

ASHKAN VAZIRI

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Associate of The School of Engineering and Applied Science
Harvard University

Visiting Scholar
Department of Bioengineering, University of California at Berkeley

Education

Institution	Degree	year
Sharif University of Technology (Tehran, Iran)	B. Sc.	1999
Sharif University of Technology (Tehran, Iran)	M. Sc.	2000
Northeastern University (Advisor: Prof. Hamid Nayeb-Hashemi)	Ph. D.	2004
Harvard University (Academic Mentor: Prof. John W. Hutchinson)	Post-Doc	2004-2006

A. Positions and Honors

Positions and Employment

2001-2003	Teaching Assistant, Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University
2003-2004	Instructor in Engineering, Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University
04/2004-04/2006	Post-Doctoral Fellow, Division of Engineering and Applied Sciences, Harvard University
09/2004-02/2006	Lecturer on Engineering, School of Engineering and Applied Sciences, Harvard University
04/2006-11/2007	Research Associate, School of Engineering and Applied Sciences, Harvard University
10/2006-09/2008	Research Affiliate, Biological Engineering Division, Massachusetts Institute of Technology
12/2007-09/2008	Senior Research Scientist, FM Global Research
08/2006-present	Visiting Scholar, Department of Bioengineering, University of California at Berkeley
12/2007-present	Associate of The School of Engineering and Applied Sciences, Harvard University
09/2008	Assistant Professor, Department of Mechanical and Industrial Engineering, Northeastern University

Lecturing Experience

2003 (Summ)	MIM1360 (Dynamics), Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University (Overall rating of instructor=4.7/5.0)
2003 (Fall)	MIMU355 (Dynamics and Vibrations), Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University (Overall rating of instructor=4.6/5.0)
2004 (Spring)	MIMU355 and MIMU356, (Mechanics of Materials) and (Mechanics of Materials Laboratory), Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University (Overall rating of instructor=4.2/5.0)
2004 (Fall)	ES125 (Mechanical Systems), Division of Engineering and Applied Sciences, Harvard University (Overall rating of instructor=4.93/5.0)

- 2005 (Fall) ES125 (Mechanical Systems), Division of Engineering and Applied Sciences, Harvard University (Overall rating of instructor=4.31/5.0)
- 2006 (Fall) ES128 (Computational Solid and Structural Mechanics), Division of Engineering and Applied Sciences, Harvard University (Overall rating of instructor=4.75/5.0)
- 2009 (Spring) MIMU355 (Dynamics and Vibrations), Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University

Grants

Current

- NSF (\$100k)** Formation and evolution of localized structures in elastic shells
Co-PI (PI: John W. Hutchinson) - 07/15/2007-12/30/2008

Pending

- AFOSR (\$300k)** Mechanics and dynamics of multifunctional sandwich plates
AFOSR BAA
- Beckman Foundation (\$300k)** Surface engineering of polymers
PI (Young Investigator Award) – Pending
- NIH (\$234k)** Knee mechanics in health and disease
PI (Young Investigator Award) – Pending
- Petroleum Res. Fund (\$100k)** Polymer aging: a novel mechano-chemical approach
PI (Young Investigator Award) – Pending
- QNRf (\$1.01M)** Explosive resistant structures for oil and gas industry
Lead PI (Young Investigator Award) – Joint proposal between multiple universities
- Pending

Advisory Courses:

- 2004 (Spring) MIMU390 (Independent Study), Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University
- 2005 (Spring) ES91r (Independent Study), Division of Engineering and Applied Sciences, Harvard University
- 2005 (Fall) ES100 (Senior Design Project), Division of Engineering and Applied Sciences, Harvard University
- 2006 (Spring) ES100 (Senior Design Project), Division of Engineering and Applied Sciences, Harvard University
- 2006 (Spring) ES91r (Independent Study), Division of Engineering and Applied Sciences, Harvard University
- 2007 (Spring) ES91r (Independent Study), School of Engineering and Applied Sciences, Harvard University

Honors and Awards

- 1999 Graduated with 2nd top GPA in class of 1999 (BSc.), Sharif University of Technology
- 1999 2nd place in the Third Olympiad of Civil and Structural Engineering
- 1999 3rd place in Nationwide University Entrance Exam toward MSc. degree
- 2000 Graduated with 2nd top GPA in class of 2000 (MSc), Sharif University of Technology
- 2001-2003 Teaching Scholarship, Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University
- 2003 The Honor Society of Phi Kappa Phi, College of Engineering, Northeastern University
- 2003 & 2004 Yamamura Fellow, Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University

