

Afsaneh Mojra

E-mail: mojra@kntu.ac.ir

Phone: +98 (912) 389-7118

Address: Department of Mechanical Engineering, K. N. Toosi University of Technology, 7 Pardis St., Tehran 1991943344, Iran, Tel: (+9821) 84063274

ABOUT

- Experienced University Professor with a demonstrated history of working in the Mechanical Engineering. Internationally recognized for innovative research in the Biomedical Engineering. Skilled in Leadership, Research, Experimental Studies, Mathematical Modeling, Engineering, Computational Fluid Dynamics (CFD), and Project Management.

EMPLOYMENT HISTORY

- **Associate professor** of Mechanical Engineering, K. N. Toosi University of Technology, Tehran, Iran (Jan 2020: Present)
- **Assistant professor** of Mechanical Engineering, K. N. Toosi University of Technology, Tehran, Iran (Jan 2013-Jan 2020)

PROFESSIONAL SUMMARY

- Google Scholar Link: <https://scholar.google.com/citations?hl=en&user=xY9ncG0AAAAJ>
-  <https://orcid.org/0000-0001-8790-7016>
- Reviewer of top journals such as International Journal of Mechanical Sciences, Journal of Computer Methods and Programs in Biomedicine, Journal of the Mechanical Behavior of Biomedical Materials, Journal of Thermal Biology, Journal of Computers in Biology and Medicine, etc.
- International collaboration on research projects with the University of **TU Delft (the Netherlands)**, Prof. Kamel Hooman, **the University of California (the USA)**, Prof. Kambiz Vafai, **Politecnico di Milano (Italy)**, Prof. Paola Saccomandi, and **Otto von Guericke University (Germany)**, Prof. Claus-Dieter Ohl.

EDUCATION

Amirkabir University of Technology (Tehran Polytechnic) PhD, Biomedical engineering, GPA: 19.2/20.0	Tehran, Iran 2006-2011
Amirkabir University of Technology (Tehran Polytechnic) MSc, Biomedical engineering, GPA: 18.5/20.0	Tehran, Iran 2004-2006
Sharif University of Technology BSc, Mechanical engineering, GPA: 15.4/20.0	Tehran, Iran 1999-2003
National Organization of Developing Exceptional Talents Diploma in Mathematics and Physics, GPA: 18.8/20.0	Tehran, Iran 1995-1999

TEACHING EXPERIENCE

- **Undergraduate courses (2013-Present): K. N. Toosi University of Technology, Tehran, Iran**
 - Fluid Mechanics (I & II), Heat Transfer, Computational Fluid Dynamics, Numerical Analysis
- **Graduate courses (2013-Present): K. N. Toosi University of Technology, Tehran, Iran**
 - Advanced Fluid Mechanics, Fluid Mechanics and Heat Transfer in Porous Media, Advanced Computational Fluid Dynamics

RESEARCH INTERESTS

- Developing innovative methods for early cancer detection
- Developing and implementing new targeted cancer therapy methods
- Cell mechanics
- Experimental tests (in vivo/in vitro/ex vivo)
- Advanced computational modeling

AREAS OF EXPERTISE

- Soft tissue (Breast/Prostate) cancer biomechanics
- Tissue characterization and identification of material models
- In vitro experiments at tissue-scale and cellular-scale
- Fluid flow and heat transfer analysis in porous medium
- Hyperthermia-induced treatment
- (High intensity) focused ultrasound: hydrodynamics, heat transfer, bubble dynamics
- Thermography for cancer screening

INTERNATIONAL ACTIVITIES

- International collaboration on research projects with the University of TU Delft (the Netherlands), Prof. Kamel Hooman, the University of California (the USA), Prof. Kambiz Vafai, Politecnico di Milano (Italy), Prof. Paola Saccomandi, and Otto von Guericke University (Germany), Prof. Claus-Dieter Ohl.
- Reviewer of top journals such as International Journal of Mechanical Sciences, International Journal of Heat and Mass Transfer, Physics of Fluids, Journal of Computer Methods and Programs in Biomedicine, Journal of the Mechanical Behavior of Biomedical Materials, Journal of Thermal Biology, Journal of Computers in Biology and Medicine, etc.

