

### **Taher Saif**

Gutgsell Professor, University of Illinois at Urbana-Champaign  
Mechanical Science and Engineering  
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#### **Education**

B.S.	Civil Engineering (Structures)	Bangladesh University of Engineering and Technology (BUET)	1984
M.S.	Civil Engineering (Structures)	Washington State University Pullman, WA	1987
Ph.D	Theoretical and Applied Mechanics	Cornell University Ithaca, NY	1993

#### **Academic Positions**

8/2010-present	Gutgsell Professor, University of Illinois (UIUC)
8/2006-present	Professor, Mechanical Science and Engineering (UIUC)
8/2003-7/2006	Associate Professor, Mechanical and Industrial Engineering (UIUC)
6/1997-7/2003	Assistant Professor, Mechanical and Industrial Engineering (UIUC)
1996-97	Research Associate, National Nanofabrication Facility, Cornell University
1993-96	Post Doctoral Associate, Electrical Engineering, Cornell University
1984-86	Lecturer, Bangladesh University of Engineering and Technology, Dhaka
Faculty affiliate	Neuroscience Program, UIUC, Beckman Institute, UIUC

#### **Visiting position**

9/2005-1/2006	Guest Scientist, Max Planck Institute, Stuttgart (Arzt Department)
3/2011-6/2011	Guest Professor, Faculty of Physics, University of Vienna

#### **Honors and Awards**

Member, Board of Directors, Society of Engineering Science, 2012-  
Fellow of the American Society of Mechanical Engineers, 2011  
Member of UIUC panel evaluating the academic engineering program of Jubail Industrial & University  
Colleges of the Royal Commission, Jubail, Saudi Arabia, 2011  
Gutgsell Professor, University of Illinois, 2010 – date  
Member, Scientific Advisory Board, Singapore-MIT Alliance for Research and Technology, 2010-12  
College of Engineering Outstanding Advisors list, 2009  
Willett Faculty Scholar, College of Engineering, UIUC, 2003-2009  
Xerox Award for Faculty Research (5 years), College of Engineering, (UIUC), 2006  
Xerox Award for Faculty Research (2 years), College of Engineering, UIUC, 2003  
Associate, Center for Advanced Study, UIUC, 2004-05  
Listed in the Daily Illini “Incomplete List of Teachers Ranked as Excellent by Their Students” for Spring  
2003, Spring 2004, Fall 2006

MechSe Alumni Effective Teaching Award (by alumni graduated during 2004), 2006  
Incomplete List of Teachers Ranked as Excellent by Their Students of Springs 2003 and 2004  
NSF Invited Member, U.S.-Japan Young Researchers' Exchange Program for Nanotechnology, Sept. 25-Oct. 2, 2003 in U.S., and Nov. 5-13, 2003 in Japan.  
Strathmore's Who's Who, 2002-2005  
Who's Who in Engineering Education, 2002  
National Science Foundation CAREER Award, 1998  
GE Scholar, 1998  
Ralph Bolgiano, Sr. Outstanding Teaching Assistant Award, Cornell University, UIUC, 1991

### **Research interests**

Mechanics of thin films and nanocrystalline materials  
Mechanics of MicroElectroMechanical Systems (MEMS)  
Neuromechanics  
Mechanics of single living cells  
Mechanics of cancer metastasis  
Design and mechanics of engineered living systems

### **Professional affiliations**

Fellow and Member, American Society of Mechanical Engineers  
Member, Technical Committee, MEMS Subdivision, International Mechanical Engineering Congress and Exposition, Nov. 2000, 2001, 2002, 2003, 2004  
Member, Materials Research Society  
Vice Chair, Electronic Materials Committee of the ASME Materials Division, 2001-03  
Chair, Electronic Materials Committee of the ASME Materials Division, 2003-05  
Member, Technical Committee, 2007 IEEE/ASME International Conference on Advanced Intelligent Megatronics, ETH Zürich, Switzerland, September 4-7, 2007  
Member, Materials Research Society  
Member, Biophysical Society  
Member, Biomedical Engineering Society  
Member, Society for Neuroscience.

### **Editorship**

Associate Editor, ASME Journal of Applied Mechanics, 2013-  
Guest Editor, Materials Research Society Bulletin on In Situ Mechanical Testing at the Micro-/Nanoscale, May 2010  
Editorial Board, International Journal of Applied Mechanics (IJAM)

### **Journal publications**

1. Grigoriu, M. and M. T. A. Saif, "Fatigue Analysis of Cracked Anisotropic Plates Subject to Stochastic Loads," Computers and Structures, 37:2, 169-173, 1990.