2004	Outstanding Teaching Assistant Award of College of Engineering, College of Engineering, Northeastern University
2005	USACM Travel Grant, 8 th U.S. National Congress on Computational Mechanics
2006	USACM Post-Doctoral Award, 7 th World Congress on Computational Mechanics
2007	USACM Young Investigator Fellowship
2008	USACM Young Investigator Fellowship
2008	FM Global Directorate Award

Other Professional Activities

2004-2005	Consultant, RWE Schott Solars, Billerica, MA
2004-2005	Consultant, Beth Israel Hospital, Harvard Medical School
2005-2006	Consultant, McGovern Institute for Brain Research, MIT
2007-present	Consultant, Bosch Research and Technology Center
2008-present	Consultant, FM Global Research

Invited Presentation

2003	Mechanical Engineering Department, North Dakota State University.
2003	Simpson Gumpertz & Heger Inc., Boston.
2004	Department of Mechanical, Industrial, and Manufacturing Engineering, Northeastern University.
2004	Department of Mechanical Engineering, University of Massachusetts, Lowell.
2004	College of Engineering, Northeastern University.
2006	Department of Civil and Environmental Engineering, Massachusetts Institute of Technology.
2006	Division of Engineering and Applied Sciences, Harvard University.
2007	Keynote Speaker, ICCES07
2007	Keynote Speaker, 9 th US Congress in Computational Mechanics
2007	Mechanical and Aerospace Engineering Department, University of California, Irvine.
2007	Department of Mechanical Science and Engineering, University of Illinois, Urbana-Champaign.
2007	Department of Civil Engineering, John Hopkins University.
2007	Department of Civil and Environmental Engineering, Princeton University
2007	Division of Engineering, Brown University.
2007	Department of Mechanical Engineering, Northwestern University
2007	Department of Aerospace and Mechanical Engineering, Boston University
2007	Bosch Research and Technology Center, Paolo Alto, CA
2007	Department of Mechanics, École Polytechnique
2007	FM Global Research
2008	Department of Mechanics and Industrial Engineering, Northeastern University.
2008	Keynote Speaker, ICCES08
2008	Department of Civil Engineering, Sharif University of Technology
2008	Department of Mechanical Engineering, Tehran University

B. Publications

Patents/Technology disclosures

1. **A. Vaziri**, M.W. Moon, S.H. Lee, J.Y. Sun, K.H. Oh, A method for creation of controlled Self-assembled wrinkles on polymer substrate using Focused Ion Beam irradiation.
2. L. Mahadevan, **A. Vaziri**, Ch. Riera, Elastic Memories using Localized Bumps on Shell Structures (Technical disclosure)
3. B. Najafi, **A. Vaziri**. An Ambulatory system for measuring and monitoring physical activity and risk of falling and for automatic fall detection (Patent pending).

Journal Articles:

1. **A. Vaziri**, H. R. Hamidzadeh & H. Nayeb-Hashemi, "Dynamic response of bond single-lap joints with a void subjected to a harmonic peeling load", *J. Multibody Dynamics*, 2001, **215(4)**, pp. 199-206.
2. **A. Vaziri** & H. Nayeb-Hashemi, "Dynamic response of the tubular joint with an annular void subjected to a harmonic axial load", *Int. J. Adhesion and Adhesives*, 2002, **22(5)**, pp. 367-373.
3. **A. Vaziri** & H. Nayeb-Hashemi, "Dynamic response of the tubular joint with an annular void subjected to a harmonic torsional load", *J. Multibody Dynamics*, 2002, **216(4)**, pp. 361-371.
4. H. Nayeb-Hashemi, A. Harrison & **A. Vaziri**, "Analytical determination of localized heat damage in fiberglass reinforced beams using the frequency response shifting", *J. Composites Technology & Research*, 2003, **25(2)**, pp. 87-95.
5. **A. Vaziri**, H. Nayeb-Hashemi & H. R. Hamidzadeh, "Experimental and analytical investigation of the dynamic response of adhesively bonded single lap joint", *J. Vibration and Acoustics*, 2004, **126(1)**, pp. 84-91.
6. H. Nayeb-Hashemi, D. Swet & **A. Vaziri**, "New electrical potential method for measuring crack growth in non-conductive materials", *Measurement*, 2004, **36(2)**, pp. 121-129.
7. **A. Vaziri** & H. Nayeb-Hashemi, "The effect of crack surface interaction on the Stress Intensity Factor in Mode III crack growth in round shafts", *Engineering Fracture Mechanics*, 2005, **72(4)**, pp. 617-629.
8. K. Efimenko, M. Rackaitis, W. Manias, **A. Vaziri**, L. Mahadevan & J. Genzer, "Nested self-similar wrinkling patterns in skins", *Nature Materials*, 2005, **4**, pp. 293-297.