PROFESSIONAL MEMBERSHIP

- Iran academy of Sciences
- Iranian Society of Engineering Education (ISEE)
- Iranian Society of Mechanical Engineers (ISME)
- National Elite Foundation of Iran
- National Organization for Development of Exceptional Talents

MANAGEMENT EXPERIENCE

- Associate Dean for Academic Affairs, Mechanical Engineering Faculty, K. N. Toosi University of Technology (November 2025-Present)
- Director of University Association Branches of Iranian Society of Engineering Education (Apr 2022-June 2024)
- Member of the Communications and Publications Committee of the Iranian Engineering Education Association (Jan 2022-June 2024)
- Director of the Office of Educational Planning and Development of K. N. Toosi University of Technology (Feb 2020-Jan 2022)
- Head of Graduate Studies of Mechanical Engineering Faculty, K. N. Toosi University of Technology (Dec 2017-May 2020)
- Head of the Central Library and Documentation Center of K. N. Toosi University of Technology (Feb 2015-June 2016)
- Head of K. N. Toosi University of Technology Publications (Feb 2015-June 2016)

AWARDS

- Awarded for Educational Excellence in K. N. Toosi University of Technology (year 2023)
- Awarded for excellence in supervising project in K. N. Toosi University of Technology (year 2024)
- Laureate of the Khwarizmi Awards (year 2011)
- Laureate of Iranian Society of Mechanical Engineers (years 2016 and 2019)

PUBLICATIONS: Journal Papers

No.	Article	Year	Q index
1	A genetically optimized physics-informed neural network for multiphysics modeling of magnetic hyperthermia in brain cancer B. Zeinali, A. Mojra , K. Vafai <i>Computers in Biology and Medicine</i> 206, 111621	2026	Q1
2	Bio-inspired porous channels for thermal management of lithium-ion batteries: the PorousMorphoGrid approach G. Radman, A. Mojra , M. Soltani, M. Ziabasharhagh <i>Energy Conversion and Management</i> 120550	2026	Q1
3	Development of a Prediction Model for Hyperthermia-Enhanced Drug Delivery using Thermosensitive Nanoparticles FB Einolghasi, B. Zeinali, K. Vafai, A. Mojra <i>Journal of Thermal Biology</i> 104124	2025	Q1
4	Development of a dual-frequency sonophoresis for enhanced skin permeability and efficient drug delivery AJ. Alsaadi, F. Honarvar, M. Akrami, E. Naderian, A. Mojra <i>International Journal of Pharmaceutics</i> 125539	2025	Q1
5	Robust cavitation-based pumping into a capillary Z. Heidary, Y. Fan, A. Mojra , CD. Ohl <i>Physics of Fluids</i> 36 (12)	2024	Q1
6	Numerical analysis of ultrasound-mediated microbubble interactions in vascular systems: Effects on shear stress and vessel mechanics Z. Heidary, CD. Ohl, A. Mojra <i>Physics of Fluids</i> 36 (8)	2024	Q1
7	Analysis of HIFU thermal ablation for lung cancer incorporating local thermal non-equilibrium and non-Fourier transfer B. Zeinali, A. Mojra , K. Vafai <i>International Communications in Heat and Mass Transfer</i> 159, 108273	2024	Q1
8	A novel passive flow control technique using circular arcs coupled with downstream splitters F. Eydi, A. Mojra , K. Hooman <i>Ocean Engineering</i> 313, 119393	2024	Q1
9	Flow and noise control of a cylinder using grooves filled with porous material MA. Moradi, A. Mojra <i>Physics of Fluids</i> 36 (4)	2024	Q1
10	Free-surface flow past a circular cylinder at high Froude numbers MA. Moradi, A. Mojra <i>Ocean Engineering</i> 295, 116804	2024	Q1
11	A novel gas embolotherapy using microbubbles electrocoalescence for cancer treatment HA. Sormoli, A. Mojra , G. Heidarinejad <i>Computer Methods and Programs in Biomedicine</i> 244, 107953	2024	Q1
12	Investigating the effects of substrate stiffness on half-maximal inhibitory concentration of chemical anticancer drugs, cell viability and migration of cell lines SR. Ramezani, A. Mojra , M. Tafazoli-Shadpour <i>Cellular, Molecular and Biomedical Reports</i> , 141-147	2024	ISC
13	Microbubble-enhanced HIFU therapy for vascularized tumors using Levovist contrast agent HA. Sormoli, A. Mojra , G. Heidarinejad	2023	Q1

