

## Biography

### Mehdi Razzaghi-Kashani

#### AREAS OF

- Polymeric Nanocomposites

#### EXPERTISE

- Tribology (Friction, Wear, and Lubrication) of Polymer Composites
  - Electroactive Polymers and Dielectric Elastomers
  - Compounding and processing of rubber
  - Design and Technology of Rubber Parts and Tires

#### EDUCATION

- The University of Akron, Akron, Ohio.

*Doctorate of Philosophy in Polymer Engineering, 1997-2000,*

Overall GPA: 3.92

*Master of Science and Engineering, 1994-1997, Polymer Engineering,*

Overall GPA: 3.93

- Amir-Kabir University of Technology (Tehran Polytechnic), Tehran, Iran.

*Bachelor of Science and Engineering, 1984 -1988, Chemical Engineering, Overall GPA 3.35*

- PROFESSIONAL
- Board member of Iranian Society of Science and Technology of Polymers
  - Member of *SPIE-Smart Structures/NDE scientific committee*
- AFFILIATIONS
- Member of *Iranian Association of Chemical Engineers*

PROFESSIONAL  
EXPERIENCE

- 2009-Current
- TARBIAT MODARES UNIVERSITY
- Tehran, Iran
- Associate Professor, Polymer Engineering Department*
- Head of the Polymer Engineering Department
- 2005-2009
- TARBIAT MODARES UNIVERSITY
- Tehran, Iran
- Assistant Professor, Chemical Engineering Department*
- Taught courses in Polymer Engineering discipline
    - Design and Technology of Elastomeric Components
    - Engineering Properties of Solid Polymers
    - Polymerization Reactor Engineering
  - Advised Polymer Engineering students of MS and Ph.D. programs
  - Researched in science and technology of polymeric material
- 1999-2005
- THE GOODYEAR TIRE & RUBBER COMPANY
- Akron, Ohio
- Senior Research Engineer, Mechanics of Material*
- Designed and analyzed numerical models for polymer surface physics (friction, abrasion, contact and rolling problems) and bulk mechanics (stress/deformation, fracture, and fatigue) research projects.

- Performed experimental studies on friction and abrasion of rubber materials.
- Researched fracture and durability problems for polymeric materials.
- Managed friction/abrasion physics laboratory.
- Designed, processed, and prepared research rubber specimen.

1988-1993

IRAN TIRE MANUFACTURING CO. (The Erstwhile General Tire Co.

Tehran, Iran

*Rubber Compounding Engineer and Supervisor of Mixing and Compounding Laboratory.*

- Designed rubber compounds for tires and other products.
- Established curing specifications.
- Involved in trouble shooting of product lines especially mixing, extrusion, and calendering processes.
- Managed the compounding and mixing laboratory.
- Involved in research and development projects and their performance in the product lines.
- Visited many suppliers in Iran Tire and overseas (S. Korea, Malaysia, and Singapore) and negotiated with them regarding technical issues.
- Involved in technical decisions and taught courses in compounding and processing of rubber.

## SKILLS

Computer Skills:

- Modeling by Finite Element Analysis, applying ABAQUS and PATRAN.
- Programming with “C” and FORTRAN.

Languages:

- Fluent in Farsi (Persian) and English.

Others:

- Research and analysis.
- Management and coordination.
- Personal and team work skills (good at one-to-one relationships with peers and superiors).

