkhabi Habib, Asghari Elnaz, mohammadi mina, gholizadeh Maryam, 8th Iranian annual Seminar of Electrochemistry, poster presentation, brief article, Tartaric acid as a green corrosion inhibitor for St-37 steel in simulated cooling water systems, 2013/02/01, 2013/02/02
3. Ashassi Sorkhabi Habib, Asghari Elnaz, Asadzadeh Nazila, 8th Iranian annual Seminar of Electrochemistry, poster presentation, brief article, Glutamine as a green corrosion inhibitor for St37 steel in 3.5 NaCl solution, 2013/02/01, 2013/02/02
4. Ashassi Sorkhabi Habib, Asghari Elnaz, Abolfazl Soltani, The 16th Iranian Chemistry Congress, poster presentation, brief article, Anodizing of aluminum alloy applied in propeller of C130 plane and study of corrosion protection behavior, 2013/09/07, 2013/09/09
5. Asghari Elnaz, Ashassi Sorkhabi Habib, Nazila Asadzadeh, 9th Iranian Annual Seminar of Electrochemistry, poster presentation, brief article, Corrosion Inhibition of St-37 Rotating Disc Electrode in 3.5% NaCl Solution by L-valine-Disodium hydrogen phosphate System, 2013/12/04, 2013/12/05
6. Ashassi Sorkhabi Habib, Asghari Elnaz, Maryam Gholizadeh, 9th Iranian Annual Seminar of Electrochemistry, poster presentation, brief article, Influence of Hydrodynamic Conditions on the Corrosion Inhibition of St-37 Rotating Disc Electrode in Simulated Cooling Water Systems by Tartaric Acid (As a Green Inhibitor), 2013/12/04, 2013/12/05
7. Ashassi Sorkhabi Habib, Asghari Elnaz, Vahideh Arjmand, 9th Iranian Annual Seminar of Electrochemistry, poster presentation, brief article, The effect of chitosan added in electroless Ni-P-SiC plating solution on the properties of composite coatings, 2013/12/04, 2013/12/05
8. Ashassi Sorkhabi Habib, Asghari Elnaz, Nabavi Javad, Charmi gholamreza, The 23rd Iranian Seminar of Organic Chemistry, poster presentation, brief article, Electropolymerization of polypyrrole nanocomposites for electrocatalytic purposes, 2015/09/08, 2015/09/10
9. Ashassi Sorkhabi Habib, Asghari Elnaz, arjmand- ghojoor vahideh, 14th Corrosion Congress, poster presentation, complete article, The effect of Sorbitol on corrosion resistance of Electroless Ni-P-SiC coatings, 2013/05/14, 2013/05/16
10. Ashassi Sorkhabi Habib, Asghari Elnaz, Charmi gholamreza, Nabavi Javad, 8th Iranian Annual Seminar of Electrochemistry, poster presentation, brief article, Electrochemical synthesis of molybdenum oxide nanoparticles on polypyrrole and its electrochemical behavior, 2014/11/26