	<i>International Journal of Mechanical Sciences</i> 257, 108569		
14	A numerical study on the benefits of passive-arc plates on drag and noise reductions of a cylinder in turbulent flow F. Eydi, A. Mojra <i>Physics of Fluids</i> 35 (8)	2023	Q1
15	Exploring the benefits of functionally graded carbon nanotubes (FG-CNTs) as a platform for targeted drug delivery systems Z. Heidary, SR. Ramezani, A. Mojra <i>Computer Methods and Programs in Biomedicine</i> 238, 107603	2023	Q1
16	Numerical Study of Microbubble Dynamics Subjected to Ultrasound and Its Effect on Thermal Ablation of Biological Tissue G. Heidarinejad, A. Mojra , H. Azizi Sormoli <i>Amirkabir Journal of Mechanical Engineering</i> 54 (11), 2561-2582	2023	ISC
17	Efficient drug delivery to hypoxic tumors using thermosensitive liposomes with encapsulated anti-cancer drug under high intensity pulsed ultrasound P. Namakshenas, A. Mojra <i>International Journal of Mechanical Sciences</i> , 107818	2023	Q1
18	Comparative analysis of the flow control over a circular cylinder with detached flexible and rigid splitter plates F. Eydi, A. Mojra , R. Abdi <i>Physics of Fluids</i> 34.11: 113604	2022	Q1
19	Numerical study of thermal effect on the stability of carbon nanotubes resting on a viscoelastic foundation subjected to magnetic field Z. Heidary, A. Mojra <i>International Journal of Structural Stability and Dynamics</i> 22 (02), 2250024	2022	Q1
20	Viscoelastic parameters of invasive breast cancer in correlation with porous structure and elemental analysis data A. Mojra , K. Hooman <i>Computer Methods and Programs in Biomedicine</i> 212, 106482	2021	Q1
21	A porous medium approach to thermal analysis of focused ultrasound for treatment of thyroid nodules A. Abdolhosseinzadeh, A. Mojra , K. Hooman <i>Applied Acoustics</i> 182, 108236	2021	Q1
22	Optimization of polyethylene glycol-based hydrogel rectal spacer for focal laser ablation of prostate peripheral zone tumor P. Namakshenas, A. Mojra <i>Physica Medica</i> 89, 104-113	2021	Q2
23	A nexus between active and passive control methods for reduction of aerodynamic noise of circular cylinder M. Souri, A. Mojra <i>International Journal of Mechanical Sciences</i> 200, 106446	2021	Q1
24	Numerical analysis of non-Fourier thermal response of lung tissue based on experimental data with application in laser therapy I. Eltejaei, M. Balavand, A. Mojra <i>Computer Methods and Programs in Biomedicine</i> 199, 105905	2021	Q1
25	Thermal-magneto-mechanical stability analysis of nanofluid conveying carbon nanotubes based on nonlocal couple stress theory SR. Ramezani, A. Mojra <i>Journal of Thermal Stresses</i> 44 (10), 1221-1243	2021	Q2
26	Microstructure-based non-Fourier heat transfer modeling of HIFU treatment for thyroid cancer P. Namakshenas, A. Mojra <i>Computer Methods and Programs in Biomedicine</i> 197, 105698	2020	Q1

