

Curriculum Vitae

Maral Ghahramani

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PERSONAL INFORMATION

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ACADEMIC POSITION

2020-Now

Member of Scientific Board (Assistant Professor)

Tarbiat Modares University
Chemical Engineering Faculty
Department of Polymer Engineering

RESEARCH INTERESTS

+Lithium-Ion Batteries (Solid Electrolyte, Binder)
+Design and Synthesis of Polymers for Advanced Applications
+Design and Preparation of Polymeric Membranes

PUBLICATIONS

JOURNALS

+Pooya Gorji, **Maral Ghahramani**, Mojtaba Haghighi-Yazdi, The Electrochemical Performance of LiFePO₄ Electrodes based on Polyurethane Binder and Carbon Fiber Current Collector for Lithium-Ion Batteries, Journal of Energy Storage, 2024. **(IF=8.9, Q1)**

+Pooya Gorji, **Maral Ghahramani**, Mojtaba Haghighi-Yazdi, The Effect of Poly(vinylidene difluoride-co-hexafluoropropylene)-g-poly(styrene sulfonate) Binder and Carbon Fiber Current Collector on the Electrochemical Performance of LiFePO₄ Cathode for Lithium-Ion Batteries, ACS Applied Energy Materials, 2024. **(IF=5.5, Q1)**

- + Mohammad Bagher Karimi, Fereidoon Mohammadi, **Maral Ghahramani**, Mehran Javanbakht, Fabrication and Evaluation of Electrospun Nafion Membranes as Gel Polymer Electrolytes for High-Performance Lithium-Ion Batteries, The Journal of Physical Chemistry C, 2023. (IF=3.8, Q1)
- + Taher Gharib Yousefabad, **Maral Ghahramani**, Mehran Javanbakht, Grafting of Polystyrene and Poly (sodium styrene sulfonate) on the Surface of Poly (vinylidene fluoride) via Atom Transfer Radical Polymerization: Synthesis and Characterization, Journal of Oil, Gas and Petrochemical Technology, 2023.
- + Mobina Razani and **Maral Ghahramani**, Self-Healing Polymer Electrolytes used in Lithium-Ion Batteries, Iran Polymer Technology Research and Development, 2023.
- + **Maral Ghahramani**, Mehran Javanbakht, Seifollah Jamalpour, Susan Hamidi, Novel Single-Ion Conducting Gel Polymer Electrolyte with Honeycomb-Like Morphology Prepared Using Brush Copolymer for Lithium-Ion Battery Application, Journal of Electrochemical Society, 2023. (IF=4.316, Q1)
- + **Maral Ghahramani**, Susan Hamidi, Mahsa Mohammad, Mehran Javanbakht, Pooya Gorji, The Effect of Sulfonated Copolymer as a Binder on the Electrochemical Performance of LiFePO₄ Cathode for Lithium-Ion Batteries, Journal of Electroanalytical Chemistry, 2023. (IF=4.63, Q1)
- + Nima Mahmoodi Esfanderani, Mohammad Amin Hooshmand, **Maral Ghahramani**, Mahdi Abdollahi, A review on Cellulose Nanofiber Production Methods: Sources, Extraction, Preparation and Characterization (in Persian), Green Chemistry and Sustainable Technologies, 2022.
- + **Maral Ghahramani** and Mohammad Ali Semsarzadeh, Investigating the Effect of Polyurethane Substrate Morphology on the Gas Permeation Properties of Pol(dimethyl siloxane) Block Copolymer/Polyurethane Layered Membranes, Iranian Journal of Polymer Science and Technology, 2022.
- + Seifollah Jamalpour, **Maral Ghahramani**, Seyed Reza Ghaffarian, Mehran Javanbakht, "Improved performance of lithium ion battery by the incorporation of novel synthesized organic-inorganic hybrid nanoparticles SiO₂-poly (methyl methacrylate-co-ureidopyrimidinone) in gel polymer electrolyte based on poly (vinylidene fluoride)", Polymer, 2021. (IF=4.43, Q1)