## RELEVANT

## PUBLICATIONS

### *Journal Papers:*

1. Razzaghi-Kashani M., Fakhar, A. M. Mehranpoor "Improvements in Tribological Properties of Polyoxymethelene by Aramid Short Fiber and Polythetrafluoroethylene", *Iranian Polymer Journal*, 22, 53-59 (2013).
2. Sepehri A., Razzaghi-Kashani M., Ghoreishy, M.H.R., "Vulcanization Kinetics of Butyl Rubber-Clay Nano-composites and Its dependence on Clay Microstructure", *Journal of Applied Polymer Science*, 125, E204-E213 (2012).
3. Pourhosseiny M-R, Razzaghi-Kashani M., "Nanocomposite of SBR/Hydroxy-terminated Polybutadiene Grafted- Fumed Silica", *Iranian Journal of Polymer Science and Technology*, 25, 103-112 (2012).
4. Salehi M., Razzaghi-Kashani, M., "Comparing Styrene Butadiene Rubber-Clay Nanocomposites Prepared by Melt Intercalation and Latex-Coagulation Methods", *Journal of Applied Polymer Science* 126, 253-259, (2012).
5. Pourhosseiny M-R, Razzaghi-Kashani M., "Nanocomposite of SBR/Hydroxy-terminated Polybutadiene Grafted- Fumed Silica", *Iranian Journal of Polymer Science and Technology*, 25, 103-112 (2012).
6. Razzaghi-Kashani, M., Behazin, E., Fakhar, A. "Construction and Evaluation of a New Tribometer for Polymers", *Polymer Testing*, 30, 271-276, (2011).
7. Razzaghi-Kashani M., Esmaeely Nisiany R., "Design, Construction, and Evaluation of Rubber Friction Tester", *Iranian Journal of Polymer Science and Technology*, 24, 153-164 (2011).
8. Gharavi N, Razzaghi Kashani, M, "The effect of Nanofiller on Electrical and Mechanical Properties of Silicone Rubber", *International Journal of nanomanufacturing*, 5, 335-3340 (2010).
9. Javadi S., Razzaghi-Kashani M., Gharavi N., "Dielectric Properties of Silicone Rubber-Titanium Dioxide Composites Prepared by Dielectrophoretic Assembly of Filler Particles", *Smart Materials and Structures*, 19, 035019 (2010).
10. Samadi A., Razzaghi-Kashani M., "Effects of Organo-clay Modifier on Physical-Mechanical Properties of Butyl-Based Rubber Nano-composite", *Journal of Applied Polymer Science*, 116, 2101-2109 (2010).
11. Gharavi, N, Razzaghi-Kashani, M., Javadi, S., Golshan-Ebrahimi, N., "Effect of Organo-Clay on Relaxation Response of Silcone Rubber Actuators", *Smart Materials*

and Structures, 19, 025002 (2010).

12. Salimi F, Vafaie-Sefti M, Razzaghi-Kashani M., "Preparation of Composite Hydrogel Based on Polyacrylamide and the Effect of Kaolinite on its Properties in the Reservoir Conditions", *Iranian Journal of Polymer Science and Technology*, 22, 2 (2009).
13. Razzaghi-Kashani, M., Gharavi, N., "Effect of Organo-Clay on Dielectric Properties of Silicone Rubber", *Smart Materials and Structures*, 17, 065035, (2008).
14. Razzaghi-Kashani, M. "Aramid-Short-Fiber Reinforced Rubber as a Tire Tread Composite", *Applied Polymer Science*, 113, 1355-1363, (2009).
15. Khanlari, S., Dehghani-Ashkezari, G., Kokabi, M., Razzaghi-Kashani, M., "Fiber Reinforced Nanocomposite Seismic Isolators: Design and Manufacturing", *Polymer Composites*, (2009).
16. Sarami, R., Ebrahimi, N.G., Razzaghi-Kashani, M., "Study of Polypropylene/Polyethylene Terphthalate Blend Fibers Compatibilized with Glycidyl Methacrylate", *Iranian Polymer Journal*, 17, 243-250, (2008).
17. Razzaghi-Kashani M, Hassankhani, H., "Improvement in Physical-Mechanical Properties of Butyl Rubber with Montmorillonite Organoclay" , *Iranian Polymer Journal*, 16, 671-679, (2007)
18. Razzaghi - Kashani M., Padovan J., "Modeling Reinforcement of Rubber with Carbon Black Filler", *Plastics, Rubber and Composites-Macromolecular Engineering*, 36, 47-55 (2007).
19. Gent A. N., Razzaghi Kashani M., Hamed H., "Why Do Cracks Turn Sideways?" *Rubber Chemistry and Technology*, 76, 122 (2003)
20. Gent A.N., Razzaghi Kashani M., "Energy Release Rate for a Crack in a Tilted Block" *Rubber Chemistry and Technology*, 73, 818 (2000)
21. Razzaghi Kashani M., Padovan J., "Simulation of Surface Flaw Propagation Associated with the Mechanical Fatigue Wear of Elastomers", *Rubber Chemistry and Technology*, 71, 214 (1998).

### **Certified Patents:**

**1-Design and Construction of a Polymer Tribometer for Research and Practical Applications**

**2-Design and Construction of an instrument to measure energy dissipation for rubber compounds in rolling condition.**

**DOCTORAL                    A Numerical Approach towards Understanding the Mechanism of Fatigue Wear in Tread Vulcanizates During Rolling of Tires.**

**DISSERTATION            Advisor: Dr. Joseph Padovan.**

**MASTER'S  
Vulcanizates.**

***Analytical Simulation of Mechanical Process of Wear for Rubber***

**THESIS**

***Advisor: Dr. Joseph Padovan.***

**MARITAL**

**STATUS**

***Married***

#### Courses



Engineering Properties of Solid Polymers

Design and Technology of Rubber Parts

Polymerization Engineering Principles

Research



## Areas of Expertise

Polymeric Nanocomposites

Mechanics of Rubbery Materials

Tribology of Polymers

Electroactive Polymers and Dielectric Elastomers