

CURRICULUM VITAE

Name: Hadi Tavakoli Nia **Updated:** Oct 2024
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RESEARCH EXPERIENCE

- 2019-present Assistant Professor of Biomedical Engineering (primary), Material Science and Engineering (secondary) Boston University
- 2022-present Core member of Multicellular Design Program
- 2021-present Member of Center for Multiscale and Translational Mechanobiology (CMTM)
- 2022-present Member of Pulmonary Center
- 2021-present Member of Neurophotonics Center
- 2023-present Member of Photonics Center
- 2013-2018 Postdoctoral Fellow, [Steele Labs](#), Department of Radiation Oncology, Massachusetts General Hospital, Harvard Medical School, Boston, MA. Mentor: Rakesh Jain, PhD.
Research topic: "*Physical Hallmarks of Cancer*"
[Rakesh K. Jain](#), director of Steele Labs, at Massachusetts General Hospital, Harvard Medical School.
- 2013-2021 Visiting Scientist, Center for Biomedical Engineering, MIT, Cambridge, MA. Mentor: Prof. Alan Grodzinsky.
- 2010-2013 Research Assistant, Center for Biomedical Engineering and Department of Mechanical Engineering, MIT, Cambridge, MA. Mentors: Profs. Alan Grodzinsky and Christine Ortiz. [Alan Grodzinsky](#) is a professor of Biological, Mechanical and Electrical Engineering at MIT. [Christine Ortiz](#) is a professor of Material Science and Engineering at MIT.
- 2004-2005 Visiting Research Student in [Mechanical Systems Design Laboratory](#), Tokyo Institute of Technology, Tokyo, Japan. Mentor: Prof. Koichi Sugimoto.

EDUCATION

- 06/2013 PhD, Mechanical Engineering, Massachusetts Institute of Technology, Cambridge MA. Thesis title: "*Nanomechanics of cartilage at the matrix and molecular levels.*" Supervisors: Profs. Alan Grodzinsky and Christine Ortiz
- 01/2010 MSc, Mechanical Engineering, Massachusetts Institute of Technology, Cambridge MA
- 06/2006 MSc, Mechanical Engineering, Sharif University of Technology, Tehran, Iran
- 06/2003 BSc, Mechanical Engineering, Sharif University of Technology, Tehran, Iran

AWARDS

2025-2028	Hevolution/AFAR New Investigator Awards in Aging Biology & Geroscience Research
2024-2027	DoD Idea Award
2024-2026	Sloan Research Fellowship
2024	Cellular and Molecular Bioengineering Rising star
2023-2026	Kilachand Fund Award for Integrated Life Sciences and Engineering
2023	American Thoracic Society Science and Innovation Center Award
2023	Early Career Excellence Award, College of Engineering, Boston University
2023-2028	NSF CAREER
2022-2027	NIH Director's New Innovator Award (DP2)
2022-2026	Beckman Young Investigator Award
2021-2024	NIH-NIBIB Trailblazer Award
2020-2021	Center for Multiscale and Translational Mechanobiology (CMTM) Award
2020-2022	Dean's Catalyst Award
2020-2021	ACS-BU pilot Award
2017-2019	NIH-NCI Ruth L. Kirschstein (NRSA) Postdoctoral Fellowship (F32)
2017	Best poster award (3 rd place), Gordon Research Conference on Physical Sciences of Cancer
2016-2017	Tosteson Postdoctoral Fellowship Award
2016	MGPA Travel Award
2011-2013	Whitaker Health Sciences Fellowship Award (covered two years of my doctoral program)
2012	De Florez Travel Award
2011	Finalist in YC FUNG Student Paper Competition in Bio-mechanics and Bio-physics
2008-2011	Office of Naval Research (ONR) Research Fellowship Awards
2004-2005	Japan Student Service Organization Fellowship Award
2003	Finalist in the 8th Iranian National Mechanical Engineering Olympiad
1998	Silver Medal, Iranian National Computer Olympiad

PUBLICATIONS (published and under revision)

#: students or postdocs supervised by H. T. Nia

1. G. Grifno[#], ..., H. T. Nia, "Mosaic pattern: lung functional heterogeneity at the alveolus level," submitted
2. H. T. Nia, L. L. Munn, R. K. Jain, "Probing the physical hallmarks of cancer," **Nature Methods**, Accepted
3. Taha Rakhshandehroo , Shreya R. Mantri , Heydar Moravej, Benjamin Louis, Ali Salehi Farid1, Leila Munaretto, Kathryn Regan[#], Min Cong, Adrien Kuhnast, Ali Nili, Harris Allen, Lea Berland, Ester Simkova, Safak Uslu, Jessika Baral, Soheil Tavakolpour, Jennifer Rowley, Haneyeh Shahbazian, Jason Pyrdol, Caron Jacobson, Omar Nadeem, Hadi Nia, Kai Wucherpfennig, Mohammad Rashidian, "Development of a CAR-Enhancer (CAR-E) therapeutic platform to enhance the activity and persistence of CAR T cells," **Nature Biotechnology**, 2024. <https://doi.org/10.1038/s41587-024-02339-4>
4. Rohin Banerji^{#*}, Gabrielle N. Grifno^{#*}, Linzheng Shi[#], Dylan Smolen[#], Rob LeBourdais[#], Johnathan Muhvich[#], Cate Eberman[#], Bradley Hiller, Jisu Lee, Kathryn Regan[#], Siyi Zheng[#], Sue S. Zhang[#], John Jiang, Riley Phil, Katrina Traber, Giovanni Ligresti, Joseph P. Mizgerd, Bela Suki, Hadi T. Nia, "Crystal ribcage: a platform for probing real-time lung function at cellular resolution," **Nature Methods**, 2023. <https://doi.org/10.1038/s41592-023-02004-9> _ *: equal contribution
 - Featured by [News and Views](#), [BU Expert](#), [NIH-NHLBI](#)

