

## Somayeh Ghasemirad

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**Affiliation:** Chemical Engineering Faculty  
Tarbiat Modares University

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### CURRENT POSITION

Member of Scientific Board at Tarbiat Modares University (Assistant Professor)

### EDUCATION

**Ph.D., Polymer engineering**, Amirkabir University of Technology, Winter 2016

Dissertation: “Elucidation of theoretical and experimental fundamentals in nano-structuring and adjusting the adhesion of water-based acrylic adhesive mixture in a pressure-sensitive adhesive”

Supervisor: Professor Naser Mohammadi

**M.Sc., Polymer engineering**, Amirkabir University of Technology, Summer 2009

Thesis: “Preparation of bitumen/polymer blend nanoemulsion via phase inversion emulsification”

Supervisor: Professor Naser Mohammadi

**B.Sc., Polymer engineering**, Amirkabir University of Technology, Summer 2007

Thesis: “Direct emulsification of solution of two waxes in water: Role of hydrophilic-lipophilic balance (HLB)”

Supervisor: Professor Naser Mohammadi

### HONORS

**Recipient**, Top academic graduate, Iran’s National Elites Foundation, 2018

**Recipient**, Outstanding bachelor student, Amirkabir University of Technology, 2007

### TEACHING EXPERIENCE

**Assistant professor**, Sep. 2017-Present (Ongoing)

Polymer Engineering Department, Chemical Engineering Faculty, Tarbiat Modares University

*Courses:* Advanced Physical Chemistry of Polymers (MSc), Adhesion (MSc), MATLAB Programming in Polymer Engineering (Workshop for PhD and MSc students)

**Instructor**, Sep. 2016-Sep. 2017

Polymer and Color Engineering Department, Amirkabir University of Technology

*Course:* Physical Chemistry of Polymers Laboratory (BSc)

**Instructor**, Sep. 2016-Feb. 2018

Engineering Faculty, Science and Research Branch of Islamic Azad University

*Courses:* Interface Engineering in Polymer Nanocomposites (MSc), Mathematics in Polymer Engineering (BSc), Physical and Mechanical Properties of Polymers (BSc)

**Teaching assistant**, Sep. 2014-Dec. 2014 & Sep. 2011-Dec. 2011

Polymer and Color Engineering Department, Amirkabir University of Technology

Course: Advanced Physical Chemistry of Polymers (MSc)

Teaching assistant, Jan. 2010-Dec. 2010

Polymer and Color Engineering Department, Amirkabir University of Technology

Course: Physical Chemistry of Polymers (BSc)

## RESEARCH INTERESTS

Physical chemistry of polymers

Adhesion and adhesives

Designing polymer nanocomposites

Polymer (nano)colloids

## FURTHER RESEARCH EXPERIENCE

Postdoctoral research, Amirkabir University of Technology, Sep. 2016-Sep. 2017

Research project title: "Preparation of nano-colloidal polymer-modified bitumen via emulsification"

PI: Professor Naser Mohammadi

Research assistant, Amirkabir University of Technology, Mar. 2016-Sep. 2017

Research project title: "Polypropylene products technology development"

## INDUSTRIAL PROJECTS

Asia Chaman, 2019-Present (Ongoing)

Project title: "Formulation of a two-component polyurethane adhesive for artificial grass"

