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Professional Summary

An accomplished Associate Professor of Chemical Engineering with extensive expertise in nanomaterials synthesis, environmental remediation, and sustainable materials. A proven record of leading high-impact research, securing competitive funding, and mentoring graduate students. Research focuses on designing advanced functional materials for applications in catalysis, adsorption, antimicrobial systems, and green engineering.

Education

Ph.D., Chemical Engineering (2012), Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

M.Sc., Chemical Engineering-Biotechnology (2008), Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.

B.Sc., Chemical Engineering (2006), Sahand University of Technology, Tabriz, Iran.

Academic Appointments

- **Associate Professor** (2021 – Present): University of Tabriz, Faculty of Chemical & Petroleum Engineering
- **Associate Professor** (2017 – 2021): University of Mohaghegh Ardabili, Faculty of Chemical Engineering
- **Assistant Professor** (2012 – 2017): University of Mohaghegh Ardabili, Faculty of Chemical Engineering

Teaching Experience

Graduate Courses

- Advanced Water and Wastewater Treatment
- Solid Waste Management
- Surface Phenomena
- Air Pollution Control

Undergraduate Courses

- Chemical Engineering Thermodynamics I
- Kinetics and Reactor Design
- Unit Operations
- Fluid Mechanics
- Environmental Engineering
- Refinery Processes

Research Interests

- **Advanced Functional Materials:** Green synthesis of nanomaterials (NPs, QDs, nanocomposites) and hybrid materials using natural substrates (zeolites, clay, biopolymers).
- **Environmental Nanotechnology:** Advanced Oxidation Processes (AOPs like sonophotocatalysis, photo-Fenton) and advanced adsorption for water treatment and pollutant degradation.
- **Sustainable Materials:** Development of engineered biopolymer nanocomposites for smart, antibacterial food packaging.
- **Antimicrobial Systems:** Design of antimicrobial agents (e.g., metal-exchanged zeolites) for water disinfection and self-cleaning surfaces.
- **Energy Applications:** Solar light-induced photocatalysts and superhydrophobic coatings for water conservation.

Awards & Honors

- Outstanding Researcher of Ardabil Province in Engineering Fields (2021)
- Outstanding Researcher of University of Mohaghegh Ardabili in Engineering Fields (2020)

Research Supervision

- Successfully supervised 20 MSc students to completion.
- Current supervision of 8 PhD and 6 MSc students.

Papers Published in Scientific Journals

2025

1. Faryad, S. and **Ghorbanpour**, M., 2025. Antibacterial Efficacy of Solid-State Cu^{2+} Exchanged Clinoptilolite: Structural Characterization and Microbial Resistance. *Journal of Water and Environmental Nanotechnology*, *10*(2), pp.132-140.

2. Alatabe, M.J.A. and **Ghorbanpour**, M., 2025. Development of biodegradable chitosan films reinforced with zinc-exchanged bentonite for enhanced mechanical, water barrier, and antibacterial properties. *Indian Chemical Engineer*, pp.1-10.
3. Hassanzadeh Bavojdan, H., **Ghorbanpour**, M. and Shahriari, R., 2025. Magnesium, Zinc, and Iron Co-doped Titanium Dioxide: A Novel Visible-Light Sonophotocatalyst for Enhanced Photocatalytic degradation of methyl orange. *Pollution*.
4. Behfar, S., **Ghorbanpour**, M. and Alatabe, M.J.A., 2025. Characterisation and visible light induced antibacterial activity of Cu-doped zinc oxide nanoparticles. Indian Chemical Engineer, pp.1-10.
5. Alatabe, M.J.A., **Ghorbanpour**, M. and Farzi, A., 2025. Adsorption and Advanced Oxidation Processes for Sustainable Treatment of Oil Produced Water and Organic Wastewater. A Review. Russian Journal of Applied Chemistry, pp.1-21.