5. Sue Zhang[#], Rachel Passaro[#], Kathryn Regan[#], Muhamed Hadzipasic[#], Gabrielle Grifno[#], Siyi Zheng[#], Logan O'Connor[#], Vinson Chu[#], Sung Yeon Kim[#], Jiarui Yang, Rohin Banerji[#], Kavon Karrobi, Darren Roblyer, Mark Grinstaff, Hadi T. Nia, In vivo multiscale measurements of solid stresses in tumors reveal scale-dependent stress transmission, *Nature Biomedical Engineering*, 2023. <https://doi.org/10.1038/s41551-023-01080-8>
 - Featured by [News and Views](#), [BU ENG](#)
6. Muhamed Hadzipasic[#], Margaret S. Sten , Elie Massaad, Ali Kiapour, George Nageeb, Muneeb A. Sharif Joseph Bradley, Gunnlaugur P. Nielsen, Jean-Valery C. Coumans, Lawrence F. Borges, John H. Shin, Alan J. Grodzinsky, Hadi T. Nia, and Ganesh M. Shankar, “ROCK-dependent mechanotransduction of macroscale forces drives fibrosis in degenerative spinal disease,” Accepted in *Nature Biomedical Engineering*.
7. Sue Zhang[#], Kathryn Regan[#], Julian Najera, Mark W. Grinstaff, Meenal Datta, Hadi T. Nia, “The peritumor microenvironment: physics and immunity”, *Trends in Cancer*, 2023. <https://doi.org/10.1016/j.trecan.2023.04.004>
8. Etesami NS, Barker KA, Shenoy AT, De Ana CL, Arafa EI, Grifno GN[#], Matschulat AM, Vannini ME, Pihl RMF, Breen MP, Soucy AM, Goltry WN, Ha CT, Betsuyaku H, Browning JL, Varelas X, Traber KE, Jones MR, Quinton LJ, Maglione PJ, Nia HT, Belkina AC and Mizgerd JP “B cells in the pneumococcus-infected lung are heterogeneous and require CD4+ T cell help including CD40L to become resident memory B cells”. *Front. Immunology*, 2024. <https://doi.org/10.3389/fimmu.2024.1382638>
9. LeBourdais Robert[#], Gabrielle N Grifno[#], Rohin Banerji[#], Kathryn Regan[#], Bela Suki, Hadi T. Nia, “Mapping the strain-stiffening behavior of the lung and lung cancer at microscale resolution using the crystal ribcage,” *Frontiers in Network Physiology*, 2024, <https://doi.org/10.3389/fnetp.2024.1396593>
10. Elizabeth L. Doherty, Wen Yih Aw, Emily C. Warren, Max Hockenberry, Chloe P. Whitworth, Grace Krohn, Stefanie Howell, Brian O. Diekman, Wesley R. Legant, Hadi T. Nia, Anthony J. Hickey, William J. Polacheck, “Patient-derived extracellular matrix demonstrates role of COL3A1 in blood vessel mechanics,” *Acta Biomaterialia*, 2023. <https://doi.org/10.1016/j.actbio.2023.05.015>
11. Kathryn Regan[#], Robert LeBourdais[#], Rohin Banerji[#], Johnathan Muhvich[#], Siyi Zheng[#], Sue Zhang[#], Hadi T. Nia, “Multiscale elasticity mapping of biological samples in 3D at optical resolution,” *Acta Biomaterialia*, 2024, <https://doi.org/10.1016/j.actbio.2023.12.036>.
12. Muhamed Hadzipasic[#], Sue Zhang[#], Zhuoying Huang[#], Rachel Passaro[#], Margaret Sten, Ganesh Shankar, Hadi T. Nia, “Emergence of nanoscale viscoelasticity from single cancer cells to established tumors,” *Biomaterials*, 2024, <https://doi.org/10.1016/j.biomaterials.2023.122431>.
13. Siyi Zheng[#], Rohin Banerji[#], Rob LeBourdais[#], Sue Zhang[#], Eric DuBois, Timothy O’Shea, Hadi T. Nia, “Alteration of mechanical stresses in the murine brain by age and hemorrhagic stroke,” *PNAS Nexus*, 2024, <https://doi.org/10.1093/pnasnexus/pgae141>
14. Linzheng Shi[#], Jacob Herman, Samer Bou Jawde, Jason HT Bates, Hadi T. Nia; Béla Suki, “Modeling the influence of gravity and the mechanical properties of elastin and collagen fibers on alveolar and lung pressure–volume curves,” *Scientific Reports*, 12 (1), pp. 1-12, 2022. <https://doi.org/10.1038/s41598-022-16650-0>
15. Z. Yuan, J. H., S. Murthy, K. Peters[#], H. T. Nia, K. R. Lutchen and B. Suki, A personalized consistent spring network representation of emphysematous lungs from CT images, *Frontiers In Network Physiology*, 2022. <https://doi.org/10.3389/fnetp.2022.828157>
16. D. Jones, Z. Wang, I. X. Chen, S. Zhang[#], R. Banerji[#], P. Lei, H. Zhou, V. Xiao, C. Kwong, J. W. M. van Wijnbergen, E. R. Pereira, B. J. Vakoc, P. Huang, H. T. Nia, and T. P. Padera, Solid stress impairs

lymphocyte infiltration into lymph-node metastases, *Nature Biomedical Engineering*, 1-11, 2021. <https://doi.org/10.1038/s41551-021-00766-1>

17. S. Aoki, K. Inoue, S. Klein, S. Halvorsen, J. Chen, A. Matsui, M. Nikmaneshi, S. Kitahara, T. Hato, X. Chen, K. Kawakubo, H. T. Nia, I. Chen, D. H Schanne, E. Mamesier, K. Shigeta, H. Kikuchi, R. Ramjiawan, T. CE Schmidt, M. Iwasaki, T. Yau, T. Hong, A. Quaas, P. S Plum, S. Dima, I. Popescu, N. Bardeesy, L. L Munn, M. J Borad, S. Sassi, R. K Jain, A. X Zhu, D. G Duda, Placental growth factor promotes tumour desmoplasia and treatment resistance in intrahepatic cholangiocarcinoma, *Gut*, 71(1), 185-193, 2022. <http://dx.doi.org/10.1136/gutjnl-2020-322493>
18. H.T. Nia, L.L. Munn and R.K. Jain, "Physical traits of cancer", *Science*, 370, eaaz0868, 2020. DOI: [10.1126/science.aaz0868](https://doi.org/10.1126/science.aaz0868).
19. H.T. Nia, M. Datta, G. Seano, S. Zhang#, W.W. Ho, S. Roberge, P. Huang, L.L. Munn and R.K. Jain, "In vivo compression and imaging in mouse brain to measure the effects of solid stress", *Nature Protocols*, 2020. <https://doi.org/10.1038/s41596-020-0328-2>
20. L. Munn and H. T. Nia, "Mechanosensing tensile solid stresses," *PNAS*, 116 (44), 21960-21962, 2019. <https://doi.org/10.1073/pnas.1916115116>
21. H. T. Nia, L. Munn, and R. K. Jain, "Mapping physical tumor microenvironment and drug delivery," *Clinical Cancer Research*, 2019. <https://doi.org/10.1158/1078-0432.CCR-18-3724>
22. J. B. Sellon, M. Azadi, R. Oftadeh, H. T. Nia, R. Ghaffari, A. J. Grodzinsky, and D. M. Freeman, "Nanoscale Poroelasticity of the Tectorial Membrane Determines Hair Bundle Deflections," *Physical Review Letters*, 122, 028101, 2019. <https://doi.org/10.1103/PhysRevLett.122.028101>
 - [MIT News](#)
23. H. T. Nia, H. Liu, G. Seano, M. Datta, D. Jones, N. Rahbari, J. Incio, V. P. Chauhan, K. Jung, J. D. Martin, V. Askoxylakis, T. P. Padera, D. Fukumura, Y. Boucher, F. J. Hornicek, A. J. Grodzinsky, J. W. Baish, L. Munn, and R.K. Jain, "Solid stress and elastic energy as measures of tumour mechanopathology," *Nature Biomedical Engineering* 1, 0004, 2017. <https://doi.org/10.1038/s41551-016-0004>
 - Featured by [News and Views](#), [Nature Reviews Clinical Oncology](#), [HMS News](#), [EurekaAlert](#)
24. G. Seano*, H. T. Nia*, K. Emblem*, M. Datta, J. Ren, J. Kloepper, S. Krishnan, M. Ghosh, M. Pinho, V. Askoxylakis, G. Ferraro, L. Riedemann, E. Gerstner, T. Batchelor, P. Wen, N. Lin, A. Grodzinsky, D. Fukumura, P. Huang, J. Baish, T. Padera, L. Munn, R.K. Jain, "Neurological dysfunction induced by brain tumor-generated solid stress is reversed by lithium treatment," *Nature Biomedical Engineering*, 3, 230–245, 2019. <https://doi.org/10.1038/s41551-018-0334-7> *: equal contribution.
 - Featured by [News and Views](#), [Trends in Cancer Spotlight](#)
25. H. T. Nia*, M. Datta*, G. Seano, P. Huang, L. Munn, and R.K. Jain, "Quantifying solid stress and elastic energy from excised or in situ tumors," *Nature Protocols*, 13(5), 1091, 2018. *: equal contribution. <https://doi.org/10.1038/nprot.2018.020>
26. Y. Zhao, J. Cao, A. Melamed, M. Worley, A. Gockley, D. Jones, H. T. Nia, Y. Zhang, T. Stylianopoulos, A. Kumar, F. Mpekris, M. Datta, Y. Sun, L. Wu, X. Gao, O. Yeku, M. del Carmen, D. Spriggs, R. K. Jain, L. Xu, "Losartan treatment enhances chemotherapy efficacy and reduces ascites in ovarian cancer models by normalizing the tumor stroma," *PNAS*, 116 (6) 2210-2219, 2019. <https://doi.org/10.1073/pnas.1818357116>.
27. R Oftadeh, B. Connizzo, H. T. Nia, C. Ortiz, A. Grodzinsky, "Biological connective tissues exhibit viscoelastic and poroelastic behavior at different frequency regimes: application to tendon and skin biophysics," *Acta Biomaterialia*, 70, 249-259, 2018. <https://doi.org/10.1016/j.actbio.2018.01.041>