- + Seifollah Jamalpour, **Maral Ghahramani**, Seyed Reza Ghaffarian, Mehran Javanbakht, "The effect of poly(hydroxyl ethyl methacrylate) on the performance of PVDF/P(MMA-co-HEMA) hybrid gel polymer electrolytes for lithium ion battery application", *Polymer*, **2020. (IF=4.43, Q1)**

- + Mohammad Ali Semsarzadeh and **Maral Ghahramani**, "The effect of poly(alkyl (meth)acrylate) segments on the thermodynamic properties, morphology and gas permeation properties of poly(alkyl (meth)acrylate)-b-poly(dimethyl siloxane) triblock copolymer membranes", *Journal of Membrane Science*, vol. 594, 117400, **2020. (IF=9.5, Q1)**

- + Mohammad Ali Semsarzadeh and **Maral Ghahramani**, "Surface Energy and Thermal Stability Studies of Poly(dimethyl siloxane)-Poly(alkyl (meth)acrylate) Copolymers", *Polymer-Plastics Technology and Engineering*, **2017. (<https://doi.org/10.1080/03602559.2017.1295316>) (IF=2.7, Q2)**

- + Mahdi Abdollahi, Mohammad Reza Yousefi, **Maral Ghahramani**, Heidar Ranjbar, Seyyed Fardin Najafi, "Synthesis of Polybutadiene Nanoparticles via Emulsion Polymerization: Effect of Electrolyte and Initiator Type on the Particle Size and Reaction Kinetics", *Iranian Polymer Journal*, vol. 26, pp. 1-10, **2017. (IF=3.1, Q2)**

- + Mohammad Ali Semsarzadeh, **Maral Ghahramani**, "Synthesis and Characterization of Poly (ethyl methacrylate)-b-Poly(dimethyl siloxane)-b-Poly(ethyl methacrylate) Triblock Copolymer: The Effect of Solvent on Morphology", *Journal of Polymer Research*, vol. 23, pp. 148-160, **2016. (IF=2.89, Q2)**

- + S. S. Hosseini, E. Bringas, N. R. Tan, I. Ortiz, **M. Ghahramani**, and M. A. Alaei Shahmirzadi, "Recent progress in development of high performance polymeric membranes and materials for metal plating wastewater treatment: **A review**," *Journal of Water Process Engineering*, vol. 9, pp. 78-110, **2016. (IF=7, Q1)**

- + Mohammad Ali Semsarzadeh, **Maral Ghahramani**, "Synthesis and morphology of polyacrylate-poly(dimethyl siloxane) block copolymers for membrane application", *Journal of Macromolecular Research*, vol.10, **2015. (IF=2.4, Q2)**

- + Mahdi Abdollahi, Poorya Bigdeli, Mahmood Hemmati, **Maral Ghahramani**, Mohammad Barari, "Reverse Iodine Transfer Polymerization of Vinyl Acetate and Vinyl Benzoate: Synthesis and

Conferences

Characterization of Homo- and Copolymers", Polymer International, vol.8, **2015. (IF=3.08, Q1)**

- + Mohammad Ali Semsarzadeh, **Maral Ghahramani**, "Preparation, Characterization and Permeation Behavior of Poly(methyl acrylate)-Poly(dimethyl siloxane)-Poly(methyl acrylate) Block Copolymer /Poly(vinyl acetate) Blend Membranes", Iranian Journal of Polymer Science and Technology, vol.28, **2015.**

- + Ebtesam Khalafian and Maral Ghahramani, Synthesis and Characterization of Self-healing Polyurethane, ISPST2024, Tabriz, Sep. **2024. (Poster session, selected paper of conference)**

- +Pooyeh Mehrabi, Maral Ghahramani, Ahmadreza Bahramian, Calculation of the Glass Transition Temperature of Plasticized Poly(vinyl chloride) using Molecular Dynamic Method, ISPST2024, Tabriz, Sep. **2024. (Poster session)**

- + Mehrnaz Khosravi Nezhad and Maral Ghahramani, The Effect of Hard-Segment Chemistry on Phase-Separation of Single-Ion Conducting Polyurethanes, ISPST2024, Tabriz, Sep. **2024. (Oral Session)**