Commentaries and press reports: Mercury News, Twincities.com, Nature Materials, News & Views, Aberdeen News.
9. Z. Xue, **A. Vaziri** & J. W. Hutchinson, "Non-uniform constitutive model for compressible orthotropic materials with application to sandwich plate cores", *Computer Modeling in Engineering & Sciences*, 2005, **10(1)**, pp. 79-95.
10. **A. Vaziri**, Z. Xue & J. W. Hutchinson, "Metal sandwich plates with polymeric foam-filled cores", *J. Mechanics of Materials and Structures*, 2006, **1(1)**, pp. 95-128. (invited by the chief-editor for the first issue of the journal)
11. D. Callaghan, **A. Vaziri**, & H. Nayeb-Hashemi, "Effect of fiber volume fraction and length on the wear characteristics of glass fiber-reinforced dental composites", *Dental Materials*, 2006, **22(1)**, pp. 84-93.
12. **A. Vaziri** & H. Nayeb-Hashemi, "Dynamic response of a repaired composite beam with an adhesively bonded patch under a harmonic peeling load", *Int. J. Adhesion and Adhesives*, 2006, **26(5)**, pp. 314-324.
13. R. Rizzieri, L. Mahadevan, **A. Vaziri** & A. Donald, "Superficial wrinkles in stretched, drying gelatin films", *Langmuir*, 2006, **22(8)**, pp. 3622-3626.
14. **A. Vaziri** & H. E. Estekanchi, "Buckling of cracked cylindrical shells under combined internal pressure and axial compression", *Thin-Walled Structures*, 2006, **44(2)**, pp. 141-151.
15. D. Mohr, Z. Xue & **A. Vaziri**, "Quasi-static punch indentation of a honeycomb sandwich plate: Experiments and Constitutive Modeling", *J. Mechanics of Materials and Structures*, 2006, **1(3)**, pp. 581-604.
16. **A. Vaziri** & H. Nayeb-Hashemi, "A theoretical investigation on the vibrational characteristics and torsional dynamic response of circumferentially cracked turbo-generator shafts", *Int. J. Solids and Structures*, 2006, **43(14-15)**, pp. 4063-4081.
17. **A. Vaziri**, H. Lee & M. R. Kaazempur-Mofrad, "Deformation of the nucleus under indentation: Mechanics and Mechanisms", *J. Materials Research*, 2006, **21(8)**, pp. 2126-2135.

18. L. Courbin, A. Marchand, **A. Vaziri**, A. Ajdari & H. A. Stone, "Impact dynamics for elastic membranes", *Physical Review Letter*, 2006, **97**(24), pp. 244301.
19. M.W. Moon, S.H. Lee, J.Y. Sun, K.H. Oh, **A. Vaziri** & J. W. Hutchinson, "Wrinkled hard skins for polymers created by Focused Ion Beam", *Proceedings of The National Academy of Sciences*, 2007, **104**, pp. 1130-1133.
- Commentaries and press reports: *FAS Office of Communication, EurekAlter, ScienceDaily, Chemical and Engineering News, United Press International, Materials News (Materials Research Society), Plastics Industry News, Iran Daily, MIT News, Clinica, Science News* (Vol. 171, Feb. 10, 2007, pp. 93).
20. M. Das, **A. Vaziri**, A. Kudrolli & L. Mahadevan, "Curvature condensation and bifurcation in an elastic shell", *Physical Review Letter*, 2007, **98**(1), pp. 014301.
21. **A. Vaziri** & J. W. Hutchinson, "Metallic sandwich plates subject to intense air shocks", *Int. J. Solids and Structures*, 2007, **44**, pp. 2021-2035.
22. L. Mahadevan, **A. Vaziri** & M. Das, "Anomalous persistence of a pinch in a pipe", *Europhysics Letters*, 2007, **77**, pp. 40003.
23. **A. Vaziri** & Z. Xue, "Mechanical behavior and constitutive modeling of metal cores", *J. Mechanics of Materials and Structures*, 2007, **2**(9), pp. 1743-1761.
24. **A. Vaziri**, Z. Xue, R. D. Kamm & M. R. Kaazempur-Mofrad, "A computational study on cell mechanics based on power-law rheology", *Computer Methods in Applied Mechanics and Engineering*, 2007, **196**, pp. 2965-2971.
25. **A. Vaziri**, Z. Xue & J. W. Hutchinson, "Performance and failure of metal sandwich plates subject to shock loading", *J. Mechanics of Materials and Structures*, 2007, **2**(10), pp. 1947-1964.
26. H. Wadley, K. Dharmasena, D. Queheillalt, Y. C. Chen, P. Dudt, D. Knight, Z. Xue & **A. Vaziri**, "Dynamic crushing of square honeycomb structures", *J. Mechanics of Materials and Structures*, , 2007, **2**(10), pp. 2025-2048.
27. **A. Vaziri**, A. Gopinath & V. S. Deshpande, "Continuum-based computational models in cell and nuclear mechanics", *J. Mechanics of Materials and Structures*, 2007, **2**, pp. 1169-1192.
28. N. H. Yang, H. Nayeb-Hashemi, **A. Vaziri**, "Multi-axial failure models for fiber-reinforced composites", *J. ASTM International* , 2007, **4**(2), pp. 1-13.
29. **A. Vaziri**, "On the buckling of cracked composite cylindrical shells under axial compression", *Composite Structures*, 2007, **80**(1), pp. 152-158.
30. **A. Vaziri** & M. R. Kaazempur-Mofrad, "Mechanics and deformation of the nucleus in micropipette aspiration", *J. Biomechanics*, 2007, **40**, pp. 2053-2062.
31. **A. Vaziri**, R. A. Jenks, A. R. Bolori & G. Stanley, "Flexible probes for surface texture: From biology to technology", *Experimental Mechanics*, 2007, **47**(3), pp. 417-425.
32. M.W. Moon, S.H. Lee, K.H. Oh, **A. Vaziri** & J. W. Hutchinson, "Controlled formation of nanoscale wrinkling patterns on polymers using focused ion beam", *Scripta Materialia*, 2007, **57**(3), pp. 747-750.
33. L. Mori, S. Lee, Z. Xue, **A. Vaziri**, D. Queheillalt, H. Wadley, J. W. Hutchinson and H.D. Espinosa, "On the Behavior of Sandwich Structures Subjected to Under Water Impulsive Loads", *J. Mechanics of Materials and Structures*, 2007, **2**(10), pp. 1981-2006.
34. **A. Vaziri** & A. Gopinath, "Cell and biomolecular mechanics in *silico*", *Nature Materials*, January 2008, **7**.