28. J. Incio, P. Suboj, S.M. Chin, Y. Huang, H. T. Nia, S. Kao, S. Babykutty, N. Rahbari, V. Chauhan, J. Martin, R. Ngo, I. Chen, H. Liu, X. Han, T. Reiberger, J. Gravohac, K. Jung, P. Huang, R. Soares, Y. Boucher, D. Fukumura, R.K. Jain, "Obesity-induced inflammation aggravates desmoplasia in PDAC reducing the efficacy of chemotherapy," **Cancer Discovery**, 6 (8), 852-869, 2016. <https://doi.org/10.1158/2159-8290.CD-15-1177>
- Featured by [Nature News and Views](#), [Science Signaling](#)
29. N. Rahbari, D. Kedrin, J. Incio, T. Reiberger, H. Liu, H. T. Nia, C. Edrich, J. Dubroix, I. Chen, T. Heishi, J. Martin, Y. Huang, A. J. Grodzinsky, D. G. Duda, R. K. Jain & D. Fukumura, "Extracellular matrix remodeling after anti-VEGF therapy contributes to therapeutic resistance in colorectal cancer liver metastases," **Science Translational Medicine**, 8 (360), 2016. <https://doi.org/10.4251/wjgo.v15.i2.215>
- Featured by [Nature Reviews Gastroenterology & Hepatology](#)
30. B. Han, H. T. Nia, C. Wang, O. Chandrasekaran, Q. Li, D. Chery, H. Li A. J. Grodzinsky, and L. Han, "AFM-nanomechanical test: an interdisciplinary tool that links the understanding of cartilage and meniscus biomechanics, osteoarthritis degeneration, and tissue engineering," **ACS Biomater. Sci. Eng.**, 3 (9), 2033-2049, 2017. <https://doi.org/10.1021/acsbiomaterials.7b00307>
31. Z. Hajjarian, H. T. Nia, S. Ahn, A. J. Grodzinsky, R. K. Jain, and S. K. Nadkarni, "Laser Speckle Rheology for evaluating the viscoelastic properties of hydrogel scaffolds," **Scientific Report**, 6, 2016. <https://doi.org/10.1038/srep37949>
32. H. T. Nia, L. Han, I. Soltani, P. Roughley, K. Youcef-Toumi, A. Grodzinsky and C. Ortiz, "Aggrecan nanoscale solid-fluid interactions are a primary determinant of cartilage dynamic mechanical properties," **ACS Nano**, 9 (3), 2614-2625, 2015. <https://doi.org/10.1021/nn5062707>
33. M. Azadi*, H. T. Nia*, S. Gauci, A. Fosang, C. Ortiz and A. Grodzinsky, "Wide bandwidth nanomechanical assessment of murine cartilage reveals protection of aggrecan knock-in mice from joint-overuse," **Journal of Biomechanics**, 49 (9), 1634-1640, 2016. *: equal contribution. <https://doi.org/10.1016/j.jbiomech.2016.03.055>
34. H. T. Nia, I. Soltani, Y. Li, L. Han, H. Hung, E. Frank, K. Youcef-Toumi, C. Ortiz and A. Grodzinsky, "High bandwidth AFM-based rheology reveals that cartilage is most sensitive to high loading rates at early stages of impairment," **Biophysical Journal**, 104(7) pp. 1529-1537, 2013. <https://doi.org/10.1016/j.bpj.2013.02.048>
- Featured by: [MIT News](#), [Sciencedaily](#)
35. G. Scarcelli, W. Polacheck, H. T. Nia, K. Patel, A. J. Grodzinsky, R. Kamm and SH Yun, "Noncontact mapping of intracellular hydromechanical properties by Brillouin confocal microscopy," **Nature Methods**, 12 (12), 1132-1134, 2015. <https://doi.org/10.1038/nmeth.3616>
- Featured by: [REUTERS](#), [Yahoo News](#)
36. H. T. Nia, S. Gauci, M. Azadi, H. Hung, E. Frank, A. Fosang, C. Ortiz and A. J. Grodzinsky, "High-bandwidth AFM-based rheology is a sensitive indicator of early cartilage aggrecan degradation relevant to mouse models of osteoarthritis," **Journal of Biomechanics**, 48, pp. 162-168, 2015. <https://doi.org/10.1016/j.jbiomech.2014.11.012>
37. M. A. Batista, H. T. Nia, P. Önerfjord, K. A. Cox, C. Ortiz, A. J. Grodzinsky, D. Heinegård and L. Han, "Nanomechanical phenotype of chondroadherin-null murine articular cartilage," **Matrix Biology**, 38, pp. 84-90, 2014. <https://doi.org/10.1016/j.matbio.2014.05.008>
38. D. J. Rubin, H. T. Nia, T. Desire, P. Nguyen, M. Gevelber, C. Ortiz and N. Joshi, "Mechanical reinforcement of polymeric fibers through peptide nanotube incorporation," **Biomacromolecules**, 14(10) pp 3370-3375, 2013. <https://doi.org/10.1021/bm4008293>

39. H. T. Nia, L. Han, Y. Li, C. Ortiz and A. J. Grodzinsky, "Poroelasticity of cartilage at the nanoscale," *Biophysical Journal*, 101(9) pp. 2304-2313, 2011. <https://doi.org/10.1016/j.bpj.2011.09.011>
40. H. T. Nia, A. Jain, M. Alam, Y. Liu, R. Barnas, and N.C. Makris, "The evolution of air resonance power efficiency in the violin and its ancestors," *Royal Society Proceeding A*, **2015**. <https://doi.org/10.1098/rspa.2014.0905>
 - Featured by [New York Times](#), [Economist](#), [USA Today](#), [Christian Science Monitor](#), [MIT News](#), [NBC News](#)
41. S. Jagannathan, D. Symonds, I. Bertatos, T. Chen, M. Andrews, Z. Gong, N. Donabed, H. T. Nia, A. Tan, L. Ngor, R. Nero, M. Jech, O. R. Godo, S. Lee, P. Ratilal, and N. Makris, "Ocean Acoustic Waveguide Remote Sensing (OAWRS) of marine ecosystems," *Marine Ecology Progress Series*, 395, pp. 137-160, **2009**. <https://doi.org/10.3354/meps08266>
42. K. Sugimoto, and H. T. Nia, "Dynamic simulator of mechanisms based on the tangent and cotangent vectors," *Journal of Robotic Society of Japan*, 25(4), pp. 134-140, **2007** (In Japanese). <https://doi.org/10.7210/jrsj.25.618>
43. H. T. Nia, H. N. Pishkenari and A. Meghdari, "A recursive approach for analysis of snake robots using Kane's equations," *Robotica*, 24(2), pp. 251-256, **2006**. <https://doi.org/10.1017/S0263574705002456>
44. H. T. Nia and R. Hatakenaka, "The two top universities in Iran and Japan, a Brief Comparison," *The Japan Society of Mechanical Engineers Magazine*, 108, pp. 964-5, **2005** (In Japanese).
45. H. Zohoor and H. T. Nia, "Optimal synthesis of planar and spatial mechanisms for path generation using regression deviation," *Scientica Iranica*, 12(2), pp. 190-198, **2005**.