- +Pooyeh Mehrabi, Maral Ghahramani, Ahmadreza Bahramian, Synthesis of Poly(vinyl chloride)-g-Poly(butyl acrylate) Plasticizer via Atom Transfer Radical Polymerization Method, ISPST2024, Tabriz, Sep. **2024. (Poster session)**

- +Mobina Razani and Maral Ghahramani, Investigation the Effect of Hard Segment Microstructure on the Electrochemical Performance of Polymer Electrolytes Based on Self-Healing Polyurethane in Lithium-Ion Battery, ISPST2024, Tabriz, Sep. **2024. (Poster session)**

- +Hasan Alkhafaji, Alireza Sharif, Maral Ghahramani, The Effect of Solvent on the Synthesis of α , ω -Functionalized Poly(ethylene glycol) Macroinitiator, ISPST2024, Tabriz, Sep. **2024. (Poster session)**

- + Mehrnaz Khosravi Nezhad and Maral Ghahramani, Investigating Solubility Parameters of Polyurethane Soft Segments through Molecular Dynamics Simulations, ISPST2024, Tabriz, Sep. **2024. (Poster session)**

+ Erfan Hamedian , Maral Ghahramani , Mojtaba Haghighi-Yazdi , Majid Safarabadi, Thermal Characterization of Polymeric Nanocomposites in Microchannels of Lithium-Ion Battery Packs, 1st International and 2nd National Lithium Battery Conference, **2024.**

(Oral Session)

+ M. Razani and M. Ghahramani, Investigation of the effect of reversible covalent bond and hydrogen bond on the self-healing ability of poly(urethane urea), 7th National Seminar on Polymer, **2023.**

(Poster Session, selected poster of the seminar)

+ Sh. Bahmani, M. Ghahramani, H. Ebrahimi, Synthesis of Poly(vinyl chloride)-g-Poly(hydroxy ethyl acrylate) Brush-Copolymer via Atom Transfer Radical Polymerization, 7th National Seminar on Polymer, **2023. (Oral Session)**

+ Sh. Bahmani, M. Ghahramani, H. Ebrahimi, Synthesis of Poly(vinyl chloride)-g-polycaprolactone via sequence of Living Radical Polymerization and Ring Opening Polymerization, 7th National Seminar on Polymer, **2023. (Poster session)**

+ M. Razani and M. Ghahramani, Electrochemical Performance of PVDF-based Brush Copolymer Binder for Lithium-Ion Battery Application, 8 th Annual Clean Energy Conference (ACEC2023), **2023. (Oral Session)**

+ M. Razani, M. Ghahramani, The Effect of Chain Extender on the Chemical Structure and Properties of Thermoplastic Polyurethanes, 2nd International Conference & 6th National Conference on Materials, Metallurgy, Mining, **2023. (Oral Session)**

+ A.Ghezi, Maghsoudi, M. Ghahramani, Investigation the Role of Conductive Polymers in Progress of Lithium-Ion Battery Technology, 12th fuel cell conference of Iran, Tehran, Iran, **2023. (Poster session)**

+ T. Gharib Yousefabad, M. Ghahramani, M. Javanbakht, Grafting of polystyrene and poly(sodium styrene sulfonate) on the surface of poly(vinylidene fluoride) via Atom Transfer Radical Polymerization: Synthesis and Characterization, 4 th International Biennial Conference on Oil, Gas, and Petrochemical Engineering, **2022. (Oral Session)**

- + N. Mahmoodi Esfandarani, M. Ghahramani, M. Abdollahi, Preparation of Cellulose Microfibers from Corn Agricultural Waste using Ball-milling Method, 15th international seminar on polymer science and technology, **2022. (Poster session)**

- + P. Gorji, M. Ghahramani , M. Haghighi-Yazdi, M. Javanbakht, Preparation of PVDF-HFP Gel Polymer Electrolytes with Honey Comb-Like Morphology Structure for Lithium-Ion Battery Application, 15th international seminar on polymer science and technology, **2022. (Oral Session)**

- + P. Gorji, M. Ghahramani and M. Haghighi-Yazdi, The effect of Electrolyte Solvent on the Performance of the LiMn₂O₄ Cathode for Lithium-ion Battery Application, 2nd International Conference on Industrial Application of Advanced Materials and Manufacturing, **2022. (Oral Session, selected paper of conference)**