27	Characterization of breast tissue permeability for detection of vascular breast tumors: An in vitro study M. Ramazanilar, A. Mojra <i>Materials Science and Engineering: C</i> 107, 110222	2020	Q1
28	Stability analysis of conveying-nanofluid CNT under magnetic field based on nonlocal couple stress theory and fluid-structure interaction SR. Ramezani, A. Mojra <i>Mechanics Based Design of Structures and Machines</i> , 1-18	2020	Q2
29	Thyroid cancer estimation using infrared thermography data F. Bahramian, A. Mojra <i>Infrared Physics & Technology</i> 104, 103126	2020	Q2
30	Simultaneous localization of multiple tumors from thermogram of tissue phantom by using a novel optimization algorithm inspired by hunting dogs SMS. Lari, A. Mojra , M. Rokni <i>Computers in Biology and Medicine</i> 112, 103377	2019	Q2
31	A numerical study on thermal ablation of brain tumor with intraoperative focused ultrasound A. Abdolhosseinzadeh, A. Mojra , A. Ashrafizadeh <i>Journal of thermal biology</i> 83, 119-133	2019	Q1
32	Numerical study of non-Fourier thermal ablation of benign thyroid tumor by focused ultrasound (FU) P. Namakshenas, A. Mojra <i>Biocybernetics and Biomedical Engineering</i> 39 (3), 571-585	2019	Q2
33	Analysis of thyroid thermographic images for detection of thyroid tumor: An experimental-numerical study F. Bahramian, A. Mojra <i>International Journal for Numerical Methods in Biomedical Engineering</i> 35 (6), 3192	2019	Q2
34	A numerical-experimental study on thermal evaluation of orthodontic tooth movement during initial phase of treatment MF. Bonab, A. Mojra , M. Shirazi <i>Journal of thermal biology</i> 80, 45-55	2019	Q1
35	Assessing time-dependent response of intact and degenerated cervical intervertebral discs by employing a poroviscoelastic model based on experimental relaxation data M. Mosayebi, A. Mojra <i>Iranian Journal of Biomedical Engineering</i> 13 (1), 31-44	2019	-
36	Assessment of Infrared Thermography of Thyroid Gland for Development of a New Non-invasive Sleep Detection System F. Bahramian, A. Mojra <i>Journal of Sleep Sciences</i> 4 (1-2), 9-16	2019	-
37	Early relaxation time assessment for characterization of breast tissue and diagnosis of breast tumors M. Baghban, A. Mojra <i>Journal of the mechanical behavior of biomedical materials</i> 87, 325-335	2018	Q1
38	A novel approach for early evaluation of orthodontic process by a numerical thermomechanical analysis Z. Heidary, A. Mojra , M. Shirazi, M. Bazargan <i>International Journal for Numerical Methods in Biomedical Engineering</i> 34 (1), 2899	2018	Q2
39	A patient-specific three-dimensional hemodynamic model of the circle of Willis H. Rezaie, A. Ashrafizadeh, A. Mojra <i>Cardiovascular engineering and technology</i> 8 (4), 495-504	2017	Q2

40	Quantitative diagnosis of breast tumors by characterization of viscoelastic behavior of healthy breast tissue N. Madani, A. Mojra <i>Journal of the mechanical behavior of biomedical materials</i> 68, 180-187	2017	Q1
41	Optimization of hyperelastic constitutive model coefficients for soft tissue by imperialistic competitive algorithm based on experimental data A. Amarloo, M. Keshavarz, A. Mojra <i>Amirkabir Journal of Mechanical Engineering</i> 49 (2), 269-278	2017	-
42	Parameter estimation of brain tumors using intraoperative thermal imaging based on artificial tactile sensing in conjunction with artificial neural network M. Sadeghi-Goughari, A. Mojra , S. Sadeghi <i>Journal of Physics D: Applied Physics</i> 49 (7), 075404	2016	Q1
43	Assessment of thermography technique for detection of thyroid gland: a numerical approach accompanied by an experimental study F. Bahramian, A. Mojra <i>Iranian Journal of Biomedical Engineering</i> 10 (3), 245-256	2016	-
44	Tumor Detection and Morphology Assessment in the Liver Tissue Using an Automatic Tactile Robot SMS. Lari, A. Mojra <i>International Journal of Robotics, Theory and Applications</i> 4 (4), 44-53	2016	-
45	Intraoperative thermal imaging of brain tumors using a haptic-thermal robot with application in minimally invasive neurosurgery M. Sadeghi-Goughari, A. Mojra <i>Applied Thermal Engineering</i> 91, 600-610	2015	Q1
46	Dynamic modeling of breast tissue with application of model reference adaptive system identification technique based on clinical robot-assisted palpation M. Keshavarz, A. Mojra <i>Journal of the mechanical behavior of biomedical materials</i> 51, 269-278	2015	Q1
47	Geometrical features assessment of liver's tumor with application of artificial neural network evolved by imperialist competitive algorithm M. Keshavarz, A. Mojra <i>International journal for numerical methods in biomedical engineering</i> 31 (5), 2704	2015	Q1
48	Finite element modeling of haptic thermography: a novel approach for brain tumor detection during minimally invasive neurosurgery M. Sadeghi-Goughari, A. Mojra <i>Journal of Thermal Biology</i> 53, 53-65	2015	Q2
49	Optimization of hyperelastic model parameters of soft tissue based on genetic algorithm utilizing experimental mechanical dataset AR. Esmaeili, M. Keshavarz, A. Mojra <i>Modares Mechanical Engineering</i> 15 (9), 134-140	2015	-
50	Artificial tactile sensing capability in tumor detection of the liver tissue utilizing in vitro experimental data and hyperelastic finite element modeling M Keshavarz, MR Farahnak, A Mojra <i>Modares Mechanical Engineering</i> 14 (15), 388-394	2014	-
51	A novel robotic tactile mass detector with application in clinical breast examination A. Mojra , S. Najarian, SM. Towliat Kashani, F. Panahi, MA. Tehrani <i>Minimally Invasive Therapy & Allied Technologies</i> 21 (3), 210-221	2012	Q2
52	A novel tactile-guided detection and three-dimensional localization of clinically significant breast masses	2012	Q3