BOOK CHAPTER

46. H. T. Nia, C. Ortiz and A. Grodzinsky, "Aggrecan: approaches to study biophysical and biomechanical properties," *Methods in Molecular Biology*, 1229, pp. 221-237, 2014.
47. H. T. Nia, S. H. Alemohammad, S. Bagheri, R. H. Khiabani and A. Meghdari, "Design, dynamic analysis and optimization of a rover for rescue operations," *Lecture Notes in Computer Science*, 4020, pp. 290-300, 2006.

PATENTS

#: student supervised by H. T. Nia

1. H. T. Nia, K. Regan#, "3D ELASTICITY MAPPING OF BIOLOGICAL SAMPLES," U.S. Application Number: 63/222,182, Filed: September 15, 2022
2. H. T. Nia, C. Eberman#, R. Banerji#, G. Grifno#, B. Suki, "Optically transparent ribcage and uses thereof," U.S. Application Number: 63/222,182, Filed: July 15, 2021
3. H. T. Nia, S. Kappadia#, "Electromechanical streaming potential and uses thereof," provisional filed by Boston University.
4. H. T. Nia, I. S. Bozchaloui, E. Frank, K. Youcef-Toumi, C. Ortiz and A. Grodzinsky, "High-Frequency Rheology System," US Patent 8516610, 2013.

TRANSLATION

- Non-profit translation of Siddhartha Mukherjee, *The Emperor of All Maladies: A Biography of Cancer*, Scribner, 2011.
Persian title: سرطان امپراطور بیماری‌ها: بیوگرافی کاملی از بیماری سرطان (ISBN: 978-600-6926-36-0), 2014.

INVITED TALKS (including scheduled)

- 07/27/2025 Gordon Research Conference on Lung Development, Injury and Repair
- 01/03/2025 Cellular and Molecular Bioengineering Rising Star, CMBE, Carlsbad, CA
- 12/13/2024 Bioengineering Technology & Entrepreneurship Center Advisory Board Meeting
- 11/22/2024 Department of Mechanical Engineering, Tufts University
- 11/08/2024 Bhatia's group, IMES, MIT
- 11/06/2024 Institute Curie, Paris, France
- 10/22/2024 Building Bridges Across NIH and the Broader Engineering Community
- 09/26/2024 Department of Biomedical Engineering, Boston University, invited lecture in Cancer Biology and Oncology for Engineers
- 08/23/2024 Keynote speaker at NCI Annual JI Meeting, Bethesda, MD
- 07/28/2024 FASEB Lung Conference, Lung Epithelium in Health and Disease
- 06/03/2024 Pulmonary Immunology Group, Boston University School of Medicine
- 05/19/2024 American Thoracic Society, Session on Mechanical Forces in Lung Disease
- 05/06/2024 Keynote Speaker at Respiratory Drug Delivery Conference 2024, Tucson, AZ
- 04/18/2024 Pulmonary, Critical Care, and Sleep Medicine, Yale University
- 04/02/2024 Basic & Translational Research in Lung Disease Conference, University of Pittsburg
- 02/23/2024 Center for Engineering in Medicine & Surgery (CEMS) at Massachusetts General Hospital – Harvard Medical School
- 02/16/2024 Mechanobiology Institute (MBI), National University of Singapore
- 01/12/2024 Metastasis Network (MetNet) – MIT group – host: Roger Kamm, PhD
- 01/11/2024 Physical Sciences in Oncology Networks - Cell & Tissue Mechanics SIG
- 11/28/2023 Department of Mechanical and Aerospace Engineering, University of Notre Dame
- 11/21/2023 Department of Biomedical Engineering, Yale University
- 11/16/2023 CMTM mini-symposium on Engineering Tools in Mechanobiology, Boston University
- 11/10/2023 Department of Biomedical Engineering, University of North Carolina at Chappell Hill
- 10/25/2023 Neurophotonics Center, Boston University, Faculty Spotlight
- 10/20/2023 Biomedical Engineering Department, University of Virginia
- 10/19/2023 Biomedical Innovations of the Future Symposium, Boston University
- 10/09/2023 Society of Engineering Science, University of Minnesota
- 10/06/2023 Biomedical Engineering Department, Ohio State University
- 10/02/2023 Pulmonary and Critical Care Research Conference, Massachusetts General Hospital, Harvard Medical School

07/28/2023 STEM Pathway, Boston University

07/10/2023 Institute for the Physics of Living Systems, University College London, UK

07/07/2023 School of Biomedical Sciences, University of Hong Kong, Hong Kong

06/26/2023 Pulmonary Immunology Group, Boston University School of Medicine

05/21/2023 American Thoracic Society, American Thoracic Society Science and Innovation Center Rising Star/Abstract Award

03/08/2023 Department of Radiation Oncology, Massachusetts General Hospital, Harvard Medical School

02/05/2023 Gordon Research Conference on Physical Science of Cancer, Galveston, TX

11/12/2022 Department of Biochemistry, Boston University

10/26/2022 Department of Mechanical and Industrial Engineering, New Jersey Institute of Technology

06/02/2022 Fibrosis Group, Boston University School of Medicine

05/23/2022 Pulmonary Immunology Group, Boston University School of Medicine

04/08/2022 Center for Multiscale and Translational Mechanobiology, Boston University

03/04/2022 Pancreas Center of Excellence, University of Pittsburgh Medical Center

11/05/2021 Rising Star Presentation at Center for Multiscale and Translational Mechanobiology, Boston University

08/06/2021 Center for Engineering in Medicine and Surgery, Massachusetts General Hospital, Harvard Medical School

12/26/2019 Institute for Research in Fundamental Sciences, Tehran

10/11/2019 Department of Mechanical Engineering, Boston University

04/05/2018 Department of Aerospace and Mechanical Engineering, USC

03/27/2018 Department of Mechanical Engineering, UT Austin

03/23/2018 Department of Materials Science and Engineering, MIT, invited lecture in Nanomechanics of Materials and Biomaterials

02/20/2018 Department of Mechanical Engineering and Applied Mechanics, UPenn

02/11/2018 Department of Mechanical and Industrial Engineering, UMass Amherst

02/01/2018 Department of Biomedical Engineering, Boston University

12/13/2017 Department of Mechanical Engineering, Colorado State University

09/27/2017 Department of Bioengineering, Northeastern University; invited lecture in Multiscale Biomechanics

05/04/2017 Department of Mechanical Engineering, MIT

04/07/2017 Department of Biomedical Engineering, Columbia University

02/21/2017 Department of Mechanical Engineering, MIT

01/22/2017 Department of Biomedical Engineering, University of Wisconsin, Madison

12/14/2016 Squishy Physics, Harvard University

04/2015 Nano-indentation and its Application in Mechanobiology and Soft Materials Workshop at UIUC

09/2015 Overture Council, Chicago Symphony Orchestra (declined)

08/2013	Department of Physics, Sharif University of Technology, Tehran, Iran
07/2013	School of Biomedical Engineering, Drexel University, Philadelphia, PA
04/2013	Department of Radiation Oncology, Massachusetts General Hospital, Harvard Medical School, Boston, MA
07/2011	Women's Technology Program Workshop, MIT, Cambridge, MA
05/2010	Women's Technology Program Workshop, MIT, Cambridge, MA