- + N. Mahmoodi Esfandarani, M. Ghahramani, M. Abdollahi, Extraction of Cellulose from Agriculture Waste without using Organic Solvent, The 1st National Conference on Environmental Challenges: Green Industry and Mining, **2022. (Poster session)**

- + T. Gharib Yousefabad, M. Zendedel Haghighi, M. Ghahramani, M. Javanbakht and S. Jamalpour, Investigation and Calculation of the Lithium-Ion Diffusion Coefficient in the Electrode of Lithium-Ion Batteries Composed of Poly(vinylidene fluoride) Gel Polymer Electrolyte, 17th Iranian National Congress of Chemical Engineering, **2021. (Poster session)**

- + M. Ghahramani, M. Zendedel Haghighi, T.Gharib Yousefabad, S. Jamalpour ,Investigation of the Effect of Solvent and Poly(ethylene glycol) on the Morphology of Poly(vinylidene fluoride) Membrane, 6th National Seminar on Polymer, **2021. (Poster session)**

- + S. Jamalpour, M. Ghahramani, S. R. Ghaffarian, M. Javanbakht, "Effect of organic-inorganic hybrid nanoparticles for improving the electrochemical performace of PVDF as a gel polymer electolyte for lithium ion batteries", **ISPST2020. (Oral session)**

- + M. A. Semsarzadeh, **M. Ghahramani**, "Preparation of Layered Membrane of Poly(vinyl acetate) using Polyurethane Support for Gas Separation Application", Presented at 12th International Seminar on Polymer Science and Technology, **2016. (Oral session)**

- + M. A. Semsarzadeh, **M. Ghahramani**, "Study on Correlation between Morphology and Surface Tension of Poly(dimethyl siloxane) Copolymers for Membrane Application", Presented at 12th

International Seminar on Polymer Science and Technology, **2016**.
(Oral session)

- + S. Jamalpour, **M. Ghahramani**, S. A. Alavi, A. H. Haghighi, "Unsaturated Polyester Toughened Epoxy Hybrid Nanocomposites", Presented at 12th International Seminar on Polymer Science and Technology, **2016**. (Poster session)
- + M. A. Semsarzadeh, **M. Ghahramani**, "THE EFFECT OF SOLVENT ON SELF-ASSEMBLY OF THE PDMS BLOCK COPOLYMER", Presented at Third International Conference on Oil, Gas and Petrochemical Iran, **2015**. (Poster session)
- + M. A. Semsarzadeh, **M. Ghahramani**, "IMPROVED GAS PERMEATION WITH NEW POLYDIMETHYLSILOXANE BLOCK COPOLYMER MEMBRANES", Presented at Third International Conference on Oil, Gas and Petrochemical Iran, **2015**. **(Oral session)**
- + M. A. Semsarzadeh, **M. Ghahramani**, "Synthesis of Poly(dimethylsiloxane) Triblock Copolymer with Poly(methyl acrylate) and Preparation of It's Blend with Polyvinyl acetate for Membrane Application", Presented at the The 8th International Chemical Engineering Congress & Exhibition (IChEC 2014), Kish, Iran **2014**. **(Oral session)**
- + M.A. Semsarzadeh, **M. Ghahramani**, "An Investigating on the Importance of Flory-Huggins Binary Interaction Parameters in Membrane Formation", Presented at 11th International Seminar on Polymer Science and Technology, **2014**. **(Oral session)**
- + M.A. Semsarzadeh, **M. Ghahramani**, "The Effect of PVAc on the CO₂ Permselectivity of PMA-PDMS-PMA block copolymer/PVAc Blend Membranes", Presented at 11th International Seminar on Polymer Science and Technology, **2014**. (Poster session)
- + Mobina Razani, Maral Ghahramani, Maryam Karimi, Ali Ghezi, Hexagonal boron nitride in catalytic and photocatalytic applications, Hexagonal Boron Nitride Synthesis, Properties, and Applications, 2024.
- + Maral Ghahramani, Fariba Mafakheri, Hossein Ebrahimi, Seifollah Jamalpour, Poly(vinyl chloride)/block copolymers, blends, interpenetrating networks, and gels, Book: POLY(VINYL CHLORIDE)-BASED BLENDS, INTERPENETRATING POLYMER NETWORKS (IPNS), AND GELS, Elsevier, 2024.