	A. Mojra , S. Najarian, SMT. Kashani, F. Panahi <i>Journal of medical engineering & technology</i> 36 (1), 8-16		
53	A novel haptic robotic viscogram for characterizing the viscoelastic behaviour of breast tissue in clinical examinations A. Mojra , S. Najarian, SM. Towliat Kashani, F. Panahi, M. Yaghmaei <i>International Journal of Medical Robotics and Computer Assisted Surgery</i> 7 (3), 282-292	2011	Q2
54	A medical tactile sensing instrument for detecting embedded objects, with specific application for breast examination SM. Hosseini, SMT. Kashani, S. Najarian, F. Panahi, SMM. Naeini, A. Mojra <i>The international journal of medical robotics and computer assisted surgery</i> 6 (1), 73-82	2010	Q2
55	Coupled fluid-wall modelling of steady flow in stenotic carotid arteries E. Yakhshi-Tafti, M. Tafazzoli-Shadpour, SH. Alavi, A. Mojra <i>Journal of Medical Engineering & Technology</i> 33 (7), 544-550	2009	Q3

PUBLICATIONS: Conference Papers

Selected papers

No.	Article	Year
1	Carbon Nanotube Mediated Hyperthermia for Cancer Therapy B. Zeinali, A. Mojra 2025 32nd National and 10 th International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 703-709	2026
2	Investigation of Microbubble Motion in a Microvessel with Various Obstructions Filled with Viscous Fluid: A Finite Element Modeling Study M. Mirzaei, A. Mojra 2025 32nd National and 10 th International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 1-5	2026
3	Predictive Biomarkers SR. Ramezani, A. Mojra 2025 32nd National and 10 th International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 1236-1241	2026
4	Numerical Study on HIFU Therapy for Precision CAVM Treatment S. Pirhadi, A. Mojra 33rd Annual International Conference of the Iranian Society of Mechanical Engineers (ISME 2025)	2025
5	Molecular Dynamics Simulation of Induced Shear Stress on Cell Membrane SR. Ramezani, A. Mojra , M. Tafazoli-Shadpour 33rd Annual International Conference of the Iranian Society of Mechanical Engineers (ISME 2025)	2025
6	An active strategy for flow and noise control over a cylinder using suction jet pumps MH Chamanazad, A. Mojra 33rd Annual International Conference of the Iranian Society of Mechanical Engineers (ISME 2025)	2025
7	Fractional characterization of breast cancer cell lines based on cell culture experiments A. Monshizadeh, A. Mojra The 31 st National and 9 th International Iranian Conference on Biomedical Engineering (ICBME), IEEE	2024