2024

1. Asadzadeh, N., **Ghorbanpour**, M. and Sayyah, A., 2024. Fabrication and physicomechanical enhancement of APTES Cross-linked gelatin biopolymer films. Chemical Papers, pp.1-17.
2. Jafarpisheh, F., Kolvir, H.R. and **Ghorbanpour**, M., 2024. Photocatalytic self-cleaning and antibacterial activity of modified wood by Ag doped TiO2 nanoparticles. Next Materials, 4, p.100207.
3. Shahriiari, R. and **Ghorbanpour**, M., 2024. The potential antibacterial application of Mg-doped zinc oxide nanoparticles synthesized through sol-gel method. Journal of Ultrafine Grained and Nanostructured Materials, 57(1), pp.61-67.
4. Alizadeh, F., **Ghorbanpour**, M. and Alatabe, M.J.A., 2024. Dye adsorption onto iron oxide prepared by green method mediated by leaf extract of Falcaria vulgaris. Indian Chemical Engineer, pp.1-12.
5. Faryad, S., **Ghorbanpour**, M. and Safajou-Jahankhanemlou, M., 2024. Effect of silver salt type on the physicochemical properties and antimicrobial activity of solid-state Ag-exchanged zeolites. International Journal of Ceramic Engineering & Science, p.e10241.
6. Alatabe, M.J.A. and **Ghorbanpour**, M., 2024. A performance comparison of photo-fenton decolorization of methylene blue by using bentonite/iron composites prepared by liquid phase and solid phase ion exchange method. Desalination and Water Treatment, 317, p.100027.

7. Faryad, S., Ghorbanpour, M. and Safajou-Jahankhanemlou, M., 2024. Effect of silver salt type on the physicochemical properties and antimicrobial activity of solid-state Ag-exchanged zeolites. International Journal of Ceramic Engineering & Science, 6(6), p.e10241.

8. Faryad, S. and Ghorbanpour, M., 2024. Zn exchanged clinoptilolite as an antimicrobial agent for water disinfection. Indian Chemical Engineer, pp.1-8.

2023

1. Asadzadeh, N., **Ghorbanpour**, M. and Sayyah, A., 2023. Effects of filler type and content on mechanical, thermal, and physical properties of carrageenan biocomposite films. International Journal of Biological Macromolecules, 253, p.127551.
2. Abnous, N., **Ghorbanpour**, M. and Shayesteh, K., 2023. Equilibrium and kinetic studies on adsorption of hexavalent chromium from aqueous solutions using solid-state iron exchange bentonite. Desalination and Water Treatment, 312, pp.100-107.
3. Bavi, A., **Ghorbanpour**, M. and Ali Alatabe, M.J., 2023. Adsorption, isotherms and kinetics characteristics of solid state Mg exchanged bentonite for removal of methylene blue. Journal of Water and Environmental Nanotechnology, 8(4), pp.396-405.
4. **Ghorbanpour**, M. and Hakimi, B., 2023. Comparison of photocatalytic activity of ZnO/activated carbon nanocomposites prepared by solid-state method and conventional precipitation method. Journal of Nanostructures.
5. Jajin, R.G. and **Ghorbanpour**, M., 2023. Removal of asphaltene by solid-phase iron exchanged bentonite. Environmental Progress & Sustainable Energy, 42(3), p.e14032.
6. Jafarpisheh, F. and **Ghorbanpour**, M., 2023. Photocatalytic decolorization of Methylene Blue by using solid-state zinc exchanged clinoptilolite. Desalination and Water Treatment, 289, pp.221-227.

2022

1. Rasouli, H., Jafarpisheh, F. and **Ghorbanpour**, M., 2022. Synthesis and characterization of Sn-doped TiO2 nanoparticles and the evaluation of their Photocatalytic performance under Vis-lights. Journal of Water and Environmental Nanotechnology, 7(4), pp.344-350.

