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Country of birth: Islamic Republic of Iran

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Area of Research:

Molecular Dynamics simulation, Metal & polymer matrix nanocomposites, 2D nanostructures, Computational nanomechanics, Multiscale modeling techniques, Biological nanocomposites for tissue engineering, NanoTribology, Heat transfer at nanoscale, Simulation of drug delivery systems

University Education:

[Ph.D. in Nanotechnology/NanoMechanics](#)

09/2005-08/2010: Institute for Nano Science and Technology, Sharif University of Technology, Tehran IRAN.

[M. Sc. in Mechanical Engineering/Applied Design](#)

09/2002-12/2004, Mechanical Engineering Department, Sharif University of Technology, Tehran IRAN.

[B. Sc. in Mechanical Engineering/Solid Mechanics](#)

09/1998-06/2002, Mechanical Engineering Department, Sharif University of Technology Tehran, IRAN.

Professional Experiences:

- ❖ Resident Researcher, School of Nano Science, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 09/2012-12/2024.
- ❖ Assistant Professor, Faculty of Materials Science and Engineering, K.N. Toosi University of Technology, Tehran, Iran, 09/2012-12/2017.
- ❖ Head of Divisions, Faculty of Materials Science and Engineering, K.N. Toosi University of Technology, Tehran, Iran, 03/2015-05/2017.
- ❖ Vice-Chairman: Educational Affairs, Faculty of Materials Science and Engineering, K.N. Toosi University of Technology, Tehran, Iran, 08/2017-02/2021.
- ❖ Associate Professor, Faculty of Materials Science and Engineering, K.N. Toosi University of Technology, Tehran, Iran, 12/2017-03/2026.
- ❖ Director of Graduate Studies, K.N. Toosi University of Technology, 03/2021-12/2023.
- ❖ Dean of Faculty, Faculty of Materials Science and Engineering, K.N. Toosi University of Technology, Tehran, Iran, 11/2024-Present.
- ❖ Professor, Faculty of Materials Science and Engineering, K.N. Toosi University of Technology, Tehran, Iran, 03/2026-Present.
- ❖ Vice President for Research, Iran National Science Foundation (INSF), 08/2026-Present.

Honors:

- ❖ Top 0.5% Scholar in the field of Nanocomposite (ScholarGPS, 2024)
- ❖ Educational and Teaching Award (K.N. Toosi University of Technology, 2024)
- ❖ Georg Forster Research Award for Experienced Researchers from the Alexander von Humboldt Foundation, Germany (2023)
- ❖ Educational and Teaching Award (K.N. Toosi University of Technology, 2023)
- ❖ Educational and Teaching Award (K.N. Toosi University of Technology, 2022)
- ❖ Distinguished Young Researcher (K.N. Toosi University of Technology, 2017)
- ❖ Selected Ph.D. Thesis in 7th Nanotechnology Iranian Students Conference, Tarbiat Modares University, Tehran, Iran, 2010.
- ❖ Exceptional Talents Award, Exceptional Talents Office, Dean of Graduate Studies, Sharif University of Technology, 2006.
- ❖ 20th Rank in Nationwide Graduate Entrance Exam out of About 3500 Mechanical Engineer, 2002.
- ❖ 22nd Rank in Second region among nearly 250,000 participants in the Nationwide University Entrance Exam, 1998.

Publications:

BOOK CHAPTER

- Abbas Montazeri, Behzad Mehrafrouz, "Theoretical Modeling of CNT-Polymer Interactions", A Book Chapter in *Carbon Nanotube-Reinforced Polymers* (Editor: R. Rafiee), Elsevier (2017), 347-383.

INTERNATIONAL REFEREED JOURNALS

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Mahdi Seif, Abbas Montazeri, "Elucidating the mechanism of inhibitory action of novel macrocyclic compounds against ALK in non-small cell lung carcinoma: insight from molecular dynamics and virtual screening", *In Silico Pharmacology*, 164 (2026) 1-14.

S. Yousefi, M. Kazemi, R. Eslami-Farsani, A. Montazeri, "Synergistic reinforcement and wear mechanisms in basalt fiber epoxy composites: Insights into the integration of hybrid nanoparticles", *Composites Part C: Open Access*, 20 (2026) 100737.

Sepehr Rastegar, Abbas Montazeri, "Endcap chemistry modulates PLGA hydrophilicity and compatibility with lipid membranes", *Surfaces and Interfaces*, 92 (2026) 109333.

Peyman Shadmani, Behzad Mehrafrouz, Abbas Montazeri, David M. Richards, "A biophysical model of phagocytic cup dynamics: The effect of membrane tension", *PLoS Computational Biology*, 22 (2026) e1014148.

Sheida Khakzad, Abbas Montazeri, "Interplay of strain rate, temperature, and nanoparticle clustering on the deformation mechanisms of Al/SiC nanocomposites: MD insights", *Composites Communications*, 62 (2026) 102709.

