

Prof. Dr. Mahmoud Kadkhodaei



Professor of Engineering Mechanics

Faculty of Engineering

Email: mahmoud.kadkhodaei@giu-berlin.de

Room: 6.03

[Google Scholar](#)

Mahmoud Kadkhodaei is a Professor of Engineering Mechanics at German International University in Berlin (GIU Berlin). Prior to joining GIU Berlin, he held professorship position at Isfahan University of Technology (IUT) in Iran. He has been a visiting researcher / professor at several universities and institutes in Canada, France, Italy, and Poland during his career. Prof. Kadkhodaei won the Iranian Society of Mechanical Engineers' awards for supervision of the best B.Sc. final project and M.Sc. thesis in the whole country in 2010 and 2015, respectively, received the IUT teaching excellence award in 2013, and was distinguished as an outstanding graduate supervisor of IUT in 2017 and as an outstanding researcher of IUT with international collaborations in 2019.

Education

Ph.D., Mechanical Engineering-Applied Design, Isfahan University of Technology, Iran, 2007

M.Sc., Mechanical Engineering-Applied Design, Isfahan University of Technology, Iran, 2002

B.Sc., Mechanical Engineering-Solid Design, Isfahan University of Technology, Iran, 2000

Research Interests

Prof. Kadkhodaei's research interests have been mainly concentrated on shape memory alloys (SMAs), additive manufacturing, biomechanics, and metal forming. Since 2005, he has been working on modeling, production, characterization, and application of thermal and ferromagnetic SMAs. His works on 3D/4D printing have been related to modeling and finite element simulation of additively manufactured parts made of polymers or SMAs, as well as 4D printing of polymeric and metallic shape memory materials to produce smart parts with predefined behaviors. He has worked in consultative committees for research and development in metal rolling industries and cooperated in several industrial projects about troubleshooting, analysis, and innovations in various equipment. He has invented a number of assistive devices that improve the quality of

living of the elderly, as well as injured and disabled individuals, and reduce their dependence on assistance from healthcare providers.

Selected Publications

- Mohammad Hashemi, Y., Kadkhodaei, M., Sgambitterra, E., and Maletta, C., "*On the characterization of the compressive response of shape memory alloys using bending*", Smart Materials and Structures, Vol. 32, No. 3, p. 035033, 2023
- Zamani, M. R., Kadkhodaei, M., Badrossamay, M., and Foroozmehr, E., "*Adjustment of the scan track spacing and linear input energy to fabricate dense, pseudoelastic Nitinol shape memory alloy parts by selective laser melting*", Journal of Intelligent Material Systems and Structures, Vol. 33, No. 13, pp. 1719-1730, 2022
- Sattari, M., Kadkhodaei, M., Akbarzadeh, S., Gholami, R., and Beheshti, A., "*Wear in superelastic shape memory alloys: A thermomechanical analysis*", Wear, Vol. 488-489, p. 204139, 2022
- Keshavarzan, M., Kadkhodaei, M., and Forooghi, F., "*An investigation into compressive responses of shape memory polymeric cellular lattice structures fabricated by vat polymerization additive manufacturing*", Polymer Testing, Vol. 91, p. 106832, 2020
- Jahanbazi Asl, F., Kadkhodaei, M., and Karimzadeh, F., "*The effects of shape-setting on transformation temperatures of pseudoelastic shape memory alloy springs*", Journal of Science: Advanced Materials and Devices, Vol. 4, No. 4, pp. 568-576, 2019
- Karamooz, M. R., Taheri, M., Kadkhodaei, M., Saedi, S., Kraca, H., and Elahinia M., "*Modeling the cyclic shape memory and superelasticity of selective laser melting fabricated NiTi*", International Journal of Mechanical Sciences, Vol. 138-139, pp. 54-61, 2018
- Heidari, M., Kadkhodaei, M., Barati, M. and F Karimzadeh, F., "*Fabrication and modeling of shape memory alloy springs*", Smart Materials and Structures, Vol. 25, No. 12, pp. 125003, 2016
- Sameallah, SH., Legrand, V., Saint-Sulpice, L., Kadkhodaei, M., and Arbab Chirani, SH., "*A comprehensive energy approach to predict fatigue life in CuAlBe shape memory alloy*", Smart Materials and Structures, Vol. 24, No. 2, 025004, 2015
- Karamooz, M.R., Kadkhodaei, M., and Badrossamay, M., and Rezaei, R., "*Numerical Investigation on mechanical properties of cellular lattice structures fabricated by fused deposition modeling*", International Journal of Mechanical Sciences, Vol. 88, pp. 154-161, 2014
- Salimi, M., and Kadkhodaei, M., "*Slab analysis of asymmetrical sheet rolling*", Journal of Materials Processing Technology, Vol. 150, No. 3, pp. 215-222, 2004

Current Research

3D Printing: Novel structures made from ordinary, as well as shape memory, polymers are produced and characterized for various advanced applications.

Shape Memory Alloys: Data-driven models and numerical simulations are developed for various smart energy harvesting systems.