35. N. H. Yang, H. Nayeb-Hashemi, **A. Vaziri**, "Non-destructive evaluation of erosion damage on E-glass/epoxy composites", *Composites: Part A*, , 2008, **39**, pp. 56-66.
36. S. S. Oh, D. H. Kim, M.W. Moon, **A. Vaziri**, M. Kim, E. Yoon, K. H. Oh & J. W. Hutchinson, "Indium nanowires grown at ultra-fast rate", *Advanced Materials*, 2008, **6**, pp. 1093-1098.
37. O. Loh, **A. Vaziri** & H.D. Espinosa, "The potential of MEMS for advancing experiments and modeling in cell mechanics", *Experimental Mechanics*, August 2008.
38. Z. Xue, **A. Vaziri** & J. W. Hutchinson, "Material aspects of dynamic neck retardation", *J. Mechanics and Physics of Solids*, 2008, **56**, pp. 93-113.
39. H. Nayeb-Hashmei, **A. Vaziri** & K. Ziemer, "Wear resistance of Cu-18 vol.% Nb (P/M) composites", *Journal of Materials Science and Engineering A*, 2008, **478**, pp. 390-396.
40. M.W. Moon, E. K. Her, K. H. Oh, K. R. Lee & **A. Vaziri**, "Sculpting on polymers by focused ion beam", *Surface and Coating Technology*, 2008, **26**, pp. 1335-1344.
41. **A. Vaziri** & L. Mahadevan, "Localized and extended deformation of elastic shells", *Proceedings of The National Academy of Sciences*, 2008, **105**, pp. 7913-7918.

Commentaries and press reports: *PNAS Cover Page, In This issue PNAS.*

42. **A. Vaziri**, H. Nayeb-Hashemi, A. Singh & B. A. Tafti, "The influence of meniscectomy and meniscus replacement on the stress distribution in human knee joint", *Annals of Biomedical Engineering*, 2008, **26**, pp. 1335-1344.
43. R. A. Jenks, **A. Vaziri**, A. R. Bolori & G. Stanley, "Texture and self-motion signals in the somatosensory pathway", *PNAS*, submitted
44. M.W. Moon, **A. Vaziri**, S.H. Lee, & J. W. Hutchinson, "Ripples on polymers created by focused ion beam", *Soft Matter*, submitted.
45. **A. Vaziri**, "Mechanics of highly-deformed elastic shells", *Thin-Walled Structures*, Submitted.
46. **A. Vaziri** & H. Ali "Monitoring systems for open pit walls", *Structural Safety*, Submitted.
47. M.W. Moon & **A. Vaziri**, "Surface modification of polymers by multi-step plasma treatment", *Scripta Materialia*, 2009, **60**, pp. 44-47.