Amirreza Mohammadi, Abolfazl Malti, Abbas Montazeri, "From SLM Process Parameters to Performance: Microstructure and Mechanics of Nanostructured Titanium", *Materials & Design*, 261 (2026) 115250.

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- G. Jamirad, M. Seif, A. Montazeri, "Fine-tuning hydrophilic-hydrophobic balance in stimuli-responsive PEG-PNIPAM micelles for controlled drug delivery", *Journal of Molecular Liquids*, 436 (2025) 128239.
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- A. Malti, P. Rashidfar, A. Kardani, A. Montazeri, "Microstructural evolution and phase transitions in porous Ta-Cu alloys under high strain rates", *Scientific Reports*, 15 (2025) 19291.
- G. Jamirad, A. Montazeri, A. Rajabpour, "Enhanced interfacial thermal conductance in functionalized Boron Nitride/Polylactic acid nanocomposites: A molecular dynamics study", *Progress in Organic Coatings*, 186 (2024) 108037.
- A. Kardani, A. Montazeri, H.M. Urbassek, "Strain-rate-dependent plasticity of Ta-Cu nanocomposites for therapeutic implants", *Scientific Reports*, 13 (2023) 15788.
- S. A. Mousavi, A. Montazeri, "Predicting Mechanical Properties of Defective h-BN Nanosheets using Data-Driven Models", *Computational Materials Science*, 228 (2023) 112380.
- A. Abedini, A. Malti, A. Kardani, A. Montazeri, "Probing crack growth mechanisms and tensile properties of sintered multi-nanoparticle Al-Cu systems via MD simulation", *Advanced Powder Technology*, 34 (2023) 104084.
- A. Kardani, A. Montazeri, H.M. Urbassek, "Computational analysis of the mechanical properties of Ta/Cu nanocomposite dental implants: On the role of incoherent interfaces", *Metals and Materials International*, 29 (2023) 2385-2397.
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- Mohammad Amini, Abbas Montazeri, "Investigating the effect of poly (D L-Lactic Acid) molecular weight on the shape memory parameters: A molecular dynamics study", *New Processes in Materials Engineering*, 16 (2022) 1-11 (in Persian).
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- Sepehr Rastegar, Abbas Montazeri, "Atomistic insights into the toughening role of surface-treated boron nitride nanosheets in PLA-based nanocomposites", *European Polymer Journal*, 168 (2022) 111071.
- Mohammad Amini, Reza Amini Gazik, Farhang Honarvar, Abbas Montazeri, "Analysis of failure mechanisms of degraded hybrid glass-carbon composites in acidic medium: Insights from acoustic emission analysis", *Engineering Failure Analysis*, 134 (2022) 106082.
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- Amir Hossein Atabaki, Abbas Montazeri, Hashem Rafii-Tabar, Pezhman Sasanpour, "Determination of the optimal location of samples on quartz tuning fork-based biosensors: A computational study", *Biomaterial Physics & Engineering Express*, 7 (2021) 065024.
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- A. Montazeri, M. Sadeghi, R. Naghdabadi, H. Rafii-Tabar, "Multiscale modelling of the effect of carbon nanotube orientation on the shear deformation properties of reinforced polymer-based composites", *Physics Letters A*, 375 (2011) 1588.1597.
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- A. Montazeri, R. Naghdabadi, "Investigation of the interphase effect on the mechanical behavior of CNT/polymer composites by multiscale modeling", *Journal of Applied Polymer Science*, 117 (2010) 361-367.
- A. Montazeri, R. Naghdabadi, "Investigating the effect of CNT defects on the column and shell buckling of CNT-polymer composites using multiscale modeling", *International Journal for Multiscale Computational Engineering*, 7 (2009) 435-444.
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CONTRIBUTIONS TO CONFERENCE PROCEEDINGS

- A. Montazeri, "Advancing the mechanical and thermal properties of PLA nanocomposites through numerically-designed interface treatment: Insights from MD simulations", *Advanced Functional Materials*, **Invited Speaker**, Times Scientific Group, Dubai (2024).
- A. Montazeri, S. Rastegar, "Tailoring the toughness of PLA with the aid of surface-treated boron-nitride nanosheets: A molecular dynamics study", *International Chemistry Conference*, **Invited Speaker**, Virtual Event (2022).
- A. Montazeri, "Tailoring interfaces in polymer-based nanocomposites via nanofiller surface treatment: An insight from molecular dynamics simulations", *International Conference on Polymer Science and Composite Materials*, **Invited Speaker**, Virtual Event (2021).
- A. Montazeri, A. Amini, K. Hasheminejad, "Shape-memory behavior analysis of polylactic acid/graphene nanocomposites: A molecular dynamics study", *Molecular and Materials Simulation at the Turn of the Decade*, EPFEL, Lausanne, Switzerland (2019).
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- A. Montazeri, H. Rafii-Tabar, "Investigation of the nano-inclusion geometrical effects on the elastic constants of polymer nanocomposites using multiscale modeling approach", 21th Annual International Conference on Mechanical Engineering, K.N. Toosi University of Technology, Tehran, Iran (2013).
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