8	Investigating the Migration of Cells with Different Degrees of Metastasis Before and After Treatment with Chemical Drugs Targeting Cytoskeleton Structure, Steroid and Androgen Receptor, SR. Ramezani, A. Mojra , M. Tafazoli-Shadpour The 31 st National and 9 th International Iranian Conference on Biomedical Engineering (ICBME), IEEE	2024
9	Fabrication and experiment of hydrogel substrates with different mechanical properties to simulate body tissues and extracellular matrix SR. Ramezani, A. Mojra , M. Tafazoli-Shadpour The 31 st Annual International Conference of Iranian Society of Mechanical Engineers & 9 th Conference on Thermal Power Plants	2023
10	Improving heat transfer in the heat exchanger by installing fins and using phase change materials R. Dehghan Nayeri, A. Mojra 8 th Annual Clean Energy Conference (ACEC2023), ACEC2023-02080104	2023
11	Viscoelastic analysis of malignant breast tumors using fractional derivative model based on in vitro test data A. Monshizadeh, A. Mojra The 31 st Annual International Conference of Iranian Society of Mechanical Engineers & 9 th Conference on Thermal Power Plants	2023
12	Radiofrequency ablation of liver cancer using carbon nanotube and PID controller F. Bahramian, A. Mojra The 31 st Annual International Conference of Iranian Society of Mechanical Engineers & 9 th Conference on Thermal Power Plants (ISME), 1668521	2022
13	Numerical Analysis of Dual-Phase Lag Effects on Thermal Response During Focused Ultrasound B. Zeinali, A. Mojra 29 th National and 7 th International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 58-62	2022
14	A numerical approach to non-Fourier heat transfer in liver tumor during laser irradiation M. Balavand, I. Eltejaei, A. Mojra 26 th National and 4 th International Iranian conference on Biomedical Engineering (ICBME), IEEE, 49-54	2019
15	Numerical modeling of hyperfoam behavior of periodontal ligament in mechanical loading M. Rahimi, A. Mojra 26 th National and 4 th International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 82-87	2019
16	A Numerical Study on Fluid Flow inside the Knee Joint through a Porous Media Approach S. Sohangir, A. Mojra 25 th National and 3 rd International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 1-5	2018
17	Numerical Simulation of Transducer-Tipped Ultrasound Catheter for Necrosis of Blood Clot through Coronary Artery NK. Molaei, A. Mojra 25 th National and 3 rd International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 1-5	2018
18	Thermal imaging of the human neck for thyroid gland detection based on CT scan images F. Bahramian, A. Mojra 24 th National and 2 nd International Iranian Conference on Biomedical engineering (ICBME), IEEE, 1-6	2017
19	A numerical evaluation of HIFU in the cavitation formation in cancerous liver tissue A. Abdolhosseinzadeh, A. Mojra	2017

	24 th National and 2 nd International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 330-333	
20	An in Vivo Study on Evaluation of Early Relaxation Time in Breast Tissue M. Baghban, A. Mojra 24 th National and 2 nd International Iranian Conference on Biomedical Engineering (ICBME), IEEE, 1-5	2017
21	Boundary estimation of soft tissue tumor by using feed forward neural network with application of artificial tactile sensing-Boundary estimation of soft tissue tumor M. Keshavarz, S. Mehrdad, A. Mojra 22 nd Iranian Conference on Biomedical Engineering (ICBME), 380-384	2015
22	Development of a tactile robot for tumor detection and localization in biological liver tissue M. Farahnak, M. Keshavarz, A. Mojra , SH. Sadati Second RSI/ISM International Conference on Robotics and Mechatronics (ICRoM), IEEE, 203-208	2014
23	Hyperelastic Modeling of a Soft Tissue with an Embedded Tumor and Recognizing Stiffness Ratio of Tumor for Surgical Applications M. Keshavarz, M. Farahnak, A. Mojra Proceedings of the International Conference on Mechanical Engineering-ISME, 369-372	2014
24	Artificial tactile sensing capability analysis in abnormal mass detection with application in clinical breast examination A. Mojra , S. Najarian, SM. Hosseini, SMT. Kashani, F. Panahi The World Congress on Engineering, 2663-2666	2011
25	Abnormal mass detection in a real breast model: a computational tactile sensing approach A. Mojra , S. Najarian, SM. Hosseini, SM. Kashani, F. Panahi World Congress on Medical Physics and Biomedical Engineering, September 7-12, 2009, Munich, Germany	2009
26	Computational Analysis of Asymmetric Arterial Stenosis with Applications of Fluid-Solid Interaction A. Mojra , M. Tafazzoli-Shadpour, EY. Tafti 3rd Kuala Lumpur International Conference on Biomedical Engineering 2006, Springer, Berlin, Heidelberg, 567-571	2007