2. Rasouli, H., Khodabakhshi, M. and **Ghorbanpour**, M., 2022. Decolorization of methyl orange dye by photo-Fenton process using silica gel/iron oxide catalyst. Desalination and Water Treatment, 274, pp.289-296.

3. Fooladivanda, S., Ghorbanpour, M. and Moghimi, M.B., 2022. Activation of Red Clay for Adsorption of Dye and its Regeneration by Photo-Fenton Process. Journal of Water and Wastewater; Ab va Fazilab (in persian), 33(3), pp.115-125.

4. Hajipour, N., **Ghorbanpour**, M., & Safajou-Jahankhanemlou, M. (2022). Synthesis and characterization of solid-state Fe-exchanged nano-bentonite and evaluation of methyl orange adsorption. Environmental Science and Pollution Research, 29(33), 49898-49907.

5. Jajin, R. G., & **Ghorbanpour**, M. (2022). Removal of asphaltene by solid-phase iron exchanged bentonite. Environmental Progress & Sustainable Energy, e14032.

6. Rasouli, H., Jafarpisheh, F., & **Ghorbanpour**, M. (2022). Synthesis and characterization of Sn-doped TiO2 nanoparticles and the evaluation of their Photocatalytic performance under Vis-lights. Journal of Water and Environmental Nanotechnology, 7(4), 344-350.

7. Jajin, R. G., Feizi, A., & **Ghorbanpour**, M. (2022). Experimental investigation of hydrophobic bentonite effects on reducing evaporation from water surfaces. Journal of Hydrology and Hydromechanics, 70(2), 170-177.

8. Hajipour, N., **Ghorbanpour**, M., & Feizi, A. (2022). Photo-Fenton decolorization of dye with Cu solid state exchanged bentonite. DESALINATION AND WATER TREATMENT, 256, 265-72.

2021

1. Ghahramani Jajin, R., Feizi, A., & **Ghorbanpour**, M. (2021). Reduction of Water Evaporation from Dam Reservoirs Using Hydrophobic Silver-Doped Titanium Dioxide Nanoparticles Coating. Water Resources Research, 57(5), e2020WR029231.

2020

1. Nouri, A., Yaraki, M. T., Lajevardi, A., Rezaei, Z., **Ghorbanpour**, M., & Tanzifi, M. (2020). Ultrasonic-assisted green synthesis of silver nanoparticles using Mentha aquatica leaf extract for

enhanced antibacterial properties and catalytic activity. Colloid and Interface Science Communications, 35, 100252.

2. Nouri, A., Yaraki, M. T., Lajevardi, A., Rahimi, T., Tanzifi, M., & **Ghorbanpour**, M. (2020). An investigation of the role of fabrication process in the physicochemical properties of κ-carrageenan-based films incorporated with Zataria multiflora extract and nanoclay. Food Packaging and Shelf Life, 23, 100435.

3. Shayegh, R., & **Ghorbanpour**, M. (2020). A new approach for preparation of iron oxide-pillared bentonite as adsorbent of dye. Desalination and Water Treatment, 183, 404-412.

4. Yosofi, M., & **Ghorbanpour**, M. (2020). Optimum dioxide titanium nanoparticles in dioxide titanium/bentonite composite for sonophotocatalytic decolorization of methyl orange dye. Journal of Environmental Science and Technology, 21(12), 13-26.

2019

1. Mahsa Madadi, Mohammad **Ghorbanpour**, Atabak Feizi, Preparation and Characterization of Solar Light-Induced Rutile Cu-doped TiO_2 Photocatalyst by solid-state molten salt method, Desalination and Water Treatment, 145 (2019) 257–261.
2. **Ghorbanpour**, Mohammad; Atabak Feizi, Iron-doped TiO_2 Catalysts with Photocatalytic Activity, Journal of Water and Environmental Nanotechnology, 4(2019).
3. Bahareh Hakimi, mohammad **ghorbanpour**, Atabak Feizi, Comparison of photocatalytic activity of ZnO/activated carbon nanocomposites prepared by solid-state method and conventional precipitation method, journal of nanostructures,8(3): 259-265.