* denotes equal contribution by authors.

Conference Proceedings/Abstracts

1. **A. Vaziri**, H. R. Hamidzadeh & H. Nayeb-Hashemi, "Evaluation of the dynamic response of single lap joints subjected to a harmonic peeling load", *2001 ASME IMECE*, 2001.
2. H. Nayeb-Hashemi & **A. Vaziri**, "Vibration analysis of multifunctional satellite structures", *2001 ASME IMECE*, 2001.
3. **A. Vaziri** & H. Nayeb-Hashemi, "Dynamic response of the tubular joints with an annular void subjected to harmonic axial or torsional load", *2002 ASME IMECE*, 2002.
4. **A. Vaziri**, H. Nayeb-Hashemi & H. E. Estekanchi, "Dynamic response of cracked cylindrical shells under internal pressure", *2002 ASME IMECE*, 2002.

5. **A. Vaziri**, H. E. Estekanchi & H. Nayeb-Hashemi, "Buckling behavior of cracked cylindrical shells with internal pressure subjected to an axial load", *2002 ASME IMECE*, 2002.
6. **A. Vaziri**, H. Nayeb-Hashemi & M. Olia, "Experimental and analytical investigation of the dynamic response of adhesively bonded single lap joints", *2002 ASME IMECE*, 2002.
7. **A. Vaziri** & H. Nayeb-Hashemi, "Effects of local energy loss on the dynamic response of a cylindrical bar with a penny shape crack", *2002 ASME IMECE*, 2002.
8. **A. Vaziri** & H. Nayeb-Hashemi, "Effective stress intensity factor of the cracked turbo generators shaft under Mode III loading", *2003 ASME IMECE*, 2003.
9. **A. Vaziri**, H. Nayeb-Hashemi, & H. E. Estekanchi, "Buckling of the composite cracked cylindrical shells subjected to axial load", *2003 ASME IMECE*, 2003.
10. **A. Vaziri**, H. Nayeb-Hashemi & M. Olia, "The effect of the adhesively bonded repair patch on the dynamic response of a composite beam under a harmonic peeling load", *2003 ASME IMECE*, 2003.
11. **A. Vaziri**, H. Nayeb-Hashemi, & H. R. Hamidzadeh, "The effects of the crack surfaces interaction and the crack tip plasticity on the dynamic response of circumferentially cracked turbo-generator shafts", *2003 ASME IMECE*, 2003.
12. H. Nayeb-Hashemi, D. Swet & **A. Vaziri**, "New electrical potential method for measuring crack growth in Non-conductive materials", *2003 ASME IMECE*, 2003.
13. **A. Vaziri**, B. Akhavan-Tafti & H. Nayeb-Hashemi, "The effect of aging on the respiratory movement of human rib cage: Some preliminaries", *2004 ASME IMECE*, 2004.
14. **A. Vaziri** & H. Nayeb-Hashemi, "Dynamic response of adhesively bonded double lap joints with a void subjected to a harmonic peeling load", *2004 ASME IMECE*, 2004.
15. A. Singh, **A. Vaziri**, & H. Nayeb-Hashemi, "Preliminary theoretical investigations for developing an artificial meniscus", *2004 ASME IMECE*, 2004.
16. D. Callaghan, **A. Vaziri**, & H. Nayeb-Hashemi, "The wear rate and wear mechanisms of fiber reinforced dental Bio-composites", *2004 ASME IMECE*, 2004.
17. N. Yang, H. Nayeb-Hashemi & **A. Vaziri**, "Multiaxial fatigue characteristics of thin cylindrical composite tubes", *2004 ASME IMECE*, 2004.
18. K. Efimenko, M. Rackaitis, W. Manias, **A. Vaziri**, L. Mahadevan & J. Genzer, "Nested self-similar wrinkling patterns in skins", *Annual APS Meeting*, 2005.
19. **A. Vaziri**, H. Lee, R. D. Kamm & M. R. Kaazempur-Mofrad, "A viscoelastic model for nucleus deformation and mechanics in Atomic Force Microscopy indentation", *Summer Bioengineering Conference*, 2005.
20. M. Das, **A. Vaziri**, A. Kudrolli & L. Mahadevan, "Global and local modes of deformation in elastic shells", *Frontier in Soft Condensed Matter*, 2005.
21. **A. Vaziri**, Z. Xue, & J. W. Hutchinson, "Structural performance of foam-filled metal sandwich plates under quasi-static and dynamic loadings", *Third M.I.T. Conference on Computational Fluid and Solid Mechanics*, 2005.
22. Z. Xue, **A. Vaziri** & J. W. Hutchinson, "A continuum core model for metal sandwich plates", *Third M.I.T. Conference on Computational Fluid and Solid Mechanics*, 2005.