Other International Conference Papers:

27. Boujari, A., **Mojra, A.**, A comparative study of periodontal ligament as poroelastic and hyper-viscoelastic models using three-dimensional finite element analysis, (2019) The 27th Annual International Conference on Mechanical Engineering, 7th Conference on Thermal Power Plants, ISME2019, ISME2019-1203
28. Ahmadi, A.H., **Mojra, A.**, Experimental measurement of biological tissue permeability and study of mass transport, (2019) The 27th Annual International Conference on Mechanical Engineering, 7th Conference on Thermal Power Plants, ISME2019, ISME2019-2104
29. Dabiri, D., **Mojra, A.**, Simulation of fluid flow inside human eye based on a porous medium approach, (2019) The 27th Annual International Conference on Mechanical Engineering, 7th Conference on Thermal Power Plants, ISME2019, ISME2019-1287
30. Mosayebi, M., **Mojra, A.**, Numerical simulation of intervertebral disc bulging by employing a poroelastic model based on CT-scan images, (2018) The 26th Annual International Conference of Iranian Society of Mechanical Engineers, ISME2018, ISME2018-1502

31. Namakshenas, P., **Mojra, A.**, Three-dimensional image-based mechanical imaging of thyroid gland with application in thyroid tumor detection, (2018) The 26th Annual International Conference of Iranian Society of Mechanical Engineers, ISME2018, ISME2018-1242
32. Sarshar, S., **Mojra, A.**, Nonlinear viscoelastic modeling of breast tissue by employing nonlinear generalized standard solid model based on experimental data, (2018) The 26th Annual International Conference of Iranian Society of Mechanical Engineers, ISME2018, ISME2018-1197
33. Heidary, Z., **Mojra, A.**, Thermo-mechanical modeling of orthodontic tooth movement, (2017) The 25th Annual International Conference on Mechanical Engineering, ISME2017, ISME2017-1366
34. Zabihigivi, R. **Mojra, A.**, Viscoelastic characterization of the periodontal ligament under common orthodontic loading, (2017) The 25th Annual International Conference on Mechanical Engineering, ISME2017, ISME2017-1276
35. Ramazanilar, M., **Mojra, A.**, A porous media approach to tumor diagnosis in the kidney under uniaxial time-dependent loading, (2017) The 25th Annual International Conference on Mechanical Engineering, ISME2017, ISME2017-1473
36. Moeini, E., **Mojra, A.**, A numerical study on atherosclerosis with a porous media approach: effects of stenosis geometrical parameters, (2016) The 24th Annual International Conference on Mechanical Engineering, ISME2016, ISME2016-98666
37. Sadeghi-Goughari, M., **Mojra, A.**, Thermo-viscoelastic modeling of brain tissue with application in tumor detection and localization, (2015) The 23rd Annual International Conference on Mechanical Engineering, ISME2015, ISME2015-10104220384
38. Amarillo, A., Keshavarz, M., **Mojra, A.**, An Experimental hyperelastic constitutive model of soft tissue optimized by imperialist competitive algorithm, (2015) The 23rd Annual International Conference on Mechanical Engineering, ISME2015, ISME2015-10104221093
39. Galian, J.V., **Mojra, A.**, Heat transfer enhancement of non-Newtonian nanofluids containing metal oxide nanoparticles in circular tube: a numerical study, (2015) 3rd International Conference on Nanotechnology, ICN2015

LEADERSHIP EXPERIENCE

Supervising research projects:

- Experimental-numerical study of the effect of cancer drugs on mechanical properties of prostate cancer cells
- Numerical analysis of an ultrasound-driven coated microbubble dynamics within a viscoelastic tube
- Analysis of non-Fourier effects in heat and mass transfer in drug delivery to cancer tissue
- Instability analysis of non-uniform carbon nanotubes conveying fluid
- Numerical investigation of bubble dynamics at high intensity focused ultrasound (HIFU) wave propagation in soft tissue
- Instability analysis of carbon nanotube conveying fluid filled with porous medium
- Instability analysis of carbon nanotube conveying non-Newtonian fluid