REFEREED CONFERENCE PRESENTATIONS:

2024:

- Lauren Castle*, Kathryn Regan*, Gabrielle Grifno, Linzheng Shi, Rohin Banerji, Winita Wangsrikhun, **Hadi T. Nia**, "Age-related increases in vascular resistance measured at the capillary level within the murine crystal ribcage." Poster presentation, October 2024, Biomedical Engineering Society Annual Meeting, Baltimore MD.
- Kathryn Regan, Robert LeBourdais, Rohin Banerji, Sue Zhang, Jonathan Muhvich, Siyi Zheng, **Hadi T. Nia**, "*Multiscale elasticity mapping of biological samples in 3D at optical resolution.*" Oral Presentation, October 2024, Biomedical Engineering Society Annual Meeting, Baltimore MD.
- Kathryn Regan, Gabrielle Grifno, Rohin Banerji, Linzheng Shi, Winita Wangsrikhun, Lea Berland, Mohammad Rashidian, Mohammad Fallahi-Sichani, **Hadi T. Nia**, "*Motility signatures of native T cells within lung tumor microenvironment using the murine crystal ribcage.*" Oral Presentation, October 2024, Biomedical Engineering Society Annual Meeting 2024, Baltimore, MD.
- Linzheng Shi, Michael Vannini, Gabrielle Grifno, Rohin Banerji, Kathryn Regan, Joseph Mizgerd, **Hadi T. Nia**, "Using extracorporeal cross-circulation coupled with Crystal Ribcage to dissect the role of systemic vs pulmonary immunity against pneumonia," Oral Presentation, October 2024, Biomedical Engineering Society Annual Meeting 2024, Baltimore, MD.
- Gabrielle N. Grifno, Rohin Banerji, Béla Suki, **Hadi T. Nia**, "Single droplet-level aerosol deposition dynamics in functioning alveoli in mice", Oral talk, October 2024, Biomedical Engineering Society Annual Meeting 2024, Baltimore, MD.
- Gabrielle N. Grifno, Rohin Banerji, Béla Suki, **Hadi T. Nia**, "Single droplet-level aerosol deposition dynamics in functioning alveoli in mice", Oral talk, October 2024, Biomedical Engineering Society Annual Meeting 2024, Baltimore, MD.
- Gabrielle N. Grifno, Rohin Banerji, Han Kavehcioglu, Bela Suki, **Hadi T. Nia**, "Novel alveolus-level heterogeneities of aerosol transport and its alteration by metastasis", Oral talk, October 2024, Biomedical Engineering Society Annual Meeting 2024, Baltimore, MD.
- Kathryn Regan, Rohin Banerji, Gabrielle Grifno, Linzheng Shi, Robert LeBourdais, Lauren Castle, Winita P. Wangsrikuhn, Mohammad Rashidian, **Hadi T. Nia**, "*Location-specific motility signatures of T cells in the tumor microenvironment*", Oral presentation, Boston University Center for Multiscale and Translational Mechanobiology, Boston, MA August 2024.
- Linzheng Shi, Michael Vannini, Gabrielle Grifno, Rohin Banerji, Kathryn Regan, Joseph Mizgerd, **Hadi T. Nia**, "Using extracorporeal cross-circulation coupled with Crystal Ribcage to dissect the role of systemic vs pulmonary immunity against pneumonia," Oral Presentation, October 2024, Boston University Center for Multiscale and Translational Mechanobiology
- Gabrielle N. Grifno, Rohin Banerji, Victoria Travnik, Bela Suki, **Hadi T. Nia**, "*Probing transport and deposition of single aerosols in real time in functional mouse lungs*", Invited talk, CEMB Future Leaders in Mechanobiology Seminar, University of Pennsylvania, April 2024.
- Rohin Banerji, Gabrielle N. Grifno, Linzheng Shi, Bela Suki, **Hadi T. Nia**, "*Crystal Ribcage: A Platform for Imaging Functional Lungs in Real-time at Cellular Resolution in Health and Disease*", Lightning talk, Boston University Admitted Students Weekend. March 2023, Boston, MA.

2023:

- Rohin Banerji, Gabrielle N. Grifno, Linzheng Shi, Dylan Smolen, Rob LeBourdais, Jonathan Muhvich, Cate Eberman, Sarah Mazilli, Bela Suki, **Hadi T. Nia**, "*Tumor Micromechanics Probed in Functional Lungs at Cellular Resolution with Novel Crystal Ribcage*", Invited research talk, Gordon Research Seminar, February 2023 Physical Sciences of Cancer, Galveston, TX.

- Rohin Banerji, Gabrielle N. Linzheng Shi, Dylan Smolen, Rob LeBourdais, Jonathan Muhvich, Cate Eberman, Sarah Mazilli, Bela Suki, **Hadi T. Nia**, “*Tumor Micromechanics Probed in Functional Lungs at Cellular Resolution with Novel Crystal Ribcage*”, Invited research talk, Gordon Research Conference Physical Sciences of Cancer, February 2023, Galveston, TX.
- Rohin Banerji, Gabrielle N. Grifno, Linzheng Shi, Dylan Smolen, Rob LeBourdais, Jonathan Muhvich, Cate Eberman, Sarah Mazilli, Bela Suki, **Hadi T. Nia**, “*Tumor Micromechanics Probed in Functional Lungs at Cellular Resolution with Novel Crystal Ribcage*”, Poster presentation, Gordon Research Conference Physical Sciences of Cancer, February 2023, Gavelston, TX.
- Gabrielle N. Grifno, Rohin Banerji, Linzheng Shi, Dylan Smolen, Johnathan Muhvich, Siyi Zheng¹, Bradley Hiller, Riley Pihl, Katrina Traber, Béla Suki, Joseph P. Mizgerd, **Hadi T. Nia**, “*Mechano-immunity and vascular transport in lung metastasis probed in multiscale and real-time via crystal ribcage*”, Poster, Gordon Physical Sciences of Cancer Research Conference (Galveston, TX; 2023).
- Rohin Banerji, Gabrielle N. Grifno, Linzheng Shi, Dylan Smolen, Rob LeBourdais, Jonathan Muhvich, Cate Eberman, Sarah Mazilli, Bela Suki, **Hadi T. Nia**, “*Crystal Ribcage: A Platform for Imaging Functional Lungs in Real-time at Cellular Resolution in Health and Disease*”, Lightning talk, Boston University Admitted Students Weekend. March 2022, Boston, MA.
- Rohin Banerji, Dylan Smolen, Jung Won Park, Raghavan Ramaswamy, **Hadi T. Nia**, “*Development of the Pig Crystal Ribcage to Probe Real-Time Lung Function at Cellular Resolution*”, Poster presentation, Center for Multiscale and Translational Mechanobiology, Boston University, October 2023.
- Kathryn Regan, Gabrielle Grifno, Rohin Banerji, Bela Suki, **Hadi T. Nia**. “*Probing respiration-circulation coupling in positive- vs negative-pressure ventilation of the lung at the capillary level*”, Poster presentation, Center for Multiscale and Translational Mechanobiology, Boston University, October 2023.
- Gabrielle N. Grifno, Rohin Banerji, Victoria Travnik, Bela Suki, **Hadi T. Nia**. “*Probing real-time aerosol deposition at the single droplet level in functional alveoli*”, Oral talk, October 2023, Biomedical Engineering Society Annual Meeting 2023, Seattle, WA.
- Linzheng Shi, Gabrielle Brifno, Rohin Banerji, **Hadi Nia**. “*Developing extracorporeal cross-circulation coupled with crystal ribcage for long-term probing of lung mechanobiology in health and disease*”, Oral talk, October 2023, BUSM MDPH program retreat, Boston, MA.
- Linzheng Shi, Gabrielle Brifno, Rohin Banerji, **Hadi Nia**. “*Developing extracorporeal cross-circulation coupled with crystal ribcage for long-term probing of lung mechanobiology in health and disease*”, Oral talk, October 2023, CMTM Annual SYmposium, Boston, MA.
- Gabrielle N. Grifno, Rohin Banerji, Bela Suki, **Hadi T. Nia**. “*Probing real-time aerosol deposition at the single droplet level in functional alveoli*”, Oral talk, December 2023, QBP/TRB/SB2 Graduate Research Symposium, Boston University, Boston.