- + Pooya Gorji, Mobina Razani, Ahdieh Amjadi, Maral Ghahramani, Polymer-Mediated Functionalized Magnetic Nanosystems for Biomedical Applications, Book Title: FUNCTIONALIZED MAGNETIC NANOSYSTEMS FOR DIAGNOSTIC TOOLS AND DEVICES, Elsevier, 2024.
- + Maral Ghahramani, Maryam Karimi, Fluoropolymer Nanocomposites for Photocatalytic Applications, Book Title : Advanced Fluoropolymer Nanocomposites: Fabrication, Processing, Characterization and Applications, Elsevier, 2023.
- + Maral Ghahramani, Pooya Gorji, et. al., Conducting Polymer Nanocomposites for Lithium-Ion batteries: Fabrication, Characterization and Electrochemical Performance, Nanostructured Materials for Energy Storage, Wiley (Accepted 2022).

THESIS

PhD

Controlling Morphology of Copolymers Synthesized by Molecular Design and Fabrication of Polydimethylsiloxane Copolymers/Polyurethane Layered Membranes for Gas Separation Application Advisors: Prof. M. A. Semsarzadeh, 2015 – 2018

MS

Investigation of microphase effects on gas permeation behavior of poly(dimethyl siloxane) block copolymer/ pol(vinyl acetate) blend membranes Advisors: Prof. M. A. Semsarzadeh, 2013-2014.

TEACHING EXPERIENCES

+Instructor, **Molecular Modeling**, Department of Polymer Engineering, Tarbiat Modares University, Tehran, Iran, 2023-Now. (Master of Science)

+Instructor, **Macromolecular Design and Architecture**, Department of Polymer Engineering, Tarbiat Modares University, Tehran, Iran, 2022-Now. (Master of Science)

+ Instructor, **Polymer Engineering**, Department of Biomedical, Tarbiat Modares University, Tehran, Iran, 2023-Now. (Master of Science)

+Instructor, **Experimental Design**, Department of Polymer Engineering, Tarbiat Modares University, Tehran, Iran, 2020-Now. (Master of Science)

+Instructor, **Degradation and Stability of Polymers**, Department of Polymer Engineering, Tarbiat Modares University, Tehran, Iran, 2020-Now. (Master of Science)

+Instructor, **Polymerization Process Engineering**, Department of Polymer Engineering, Tarbiat Modares University, Tehran, Iran, 2020-Now. (Master of Science)

+Instructor, **General Chemistry Laboratory**, Department of Chemistry, Amirkabir University of Technology, Tehran, Iran, 2020-Now. (Bachelor of Science).

+ Instructor, **General Chemistry**, Department of Chemistry, Amirkabir University of Technology, Tehran, Iran, 2019-Now. (Bachelor of Science)

+Instructor, **Mass Transfer**, Department of Chemical Engineering, Islamic Azad University, Shiraz, Iran, 2015-2016. (Bachelor of Science)

PROJECTS

- + Guest Researcher, "Localization of Lithium-ion battery value-chain", Renewable Energy and Energy Efficiency Organization, Tehran, Iran, 2023-2024.
- + Guest Researcher, "Thermal Energy Storage: Technology, components and Materials", Renewable Energy and Energy Efficiency Organization, Tehran, Iran, 2023-2024.
- + Project Assistant, "Revision and Update of National Roadmap for Development of Lithium-Ion Batteries Technology", Amirkabir University of Technology, 2020-2022.
- + Postdoctoral Researcher, "In situ polymerization of polymeric nanocomposites and preparation of highly porous gel polymer electrolytes for lithium-ion battery application", Department of Chemistry, Amirkabir University of Technology, 2019-2021.
- + Project Assistant, "Application of polymeric membranes for Lithium-ion battery application", Department of Polymer Engineering, Amirkabir University of Technology, 2018-2020.