- Analysis of high intensity focused ultrasound (HIFU) in a porous medium with application in hyperthermia-induced treatment
- Modeling of hyperfoam behavior of periodontal ligament in mechanical loading based on a porous medium approach
- Fabrication of a device for permeability measurement of soft tissue
- Synovial flow modeling in knee joint through a porous medium approach
- Intravascular ultrasound-induced hyperthermia for the treatment of blood clot
- Analysis of high intensity focused ultrasound (HIFU) influence on local pressure gradients with application in hyperthermia
- Characterization of mechanical response of normal and degenerative intervertebral disc based on a porous medium approach
- Development of an infrared-based device for the diagnosis of thyroid tumors
- Characterization of healthy and cancerous breast tissue permeabilities under uniaxial loading
- A thermomechanical analysis for early evaluation of orthodontic treatment
- Size and depth estimation of brain lesions using inverse analysis based on numerical data
- Computational study of the effect of blood vessels within a tumor during nanoparticle-assisted hyperthermia
- Fabrication of an intelligent thermography device for tumor detection and localization with application in brain surgery
- A numerical investigation of pulsatile blood flow inside a 3D curved stenosed artery
- Design and fabrication of a device for tumor detection based on characteristic mechanical parameters of liver tissue: An in vitro study
- Analysis of the effect of tumor vessels distribution in hyperthermia-induced treatment using magnetic nano-particles
- Heat transfer analysis of non-Newtonian blood flow including magnetic nanoparticles in soft tissue
- Investigation of vortex-induced vibration of flow past a circular cylinder considering the free surface effect
- Investigation of noise reduction on a circular cylinder using downstream flexible plates
- Evaluation of permeability variation with compressive strain in a porous medium
- Numerical modeling of dual-phase-lag heat conduction based on a finite difference approach
- Characterization of non-Fourier thermal response of biological tissue using experimental data
- Viscoelastic parameters of invasive breast cancer in correlation with porous structure and elemental analysis data
- 3D modeling of human tooth for evaluation of mechanical and thermal responses in an orthodontic treatment
- Investigation of fluid flow inside human eye with a porous medium approach
- A numerical study on high intensity focused ultrasound (HIFU) ablation of thyroid benign nodule
- Orthodontic force prediction for desired tooth movement using artificial neural network analysis
- Characterization of nonlinear viscoelastic properties of invasive ductal breast carcinoma using experimental data
- Mechanical behavior modeling of carotid artery wall in healthy vs stenotic state, considering fluid-structure interaction
- Dual-phase lag effects on conductive heat transfer in biological tissue

- Development of a novel optimization algorithm inspired by hunting dogs for tumor detection on thermogram images
- Mechanical characterization of breast tumoral tissue using discrete element model and experimental data
- Recognition of the cancerous tumor shape embedded in a soft tissue using intelligent algorithms
- Mechanical characterization of healthy breast tissue based on experimental data
- Optimization of viscoelastic behavior of soft tissue using fuzzy logic approach
- Application of thermography technique for detection of lesions based on variation of thermal properties of biological tissue

REGISTERED PATENTS

- Title: **Design of an intelligent and robotic system for mammo-elastography of breast**
 - Document ID: IR 68699
 - Date published: 2011-02-08
- Title: **Design of a scanning robotic system for three-dimensional visualization of embedded soft tissue lesions**
 - Document ID: IR 83530
 - Date published: 2014-08-10
- Title: **An intelligent tactile robotic system for cancer screening: Clinically tested on more than 160 patients with medical approvals**
 - Document ID: IR 84049
 - Date published: 2014-10-19
- Title: **Design of an intelligent and tactile thermography system for detection and localization of brain tumor: with medical approval**
 - Document ID: IR 87561
 - Date published: 2015-12-23
- Title: **An infrared-based device for the diagnosis of thyroid tumors: Clinically tested and has medical approval**
 - Document ID: IR 97194
 - Date published: 2018-11-17