2018

1. Bahareh Hakimi, Mohammad **ghorbanpour**, Atabak Feizi, ZnO/bentonite Nanocomposites Prepared by Solid-state Ion Exchange as Photocatalysts for Degradation of Dyes, Journal of Ultrafine Grained and Nanostructured Materials, 2018, 51(2(

2. Mahsa Madadi, mohammad **ghorbanpour**, Atabak Feizi, Antibacterial and Photocatalytic Activity of Anatase Silver-doped Titanium Dioxide Nanoparticles, micro and nanoletters, Volume 13, Issue 11, November 2018, p. 1590 – 1593.

3. Nouri, A., Yaraki, M. T., **Ghorbanpour**, M., & Wang, S. (2018). Biodegradable κ-carrageenan/nanoclay nanocomposite films containing Rosmarinus officinalis L. extract for improved strength and antibacterial performance. International journal of biological macromolecules. 115 (2018) 227–235.

4. B Hakimi, M **Ghorbanpour**, A Feizi, A Comparative Study between Photocatalytic activity of ZnO/bentonite Composites Prepared by Precipitation, Liquid-state Ion Exchange and Solid-state Ion Exchange Methods, Journal of Water and Environmental Nanotechnology 3 (3), 273-278.

5. Mohammad **Ghorbanpour**, Soybean oil bleaching by adsorption onto bentonite/iron oxide nanocomposites, Journal of Physical Science, 29 (2), 113–119.

6. Nouri, A., Yaraki, M. T., **Ghorbanpour**, M., Agarwal, S., & Gupta, V. K. (2018). Enhanced Antibacterial effect of chitosan film using Montmorillonite/CuO nanocomposite. International journal of biological macromolecules, 109, 1219-1231.

7. Mohammad Ghorbanpour, Antibacterial activity of porous anodized copper (2018) Journal of Ultrafine Grained and Nanostructured Materials, 50(1), 1-5.

8. Afsaneh Nouri, Mohammad **Ghorbanpour** and Samaneh Lotfiman (2018). Diffusion of Cu Ions into Nanoclay by Molten Salt Ion Exchange for Antibacterial Application, journal of physical science, 29, 31-42.

2017

1. Garshasbi, N., **Ghorbanpour**, M., Nouri, A., & Lotfiman, S. (2017). Preparation of Zinc Oxide-Nanoclay Hybrids by Alkaline Ion Exchange Method. Brazilian Journal of Chemical Engineering, 34(4), 1055-1063 .

2. Mohammad **Ghorbanpour**; Maryam Mazloumi; Afsaneh Nouri; Samaneh lotfiman, (2017) Silver-Doped Nanoclay with Antibacterial Activity, Journal of ultrafine grained and nanostructured materials, 50(2): 124-131.

3. S. Lotfiman, M. **Ghorbanpour**, Antimicrobial activity of ZnO/Silica gel nanocomposites prepared by a simple and fast solid-state method, Surface & Coatings Technology 310 (2017) 129–133.

4. S. M. Moghimi, M. **Ghorbanpour**, S. Lotfiman, Silica-supported copper oxide nanoleaf with antimicrobial activity against Escherichia coli, Journal of Water and Environmental Nanotechnology, Journal of Water and Environmental Nanotechnology, 2(2): 112-117, Spring 2017.

Past

1. Mohammad **Ghorbanpour**, samaneh lotfiman, mehran yousofi, Photocatalytic decolorization of methyl orange by silica-supported TiO2 composites, Journal of Ultrafine Grained and Nanostructured Materials 50 (1), 43-50 .

2. Mohammad **Ghorbanpour**, Samaneh Lotfiman Solid-state immobilization of titanium dioxide nanoparticles onto nanoclay, Micro & Nano Letters .