23. **A. Vaziri**, N. Orenstein, Z. Xue & L. Mahadevan, "Dynamic transition between developable states of elastic sheets", *8th US National Congress on Computational Mechanics*, 2005.
24. **A. Vaziri**, H. Lee, R. D. Kamm & M. R. Kaazempur-Mofrad, "A computational model for nucleus mechanics", *8th US National Congress on Computational Mechanics*, 2005.
25. **A. Vaziri**, Z. Xue, & J. W. Hutchinson, "Blast resistance of metal sandwich plates with polymeric foam-filled cores", *8th US National Congress on Computational Mechanics*, 2005.
26. Z. Xue, **A. Vaziri** & J. W. Hutchinson, "Constitutive model for anisotropic elastic-plastic solid with multi-axial hardening", *8th US National Congress on Computational Mechanics*, 2005.
27. Z. Xue, **A. Vaziri** & J. W. Hutchinson, "Dynamic buckling of square honeycombs", *8th US National Congress on Computational Mechanics*, 2005.
28. Xue, **A. Vaziri** & J. W. Hutchinson, "Constitutive model for anisotropic elastic-plastic material and its application to sandwich plate with folded plate core", *2005 ASME IMECE*, 2005. (Invited)
29. **Vaziri**, Z. Xue & J. W. Hutchinson, "Impulse-resistance of metal sandwich plates with graded square honeycomb core", *2005 ASME IMECE*, 2005. (Invited)
30. **Vaziri**, H. Lee, R. D. Kamm & M. R. Kaazempur-Mofrad, "Probing the nucleus", *BMES Annual Fall Meeting*, 2005.
31. H. Lee, **A. Vaziri**, R. D. Kamm & M. R. Kaazempur-Mofrad, "The effect of Lamin A/C deficiency on the structural integrity of nucleus", *2005 MRS Fall Meeting*.
32. **Vaziri**, Ch. Riera & L. Mahadevan, "Localized structures in elastic shells", *Thin Film & Small Scale Mechanical Behavior*, 2006.
33. **A. Vaziri**, M. W. Moon, L. Mahadevan & J. W. Hutchinson, "Hierarchical wrinkling patterns in skin-soft substrate systems", *Thin Film & Small Scale Mechanical Behavior*, 2006.
34. M.W. Moon, S.H. Lee, J.Y. Sun, K.H. Oh, **A. Vaziri** & J. W. Hutchinson, "Self-assembled wrinkling on polymer substrates induced by Focused Ion Beam irradiation", *Thin Film & Small Scale Mechanical Behavior*, 2006.
35. **Vaziri** & M. R. Kaazempur-Mofrad, "Nuclear mechanics and deformation in micropipette aspiration", *Biophysical Society's 50th Annual Meeting*, 2006. (Invited)
36. **Vaziri**, Z. Xue & M. R. Kaazempur-Mofrad, "A computational model for the nucleus with power-law rheology", *Biophysical Society's 50th Annual Meeting*, 2006
37. **Vaziri**, H. Lee, R. D. Kamm & M. R. Kaazempur-Mofrad, "Nuclear deformation under mechanical stimuli", *5th World Congress of Biomechanics*, 2006.
38. M. Das, **A. Vaziri**, A. Kudrolli & L. Mahadevan, "Curvature condensation and twinning in an indented elastic shell", *March APS Meeting*, 2006.
39. L. Mahadevan, **A. Vaziri** & M. Das, "Anomalous persistence of a pinch in a pipe", *March APS Meeting*, 2006.
40. L. Courbin, A. Marchand, A. Vaziri & H. A. Stone, "On the bouncing of rigid spheres on thin polymer films", *March APS Meeting*, 2006.
41. Xue, **A. Vaziri** & J. W. Hutchinson, "Neck retardation and enhanced fracture resistance in metal-elastomer bilayers", *7th World Congress on Computational Mechanics*, 2006.