## JOURNAL PUBLICATIONS

1. Ahmadi-Dehnoei A., **Ghasemirad S.**, Shiri R., "Preparation and Improvement of Shear Strength of a Water-Redispersible Waterborne Acrylic Adhesive for Making Cellulose Joints" *Appl. Res. Chem. Polym. Eng.* 3, **2019**: 47-57 (in Farsi), <https://arcpe.modares.ac.ir/article-38-30966-en.html>.
2. Shiri R. and **Ghasemirad S.**, "Introducing Some of the Most Important Challenges in Film Formation of Polymer Lattice" *Iran Polym. Technol.: Res. Develop.* 3, **2018**: 15-23 (in Farsi) <http://www.irdpt.ir/Article/13971005166437>.
3. Khoubi-Arani Z., Mohammadi N., **Ghasemirad S.**, "Concurrent Determination of Two Opposite Phase Transitions in a Soft Polymer Nanocomposite by Rheology and Their Theoretical Evaluations" *Eur. Polym. J.* 84, **2016**: 40–53, DOI: 10.1016/j.eurpolymj.2016.09.008.
4. **Ghasemirad S.**, Mohammadi N., "Active Layer Thickness across the Crack Plane and Fracture Energy Consumption in Polymer Nanocomposites: Adhesion against Tear Strength" *RSC Advances* 5, **2015**: 107642–107651, DOI: 10.1039/C5RA21937J.
5. **Ghasemirad S.**, Mohammadi N., "How Do Soft Nanoparticles Affect Temperature-Induced Nonlinearity of a UCST Copolymer Blend?" *Colloid Polym. Sci.* 293, **2015**: 677–686, DOI: 10.1007/s00396-014-3446-y.
6. Javidnia H., Mohammadi N., Mousavi-Shooshtari A., **Ghasemirad S.**, Farajpoor T., Ghanbari M.R., "The Effect of Butyl Glycol Acetate/Ethyl Acetate Mixed Solvents Composition on Nitrocellulose Solution Emulsification, the Resultant Colloid Stability and Micro-filterability" *Iran. Polym. J.*, **2010**, 19 (5), 323-332, ID: IPJ-2010-05-5911.
7. **Ghasemirad S.**, Mohammadi N., "The Effect of Strand Deformability ahead of the Crack Tip on Tear and Adhesion Strength of Polymer Nanocomposites" *To be submitted*, **2020**.

8. **Ghasemirad S.**, Mohammadi N., Mashayekhi J. “Roles of Interfacial Properties on the Formation and Stability of Miniemulsified Bitumen/SBR Solution” *To be submitted*, **2020**.

## INTERNATIONAL CONFERENCES

1. Shiri R., **Ghasemirad S.**, Ahmadi-Dehnoei A., “Controlling Surface Nanoroughness of Latex Copolymer Blend Films via Drying Temperature”, 7<sup>th</sup> International Biennial Conference on Ultrafine Grained and Nanostructured Materials, 1-3 Sep. 2019, University of Trento, Trento, Italy (Oral Presentation).
2. Ahmadi Dehnoei A., **Ghasemirad S.**, “Environmentally Friendly Hybrid Polysilsesquioxane-Poly(butyl acrylate) Nanocomposite: Film Properties”, 13<sup>th</sup> International Seminar on Polymer Science and Technology, 19-22 Nov. 2018, Islamic Azad University, Tehran, Iran (Poster).
3. **Ghasemirad S.**, Mohammadi N., “Long-term Stability of Emulsion-Copolymerized Poly (methyl methacrylate-co-butyl acrylate) versus Poly (styrene-co-acrylonitrile) Latex”, 10<sup>th</sup> International Chemical Engineering Congress & Exhibition, 6-10 May 2018, Isfahan, Iran (Poster).
4. **Ghasemirad S.**, Mohammadi N., “Polyolefin Particles: From Morphogenesis to Properties”, 12<sup>th</sup> International Seminar on Polymer Science and Technology, 2-5 Nov. 2016, Islamic Azad University, Tehran, Iran (Poster).
5. Khoubi-Arani Z., Mohammadi N., **Ghasemirad S.**, “Nano-structured Soft Polymer Nanocomposites based on a Three Component System with UCST over LCST Phase Diagram”, 5<sup>th</sup> International Biennial Conference on Ultrafine Grained and Nanostructured Materials, 11-12 Nov. 2015, Iran University of Science and Technology, Tehran, Iran (Poster).
6. **Ghasemirad S.**, Mohammadi N., “LCST over UCST Phase Behavior of a Nanocomposite Determined by Differential Scanning Calorimetry and Rheomechanical Analysis”, 11<sup>th</sup> International Seminar on Polymer Science and Technology, 6-9 Oct. 2014, Iran Polymer and Petrochemical Institute, Tehran, Iran (Oral Presentation).
7. Khoubi-Arani Z., Mohammadi N., **Ghasemirad S.**, “Rheologically Determined Phase Behavior of an All-Polymer Nanocomposite”, 11<sup>th</sup> International Seminar on Polymer Science and Technology, 6-9 Oct. 2014, Iran Polymer and Petrochemical Institute, Tehran, Iran (Oral Presentation).
8. **Ghasemirad S.**, Mohammadi N., “Rheomechanical Analysis of a Model Poly (methyl methacrylate-co-butyl acrylate) Pressure Sensitive Adhesive as a Function of Annealing Time”, 8<sup>th</sup> International Chemical Engineering Congress & Exhibition, 24-27 Feb. 2014, Kish, Iran (Poster).
9. **Ghasemirad S.**, Mohammadi N., Mohammadi H., “Morphology Development in Polymer-containing Systems: Phase Separation against Phase Dissolution”, 10<sup>th</sup> International Seminar on Polymer Science and Technology, 21-25 Oct. 2012, Amirkabir University of Technology, Tehran, Iran (Keynote Lecture).
10. **Ghasemirad S.**, Mohammadi N., Mashayekhi J., “Phase Inversion Emulsification of Bitumen/Styrene-Butadiene Rubber/Aromatic Hydrocarbon (Solvesso) in Water: Toward Nanoemulsions”, 9<sup>th</sup> International Seminar on Polymer Science and Technology, 17-21 Oct. 2009, Iran Polymer and Petrochemical Institute, Tehran, Iran (Oral Presentation).