3. Hamideh Pourabolghasem, Mohammad **Ghorbanpour** and Razieh Shayegh, Antibacterial activity of copper-doped montmorillonite nanocomposites prepared by alkaline ion exchange method, journal of physical science, 27 (2) 2016, 1-9.

4. Shalaleh Gilani, Mohammad **Ghorbanpour**, Aiyoub Parchehbaf Jadid, Antibacterial activity of ZnO films prepared by anodizing, Journal of Nanostructure in Chemistry, DOI: 10.1007/s40097-016-0194-1.

5. Roya Payami, Mohammad **Ghorbanpour**, Aiyoub Parchehbaf Jadid, Antibacterial silver-doped bioactive silica gel production using molten salt method, Journal of Nanostructure in Chemistry, DOI :10.1007/s40097-016-0193-2 .

6. Hamideh Pouraboulghasem, Mohammad **Ghorbanpour** , Razieh Shayegh, Samaneh Lotfiman, Synthesis, characterization and antimicrobial activity of alkaline ion-exchanged ZnO/bentonite nanocomposites, Journal of Central South University 23 (2016), 787-792 .

7. Mohammad **Ghorbanpour**, Amine accessibility and chemical stability of silver SPR chips silanized with APTES via vapor phase deposition method, journal of physical science, 27(1), 2016, 39-51 .

8. Mohammad **Ghorbanpour**, Fabrication of a New Amine Functionalised Bi-layered Gold/Silver SPR Sensor Chip, Journal of Physical Science 26(2), (2015) 1–10 .

9. Mohammad **Ghorbanpour**, Stability modification of SPR silver nano-chips by alkaline condensation of aminopropyltriethoxysilane, Journal of Nanostructures 5 (2015) 105-110 .

10. Mohammad **Ghorbanpour**, Cavus Falamaki, novel method for the fabrication of ATPES silanized SPR sensor chips: Exclusion of Cr or Ti intermediate layers and optimization of optical/adherence propertiesm, Applied Surface Science 301 (2014) 544–550 .

11. Mohammad **Ghorbanpour**, Cavus Falamaki, A novel method for the production of highly adherent Au layers on glass substrates used in surface plasmon resonance analysis: substitution of Cr or Ti intermediate layers with Ag layer followed by an optimal annealing treatment, Journal Of Nanostructure in Chemistry 3 (2013) 2-7.

12. M. **Ghorbanpour**, Optimization of Sensitivity and Stability of Gold/Silver bi-Layer Thin Films Used in Surface Plasmon Resonance Chips, JNS 3 (2013) 309-313.

13. **Ghorbanpour** Mohammad; Zokaee Ashtiani, Farzin, Purification and partial characterization of a thrombin-like enzyme (AH144) from venom of Iranian snake Agkistrodon halys, Iran. J. Chem. Chem. Eng.31 (2012.(

14. Mohammad **Ghorbanpour** and Cavus Falamak, Micro energy dispersive x-ray fluorescence as a powerful complementary technique for the analysis of bimetallic Au/Ag/glass nanolayer composites used in surface plasmon resonance sensors, APPLIED OPTICS 51 (2012.(

15. Zare Mirakabadi A., **Ghorbanpour** M., Sadeghi A., Sarzaeem ATwo-step purification and partial characterization of an extra cellular α-amylase from Bacillus licheniformis, Archives of Razi Institute 67 (2012) 155-160.

16. **Ghorbanpur** M, Zare Mirakabadi A, Zokaee F, Zolfagarrian HJ, Identification and partial purification of an anticoagulant factor from the venom of the Iranian snake Agkistrodon halys Venom Anim Toxins incl Trop Dis. 16 (2010).

17. **Ghorbanpur** M; Zare Mirakabadi AI; Zokaee F; Zolfagarrian H; Rabiei H, Purification and partial characterization of a coagulant serine protease from the venom of the Iranian snake Agkistrodon halys, J. Venom Anim Toxins incl Trop Dis. 15 (2009)