42. **A. Vaziri**, Z. Xue & J. W. Hutchinson, "The role of fluid-structure interaction in the deformation of metal sandwich plates subject to intense air shocks", *7th World Congress on Computational Mechanics*, 2006.
43. R. A. Jenks, **A. Vaziri**, A. R. Boloori & G. Stanley, "Representation of objects and surfaces by the whisker system in awake behaving rats", *36th annual meeting of The Society for Neuroscience*, 2006.
44. **A. Vaziri**, D. Shreter, D. Brownfield, B.A. Tafti & M. R. Kaazempur-Mofrad, "Mechanics of the nuclear envelope in health and disease", *US National Congress of Theoretical and Applied Mechanics*, 2006. (Invited)
45. **A. Vaziri**, Z. Xue & J. W. Hutchinson, "Constitutive modeling of metal sandwich cores", *US National Congress of Theoretical and Applied Mechanics*, 2006. (Invited)
46. M.W. Moon, S.H. Lee, J.Y. Sun, K.H. Oh, **A. Vaziri** & J. W. Hutchinson, "Self-assembled wrinkling on polymer substrates induced by Focused Ion Beam irradiation", *MRS Fall Meeting*, 2006.
47. **A. Vaziri** & L. Mahadevan, "Formation and evolution of buckling patterns in elastic shells", *MRS Fall Meeting*, 2006.
48. **A. Vaziri**, Z. Xue & J. W. Hutchinson, "Metal sandwich plates subject to shock loading: Response, Failure and Design Optimization", *International Conference on Computational & Experimental Engineering and Sciences*, 2007.
49. **A. Vaziri**, A. Gopinath, Z. Xue & M. R. K. Mofrad, "Cell and nuclear mechanics: Insight from numerical simulations", *International Conference on Computational & Experimental Engineering and Sciences*, 2007 (Keynote).
50. Z. Xue, **A. Vaziri** & J. W. Hutchinson, "Neck retardation and enhanced energy absorption in metal-elastomer bilayers", *International Conference on Computational & Experimental Engineering and Sciences*, 2007. (Keynote)
51. B. Rajalingam, M. W. Moon, **A. Vaziri** & A. Khadenmohessieni, "Cell behavior on nanoscale hierarchical patterned surfaces", *MRS Spring Meeting*, 2007.
52. **A. Vaziri**, Z. Xue, & J. W. Hutchinson, "Metal sandwich plates subject to shock loading: Response, Failure and Design Optimization", *9th US Congress in Computational Mechanics*, 2007. (Keynote)
53. **A. Vaziri**, A. Gopinath, Z. Xue & M. R. K. Mofrad, "Cell and nuclear mechanics *in silico*", *9th US Congress in Computational Mechanics*, 2007.
54. Z. Xue, **A. Vaziri** & J. W. Hutchinson, "Dynamic necking in ductile materials", *9th US Congress in Computational Mechanics*, 2007. (Keynote)
55. L. Mori, S. Lee, Z. Xue, **A. Vaziri**, D. Queheillalt, H. Wadley, J. W. Hutchinson and H.D. Espinosa, "Sandwich Structures Subjected to Under Water Impulsive Loads", *9th US Congress in Computational Mechanics*, 2007. (Keynote)
56. **A. Vaziri**, "Mechanics of highly-deformed elastic shells: Instability, localization and evolution", *2007 ASME IMECE*, 2007. (Invited)
57. **A. Vaziri** & A. Gopinath, "Computational approaches in cell and biomolecular mechanics", *2007 ASME IMECE*, 2007. (invited)
58. **A. Vaziri**, Z. Xue & J. W. Hutchinson, "Response and failure of metal sandwich plates under high intensity loading", *2007 ASME IMECE*, 2007.

59. E. Yoo, **A. Vaziri** & A. A. Biewener, "Biomechanics of impact loading of goat skull using CT image based finite element modeling", *2007 American Society of Biomechanics Meeting*.
60. R. A. Jenks, **A. Vaziri**, A. R. Bolori & G. Stanley, "Texture and self-motion signals in the somatosensory pathway", *37th annual meeting of The Society for Neuroscience*, 2006.
61. M.W. Moon, S.H. Lee, K.H. Oh, **A. Vaziri** & J. W. Hutchinson, "Nanoscale wrinkling patterns on polymers induced by focused ion beam", *MRS Fall Meeting*, 2007.
62. M.W. Moon, S.H. Lee, **A. Vaziri** & J. W. Hutchinson, "Ripple formation on polyimide induced by focused ion beam", *MRS Fall Meeting*, 2007.
63. M.W. Moon, S.H. Lee, J. Y. Sun, K. H. oh, K. R. Lee, **A. Vaziri** & J. W. Hutchinson, "Evolution mechanisms of wrinkled hard skins on polymers created by focused ion beam", *The Sixth Asian-European International Conference on Plasma Surface Engineering*, 2007.
64. **A. Vaziri**, H. Nayeb-Hashemi, A. Singh & B. A. Tafti, "Computational mechanics for studying knee mechanics", ICCES08
65. **A. Vaziri**, "Mechanics of highly-deformed elastic shells: Probing localized and extended deformations using computational mechanics", IACM/ECCOMAS Congress, 2008.
66. **A. Vaziri**, "Shock-loaded metal sandwich panels: Performance sensitivity to design details", IACM/ECCOMAS Congress, 2008.
66. **A. Vaziri**, "Shock-loaded metal sandwich panels: Performance sensitivity to design details", IACM/ECCOMAS Congress, 2008.
67. **A. Vaziri**, "Cell and Nuclear Mechancis in silico", *MRS Fall Meeting*, 2008.
68. M.W. Moon, J. H. Han, E. K. Her, K. Lee, K. H. oh and **A. Vaziri**, "Nano-scale sculpting on polymers using focused ion beam", *MRS Fall Meeting*, 2008.
69. M.W. Moon, K. Lee and **A. Vaziri**, "Hierarchical wrinkles on soft polymers created by ion beam/plasma treatment", *First International Conference on Multifunctional, Hybrid and Nanomaterials*, 2009.
70. M.W. Moon, **A. Vaziri**, "Surface Engineering of Polymers", Smart Structures and Materials (SMART'09), 2009.