2022:

- Sue Zhang, Rachel Passaro, Kathryn Regan, Muhamed Hadzipasic, Gabrielle Grifno, Siyi Zheng, Logan O’Connor, Vinson Chu, Sung Yeon Kim, Jiarui Yang, Rohin Banerji, Kavon Karrobi, Darren Roblyer, Mark W. Grinstaff, **Hadi T. Nia**, “*In vivo multiscale measurements of solid stresses in tumors reveal scale-dependent stress transmission*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio
- Béla Suki, Jae Hun Kim, Yuqing Deng, Joseph Hall, **Hadi T. Nia**, Elizabeth Bartolák-Suki, Ramaswamy Krishnan, “*Mitochondrial Response of Type II Alveolar Epithelial Cells to Cough-induced Stretch*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio.
- Linzheng Shi, Jacob Herrmann, Samer Bou Jawde, Jason HT Bates, **Hadi T Nia**, Béla Suki, “*The Role of Gravity and Mechanical Properties of Elastin and Collagen on Lung Pressure-Volume Curves*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio.
- Linzheng Shi, Jacob Herrmann, Samer Bou Jawde, Jason HT Bates, **Hadi T Nia**, Béla Suki, “*The Role of Gravity and Mechanical Properties of Elastin and Collagen on Lung Pressure-Volume Curves*”, Abstract submission, BUSM MD/PhD Retreat 2022.
- Johnathan Muhvich, Linzheng Shi, Rohin Banerji, Gabrielle N. Grifno, **Hadi T. Nia**, “*Development of a Programmable Ventilator For Negative and Positive Pressure Ventilation in Mice*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio.
- Kathryn Regan, Robert LeBourdais, Siyi Zheng, Sue Zhang, **Hadi T. Nia**, “*Multiscale Mapping of Elasticity in Biological Tissues in 3-D at Optical Resolution*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio

- Siyi Zheng, Sue Zhang, Rohin Banerji, **Hadi T. Nia**, “*Evolution of Solid Stresses in Normal Brain by Age*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio.
- Dylan Smolen, Rohin Banerji, Hadi T. Nia, “*Design and Fabrication of Porcine Crystal Ribcage for High Resolution Ex Vivo Imaging*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio.
- Rob LeBourdais, Rohin Banerji, Gabrielle N. Grifno, Kathryn Regan, **Hadi T. Nia**, “*Micro-elastography of the Functioning Lung at Multiple Length Scales in Health and Disease*,” Poster presentation, Biomedical Engineering Society Annual Meeting 2022, San Antonio.
- Gabrielle N. Grifno, Rohin Banerji, Riley Pihl, Katrina Traber, Bela Suki, **Hadi T. Nia**, “*Multiscale, Real-Time Lung Vascular Dynamics Probed via Crystal Ribcage*”, Poster, Boston University Center for Multiscale & Translational Mechanobiology 3rd Annual Symposium 2022, Boston MA.
- Gabrielle N. Grifno, Rohin Banerji, Riley Pihl, Katrina Traber, Bela Suki, **Hadi T. Nia**, “*Multiscale and Real-Time Vascular Dynamics in the Lung Parenchyma Probed via a Crystal Ribcage*”, Oral talk, Biomedical Engineering Society Annual Meeting 2022, San Antonio, TX.
- Rohin Banerji, Gabrielle N. Grifno, Cate Eberman, Jonathan Muhvich, Jisu Lee, Giovanni Ligresti, Bela Suki, **Hadi T. Nia**, “*Development of a Novel Crystal Ribcage to Probe Functional Lungs at Cellular Resolution in Real-Time*”, Oral talk, Biomedical Engineering Society Annual Meeting 2022, San Antonio, TX.
- Rohin Banerji, Gabrielle N. Grifno, Cate Eberman, Jonathan Muhvich, Jisu Lee, Giovanni Ligresti, Bela Suki, **Hadi T. Nia**, “*Development of a Novel Crystal Ribcage to Probe Functional Lungs at Cellular Resolution in Real-Time*”, Poster presentation, Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA.
- Rohin Banerji, Gabrielle N. Grifno, Cate Eberman, Jonathan Muhvich, Bela Suki, **Hadi T. Nia**, “*Understanding pulmonary disease in mouse models using a novel crystal ribcage*”, Lightning talk, Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA.
- Rohin Banerji, Gabrielle N. Grifno, Cate Eberman, Jonathan Muhvich, Bela Suki, **Hadi T. Nia**, “*Understanding pulmonary disease in mouse models using a novel crystal ribcage*”, Lightning talk, Boston University Admitted Students Weekend 2022, Boston, MA.
- Linzheng Shi, **Hadi T. Nia**, Béla Suki, “*The Role of Gravity and Mechanical Properties of Elastin and Collagen on Lung Pressure-Volume Curves*”, Poster Presentation, Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA.
- Johnathan Muhvich, Linzheng Shi, Rohin Banerji, Gabrielle N. Grifno, **Hadi T. Nia**, “*Development of a Programmable Ventilator For Negative and Positive Pressure Ventilation in Mice*”, Poster presentation, Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA.
- Siyi Zheng, Sue Zhang, Rohin Banerji, **Hadi T. Nia**, “*Evolution of Solid Stresses in Normal Brain by Age*”, Poster presentation, Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA.
- Dylan Smolen, Rohin Banerji, **Hadi T. Nia**, “*Design and Fabrication of Porcine Crystal Ribcage for High Resolution Ex Vivo Imaging*”, Poster presentation, Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA.
- Kathryn Regan, Robert LeBourdais, Siyi Zheng, Sue Zhang, **Hadi T. Nia**, “*Multiscale Mapping of Elasticity in Biological Tissues in 3-D at Optical Resolution*”, Poster presentation, Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA
- Rohin Banerji, Gabrielle N. Grifno, Cate Eberman, Jonathan Muhvich, Jisu Lee, Giovanni Ligresti, Bela Suki, **Hadi T. Nia**, “*Development of a Novel Crystal Ribcage to Probe Functional Lungs at Cellular Resolution in Real-Time*”, Oral presentation, Department of Biomedical Engineering Student Seminar, December 2022, Boston, MA.
- Gabrielle N. Grifno, Rohin Banerji, Lingzheng Shi, Dylan Smolen, Jonathan Muhvich, Siyi Zheng, Bradley Hiller, Riley Pihl, Katrina Traber, Joseph P. Mizgerd, **Hadi T. Nia**, “*Real-Time Lung Vascular Dynamics Probed via Crystal Ribcage*”. Poster presentation, Quantitative Biology, Translational Research in Biomaterials, and Synthetic Biology and Biotechnology 19th Annual Graduate Research Symposium, December 2022, Boston MA.
- Gabrielle N. Grifno, Rohin Banerji, Lingzheng Shi, Dylan Smolen, Jonathan Muhvich, Siyi Zheng, Bradley Hiller, Riley Pihl, Katrina Traber, Joseph P. Mizgerd, **Hadi T. Nia**, “*Multiscale, Real-Time Lung Vascular Dynamics Probed via Crystal Ribcage*”. Poster presentation, Boston University Center for Multiscale and Translational Mechanobiology Annual Symposium 2022, Boston, MA.