## BOOKS

A guidebook to adhesives (in Farsi), To be published in Mar. 2020 by Iranian Polymer Society.

## WORKSHOPS & CONGRESSES

1. Personal Development Strategies for Academic Staff, Tarbiat Modares University, Tehran, Jan. 2020.

2. Introduction to Molecular Dynamics, Tarbiat Modares University, Tehran, Dec. 2019.
3. Techniques and Skills for Making Lesson Plans and Electronic Teaching, Dec. 2019.
4. Teaching Strategies Considering Learning Outcomes and Teaching Success, Tarbiat Modares University, Tehran, Oct. 2019.
5. Personal Branding for Professors, Tarbiat Modares University, Tehran, Jul. 2019.
6. New Education and Pedagogical Research Methods, Tarbiat Modares University, Tehran, May 2019.
7. Knowledge-Based Oil Industry, Oil Ministry, Tehran, Iran, Mar. 2016.
8. Authors of Articles, Tarbiat Modares University, Tehran, Dec. 2015.
9. Editors and Chief Editors, Tarbiat Modares University, Tehran, Dec. 2015.
10. Evaluation and Judgment of Inventions, Amirkabir University of Technology, Tehran, May 2014.
11. National and International Patents Registration, Amirkabir University of Technology, Tehran, May 2014.
12. Commercialization of Patents and Supportive Institutions, Amirkabir University of Technology, Tehran, Dec. 2013.
13. Technical Principles of Patent Drafting and Search, Amirkabir University of Technology, Tehran, Dec. 2013.
14. Process and Procedure of National and International Patents Registration, Amirkabir University of Technology, Tehran, Dec. 2013.
15. International Bitumen Conference, Institute for Color Science and Technology, Tehran, Oct. 2008.
16. Characterization and Application of Nanocomposite Coatings, Iran Polymer and Petrochemical Institute, Tehran, Jan. 2008.

## LANGUAGES

Persian (Mother tongue)

English (Fluent in reading, listening, speaking, and writing)

Arabic (Fluent in reading)

German (Acquainted)

## PROFESSIONAL AFFILIATIONS

**Member**, Iranian Polymer Society

**Member**, Iranian Association of Chemical Engineers

**Member**, Iranian Society of Rheology