C. Other Activities

Professional Societies

- 2001-present American Society of Mechanical Engineering (ASME)
- 2001-present American Society of Civil Engineering (ASCE)
- 2003-present The Honor Society of Phi Kappa Phi
- 2006-present United States Association for Computational Mechanics (USACM)

Editorial Activities

- 2008-present **Associate Technical Editor: Experimental Mechanics**
- 2007-present **Guest Editor**
 - Experimental Mechanics** - Special issue: Modeling and Experiments in Cell and Biomolecular Mechanics (August 2008).
 - J. of Applied Mechanics** - Special issue: Recent Advances in Impact Engineering (To be published in 2008)
 - J. Mechanics of Materials and Structures** - Special issue: Microscale Mechanics of Biomaterials (2007, Volume 2, issue 10)
 - J. Mechanics of Materials and Structures** - Special issue: Computational Impact Engineering (2007, Volume 2, issue 10)
- 2004-present Reviewer for *Int. J. of Adhesion and Adhesives, Biomechanics and Modeling in Mechanobiology, Biophysical Journal, Journal of Biomechanics, Computer Methods in Applied Mechanics and Engineering, Int. J. of Solids and Structures, Process Safety Progress, J. Mechanics of Materials and Structures, J. Engineering Materials and Technology, J. Vibration and Acoustics, J. Applied Mechanics, Fatigue and Fracture of Engineering Materials and Structures, Experimental Mechanics, AIAA Journal, Computer Modeling in Engineering and Sciences, Journals of Materials Research, Journal of Materials Science and Engineering A, Molecular and Cellular Biomechanics, Surface and Coating Technology, The Proceedings of Royal Society of London: A, The Proceedings of Royal Society of London: Interface, Engineering Fracture Mechanics, J. Mechanics and Physics of Solids, Nature Materials.*

Major Administrative Responsibilities

- 2005-present Session Chair- 8th US National Congress on Computational Mechanics (2005), 7th World Congress on Computational Mechanics (2006), International Conference on Computational and Experimental Engineering and Sciences (2007).
- 2006 **Mini-Symposium Primary Organizer**, 7th World Congress on Computational Mechanics
Mini-symposium: *Advances and Application of Computational Methods in Impact Engineering*
- 2007 **Mini-Symposium Primary Organizer**, 9th US National Conference on Computational Mechanics
Mini-symposium: *Computational Methods in Impact Engineering*
- 2007 **Mini-Symposium Co-organizer**, 9th US National Conference on Computational Mechanics
Mini-symposium: *Computational Methods in Bioengineering*
- 2007 **Symposium Primary Organizer**, IMECE2007
Symposium: *Response of Materials and Structures under High Intensity Loading*

- 2008 **Mini-Symposium Primary Organizer**, The joint VIII World Congress on Computational Mechanics and V European Congress on Computational Methods in Applied Sciences and Engineering
Mini-symposium: *Advances in Computational Impact Engineering*
- 2008 **Symposium Organizer**, International Conference on Computational and Experimental Engineering and Sciences (ICCES'08)
Symposium: *Recent Advances in Biomechanics*
- 2008 **Member of the Organizing Committee**, International Conference on Computational and Experimental Engineering and Sciences (ICCES'08)
- 2009 **Mini-Symposium Organizer**, 10th US National Congress on Computational Mechanics
Mini-symposium: *Computational Methods in Impact Engineering*