2021:

- Sue Zhang, Rachel Passaro, Vinson Chu, Mark W. Grinstaff, **Hadi T. Nia.**, “*Non-invasive measurement of solid stress in breast tumors in vitro and in vivo*,” Poster presentation, Biomedical Engineering Society Annual Meeting, virtual, October 2021.
- Sue Zhang, Rachel Passaro, Mark W. Grinstaff, **Hadi T. Nia.**, “*Non-invasive measurement of solid stress in breast tumors in vitro and in vivo*”, Poster presented at QBP/TRB/SB2 Graduate Research Symposium, Boston University, December 2021.
- Gabrielle N. Grifno, Rohin Banerji, Cate Eberman, Béla Suki, **Hadi T. Nia**, “*Dynamic Deformation of Alveoli during Pulmonary Edema under Mechanical Ventilation*”, Oral talk, Biomedical Society Annual Meeting 2021, virtual.
- Rohin Banerji, Cate Eberman, Gabrielle N. Grifno, Bela Suki, **Hadi T. Nia**, “*Altered Alveolar Micromechanics in the Presence of Metastatic Tumors*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2021, Virtual attendance.

2020:

- Sue Zhang, **H. T. Nia**. 2020. “*In vivo measurement of solid stress in solid tumors.*” Poster presented at Boston University Virtual Graduate Research Symposium, Boston University, December 2020.
- Scott Gaines, Aditya Jain, Rohin Banerji, Elizabeth Hanchar, Sarah Gerard, Jacob Hermann, Bela Suki, Hadi T. Nia, “*Biophysical Contribution to Tumor Progression and Incidence in Lung Cancer*”, Poster presentation, Biomedical Engineering Society Annual Meeting 2020, Virtual attendance.

Prior to 2020:

- **H. T. Nia**, H. Liu, G. Seano, M. Datta, D. Jones, N. Rahbari, J. Incio, V. P. Chauhan, K. Jung, J. D. Martin, V. Askoxylakis, T. P. Padera, D. Fukumura, Y. Boucher, F. J. Hornicek, A. J. Grodzinsky, J. W. Baish, L. Munn, and R.K. Jain, “Solid stress and elastic energy as measures of tumour mechanopathology,” Biomedical Engineering Society Annual Meeting , Phoenix, AZ., October 2017.
- G. Seano*, **H. T. Nia***, K. Emblem*, M. Datta, J. Ren, J. Kloepper, S. Krishnan, M. Ghosh, M. Pinho, V. Askoxylakis, G. Ferraro, L. Riedemann, E. Gerstner, T. Batchelor, P. Wen, N. Lin, A. Grodzinsky, D. Fukumura, P. Huang, J. Baish, T. Padera, L. Munn, R.K. Jain, “Neurological dysfunction induced by brain tumor-generated solid stress is reversed by lithium treatment,” Biomedical Engineering Society Annual Meeting , Phoenix, AZ., October 2017.
- **H. T. Nia**, H. Liu, G. Seano, M. Datta, D. Jones, N. Rahbari, J. Incio, V. P. Chauhan, K. Jung, J. D. Martin, V. Askoxylakis, T. P. Padera, D. Fukumura, Y. Boucher, F. J. Hornicek, A. J. Grodzinsky, J. W. Baish, L. Munn, and R.K. Jain, “Solid stress and elastic energy as measures of tumour mechanopathology,” American Cancer Research, April, Washington D.C., April 2017.
- **H. T. Nia**, H. Liu, G. Seano, M. Datta, D. Jones, N. Rahbari, J. Incio, V. P. Chauhan, K. Jung, J. D. Martin, V. Askoxylakis, T. P. Padera, D. Fukumura, Y. Boucher, F. J. Hornicek, A. J. Grodzinsky, J. W. Baish, L. Munn, and R.K. Jain, “Solid stress and elastic energy as measures of tumour mechanopathology,” Gordon Research Conference on Physical Sciences of Cancer, Galveston, TX., February 2017.
- J. Incio, P. Suboj, S.M. Chin, Y. Huang, **H. T. Nia**, S. Kao, S. Babykutty, N. Rahbari, V. Chauhan, J. Martin, R. Ngo, I. Chen, H. Liu, X. Han, T. Reiberger, J. Gravohac, K. Jung, P. Huang, R. Soares, Y. Boucher, D. Fukumura, R.K. Jain, “Obesity-induced inflammation aggravates desmoplasia in PDAC reducing the efficacy of chemotherapy,” American Cancer Research, April, Washington D.C., April 2017.
- N. Rahbari, D. Kedrin, J. Incio, T. Reiberger, H. Liu, **H. T. Nia**, C. Edrich, J. Dubroix, I. Chen, T. Heishi, J. Martin, Y. Huang, A. J. Grodzinsky, D. G. Duda, R. K. Jain & D. Fukumura, “Extracellular matrix remodeling after anti-VEGF therapy contributes to therapeutic resistance in colorectal cancer liver metastases,” American Cancer Research, April, Washington D.C., April 2017.
- M. Azadi, **H. T. Nia**, A. Grodzinsky, C. Ortiz, “AFM Nanodynamics a complementary tool to conventional Micromechanical AFM-contact assessment for time dependent biomaterial”, Accepted for presentation at AFM BioMed Conference, October 2014.

- **H. T. Nia**, M. Azadi, L. Han, P. Roughley, C. Ortiz, A. Grodzinsky, "Fluid-Solid Interactions within Aggrecan Proteoglycan Networks: Molecular Origins of Tissue-Level Biomechanics and Functioning of Cartilage", Proceeding of 2014 World Congress of Biomechanics, January 2014.
- M. Azadi, **H. T. Nia**, A. Grodzinsky, C. Ortiz, "Comparison of Nano and Microscale Mechanics of Murine Articular Cartilage," Proceeding of IEEE Engineering in Medicine and Biology Society, May 2014.
- M. Azadi, **H. T. Nia**, A. Grodzinsky, A. Ortiz, "Nonlinear nanomechanics of murine articular cartilage", Proceeding of 2014 World Congress of Biomechanics, Jan 2014.
- **H. T. Nia**, L. Han, I. Bozchalooi, K. Youcef-Toumi, A. Grodzinsky and C. Ortiz, "Frequency-dependent nanomechanical behavior of aggrecan demonstrates that aggrecan is the dominant constituent responsible for the frequency dependence of cartilage poroelasticity," Transactions of the 59th Annual Orthopaedic Research Society 2013, San Antonio, TX, 2013, poster presentation.
- **H. T. Nia**, L. Han, I. S. Bozchalooi, K. Yousef-Toumi, C. Ortiz and A. Grodzinsky, "Dynamic Nanomechanics of End Grafted Aggrecan Monolayers Reveals Energy Dissipation and Self-stiffening Properties of Cartilage at the Nanoscale," Materials Research Society, Boston, Nov 25-30, 2012, poster presentation.
- **H. T. Nia**, I. S. Bozchalooi, Y. Li, L. Han, H. Hung, E. Frank, K. Yousef-Toumi, A. Grodzinsky and C. Ortiz, "AFM-Based High-Frequency Rheology of Cartilage as a Sensitive Method to Measure Matrix Degradation," Materials Research Society, Boston, Nov 25-30, 2012, poster presentation.
- S. A. O'Neill, **H. T. Nia**, A. Grodzinsky, C. Ortiz, "Nanomechanics of Agarose Hydrogel at the Nanoscale Deformation," SACNAS, San Jose, USA, Oct 28, 2011.
- **H. T. Nia**, L. Han, I. Bozchalooi, K. Youcef-Toumi, A. Grodzinsky and C. Ortiz, "Molecular Level Origins of the Dynamic Mechanical Functioning of Cartilage," 2nd Global Congress on Nanoengineering for Medicine and Biology, Boston, 2013, podium presentation.
- **H. T. Nia**, Y. Li, Y. Wang, I. Bozchalooi, S. Chubinskaya, K. Youcef-Toumi, C. Ortiz and A. Grodzinsky, "Depth-dependent self-stiffening, energy dissipation and poroelastic properties of normal human cartilage via broad-spectrum dynamic nanoindentation," Transactions of the 59th Annual Orthopaedic Research Society 2013, San Antonio, TX, 2013, podium presentation.
- Batista, M., **Nia, H.T.**, Cox, K., Grodzinsky, A. J., Ortiz, C., Heinegrd, D., and L. Han. "Effects of Chondroadherin on Cartilage Nanostructure and Biomechanics via Murine Model," Proceedings of the ASME 2013 Summer Bioengineering Conference, Sunriver, OR, 2013.
- M. Batista, **H. T. Nia**, K. Cox, A. Grodzinsky, C. Ortiz, D. Heinegård and L. Han, "Role of Chondroadherin in Nanoscale Tissue Assembly and Biomechanics of Murine Articular Cartilage," Transactions of the 59th Annual Orthopaedic Research Society 2013, San Antonio, TX, 2013, podium presentation.
- L. Han, **H. T. Nia**, A. Grodzinsky, C. Ortiz, "Cartilage Dynamic Nanomechanics," East Lake International Forum on Frontiers of Science and Technology for Outstanding Overseas Young Scholars, Hubei, China Oct. 6-8, 2012.
- **H. T. Nia**, I. Soltani, Y. Li, E. Frank, K. Yousef-Toumi, A. Grodzinsky and C. Ortiz, "The Effect of GAG Depletion on Cartilage Nanoscale Hydraulic Permeability," Transactions of the 2012 58th Annual Orthopaedic Research Society 2012, San Francisco, CA, 2011.
- **H. T. Nia**, L. Han, Y. Li, C. Ortiz, A. J. Grodzinsky, "Poro/viscoelasticity of Cartilage at the Nanoscale," The 4th International Conference on Mechanics of Biomaterials Tissues, Marriott Waikoloa Beach Resort and Spa, Waikoloa, HI, Dec 11-14, 2011.

- **H. T. Nia**, L. Han, Y. Li, C. Ortiz and A. J. Grodzinsky, "Poroelasticity is the Dominant Energy Dissipation Mechanism in Cartilage at the Nano-scale," Transactions of the 57th Annual Orthopaedic Research Society Podium Presentation Spotlight Session, Long Beach, California, 36, 2011.
- **H. T. Nia**, L. Han L, A. J. Grodzinsky and C. Ortiz, "Micro- and nanoscale poroelasticity of cartilage," Materials Research Society, Boston, Nov 29 Dec 3, 2010.
- K. Sugimoto, **H. T. Nia**, and A. Enomoto, 2005, "Reciprocal Spaces and Dual Spaces for the Analysis of Parallel Mechanisms," Proceeding of the 11th Symposium on Theory of Machines and Mechanisms (Jc-IFTToMM), TIT, Tokyo, Japan (In Japanese).
- **H. T. Nia**, S. H. Alemohamad, S. Bagheri, R. H. A. Khiabani and A. Meghdari "An Approach to Rough Terrain Rovers Dynamic Analysis and Optimization," Proceeding of IDETC/CIE, Sep. 24-28, 2005, Long Beach, CA, USA.
- **H. T. Nia**, H. N. Pishkenari, A. Meghdari, "Effective Analysis of Snake Robots Using Kane's Equations," Proceeding of IDETC/CIE, Sep. 24-28, 2005, Long Beach, CA, USA.
- **H. T. Nia**, H. Pendar, M. Vakil, H. Zohoor, "Closed Form Dynamical Equations of the General Stewart Platform; Part II: Kane Approach," Proceeding of the 12th ISME International Conference of Mechanical Engineering, 2004, 42.
- M. Vakil, H. Pendar, **H. T. Nia**, H. Zohoor, "Closed Form Dynamical Equations of the General Stewart Platform; Part I: Newton-Euler Approach," Proceeding of the 12th ISME International Conference of Mechanical Engineering, 2004, 41.
- **H. T. Nia**, H. Zohoor, "Optimal Synthesis of Planar and Spatial Mechanisms for Path Generation Using Regression Deviation," Proceeding of the 11th ISME International Conference of Mechanical Engineering, 2003 (In Persian).

SCIENTIFIC OUTREACH

- 2024 Served in CDMRP (DoD) Melanoma Research Program Panel
 - 2024- Co-chair of Respiratory Structure Function (RSF) Assembly at American Thoracic Society (ATS)
 - 2024- Editorial board of Biological Physics and Mechanics
 - 03/2024 Served in NIH Study Section F09C: Fellowships: Oncological Sciences
 - 07/2023 Invited to serve in NIH study section ZRG1, Fellowships: Cancer Immunology and Immunotherapy
 - 09/2022 Session Chair, Annual Meeting of Biomedical Engineering Society (BMES), San Antonio
 - Fall 2021 Served in NIH study section of Cellular Molecular Technologies (CMT)
 - 09/2019 Session Chair, Annual Meeting of Biomedical Engineering Society (BMES), Cancer Technologies Track, Philadelphia, PA
 - 07/2013 Session Chair, Society of Engineering Science at the 50th Annual Technical Meeting, Brown, RI
 - 12/2011 Session Chair, The 4th International Conference on Mechanics of Biomaterials Tissues, Waikoloa, HI
- **Reviewed for** Biophysical Journal, Journal of Biomechanics, BMC Cancer, APL Bioengineering, Acta Biomaterialia, Biomechanics and modeling in mechanobiology, Trends in Cancer, Communication Biology, Science Advances, Scientific Report, PNAS, Cancer Discovery, Journal of Experimental Mechanics, Journal of Biomechanical Engineering, Osteoarthritis and Cartilage, ASME OMEA 2012, Journal of the Mechanical Behavior of Biomedical Materials, and multiple NIH grants in collaboration with Steele Labs faculties.
 - **Member of:** Biomedical Engineering Society (BMES), American Association for Cancer Research (AACR), American Thoracic Society (ATS), American Society of Mechanical Engineers (ASME), American Chemical Society (ACS).
 - **Organizing member** of the annual course on Critical Issues in Tumor Microenvironment: Angiogenesis, Metastasis and Immunology in 2014, 2015 and 2016; Academia transition seminars for Mass. General Postdoctoral Association (MGPA).

Departmental Service:

- 2019-2020, Admission committee, Chair: Jerome Mertz
- 2020-2021, Admission committee, Chair: Darren Roblyer
- 2021-2022, Search committee, Chair: Muhammad Zaman
- 2022-2023, Search committee, Chair: Chris Chen
- 2022-2023, Member of strategic planning task force in Center for Multiscale and Translational Mechanobiology (CMTM) Chairs: Elise Morgan (ENG) and Bob Varelas (BUSM)
- 2024-present, Member of Executive Committee in Center for Multiscale and Translational Mechanobiology (CMTM)
- Member of qualifying exam:
 - Nanotechnology 2019
 - Nanotechnology 2020
 - Nanotechnology 2021
 - Nanotechnology 2022