2. Grigoriu, M., M. T. A. Saif, S. El Borgi, and A. R. Ingraffea, "Mixed Mode Fracture Initiation and Trajectory Prediction Under Random Stresses," *International Journal of Fracture*, 45, 19-34, September 1990.
3. Glaucio, P. H., M. T. A. Saif, and S. Mukherjee, "A Finite Elastic Body with a Curved Crack Loaded in Anti-Plane Shear," *International Journal of Solids and Structures*, 30:8, 1015-1037, 1993.
4. Saif, M. T. A. and C.-Y. Hui, "Near Tip Fields for a Stationary Mode III Crack Between a Linear Elastic and an Elastic Power Law Hardening Material," *International Journal of Fracture*, 64:1, 1-26, November 1993.
5. Saif, M. T. A., C. Y. Hui, and A. T. Zehnder, "Interface Shear Stresses Induced by Non-uniform Heating of a Film on a Substrate," *Thin Solid Films*, 224:2, 159-167, March 1993.
6. Hui, C.-Y. and M. T. A. Saif, "Asymptotic Stress Field of a Mode III Crack Growing Along an Elastic/Elastic Power-Law Creeping Bimaterial Interface," *Journal of Applied Mechanics*, 61, 384-389, June 1994.
7. Saif, M. Taher A. and C.-Y. Hui, "Plane Strain Asymptotic Fields of a Crack Growing along an Elastic-Elastic Power-law Creeping Bi-Material Interface," *Journal of the Mechanics and Physics of Solids*, 42:2, 181-214, February 1994.
8. Saif, M. T. A. and N. C. MacDonald, "A Millinewton Microloading Device," *Sensors and Actuators A*, 52, 65-75, May 1996.
9. Saif, M. T. A. and N. C. MacDonald, "Planarity of Large MEMS," *Journal of Microelectromechanical Systems*, 5:2, 79-97, June 1996.
10. MacDonald, N. C., S. G. Adams, A. A. Ayon, K. F. Bohringer, L.-Y. Chen, J. H. Das, D. Haronian, W. Hofmann, X. T. Huang, A. Jazairy, R. E. Mihailovich, S. A. Miller, I. Ogo, R. Prasad, B. W. Reed, M. T. A. Saif, K. A. Shaw, R. Y. Webb, and Y. Xu, "Micromachined Microdevices and Microinstruments," *Microelectronic Engineering*, 30, 563-564, 1996.
11. Saif, M. T. A. and N. C. MacDonald, "Measurement of Forces and Spring Constants of Microinstruments," *Review of Scientific Instruments*, 69:3, 1410-1422, March 1998.
12. Saif, M. T. A. and N. C. MacDonald, "Microinstruments for Submicron Material Studies," *Journal of Materials Research*, 13:12, 3353-3356, December 1998.
13. Saif, M. T. A., B. E. Alaca, and H. Sehitoglu, "Analytical Modeling of Electrostatic Membrane Actuator for Micro Pumps," *Journal of Microelectromechanical Systems*, 8:3, 335-345, September 1999.
14. Saif, M. T. A., "On a Tunable Bistable MEMS-Theory and Experiment," *Journal of Microelectromechanical Systems*, 9:2, 157-170, June 2000.
15. Haque, M. A. and M. T. A. Saif, "Microscale Materials Testing Using MEMS Actuators," *Journal of Microelectromechanical Systems*, 10:1, 146-152, 2001.
16. Haque, M. A. and M. T. A. Saif, "In-situ Tensile Testing of Nano-scale Specimens in SEM and TEM," *Journal of The Society for Experimental Mechanics*, 42:1, 123-128, 2002.
17. Alaca B. E., M. T. A. Saif, and H. Sehitoglu, "On the Interface Debond at the Edge of a Thin Film on a Thick Substrate," *Acta Materialia*, 50, 1197-1209, 2002.
18. Xue, Z., M. T. A. Saif, and Y. Huang, "The Strain Gradient Effect in Micro-Electromechanical-Systems (MEMS)," *Journal of Microelectromechanical Systems*, 11:1, 27-35, 2002.
19. Haque, M. A. and M. T. A. Saif, "Application of MEMS Force Sensors for In-Situ Mechanical Characterization of Nano-Scale Thin Films in SEM and TEM," *Sensors and Actuators A*, 97-98, 239-245, 2002.
20. Sulfridge, M., T. Saif, N. Miller, and K. O'Hara, "Optical Actuation of a Bistable MEMS," *Journal of Microelectromechanical Systems*, 11:5, 574-583, October 2002.
21. Saif, M. T. A., S. Zhang, M. A. Haque, and K. J. Hsia, "Effect of Native Oxide on the Elastic Response of Nanoscale AL Films," *Acta Materialia*, 50:11, 2779-2786, 2002.
22. Saif, T. A., "On the Capillary Interaction Between Solid Plates Forming Menisci on the Surface of a Liquid," *Journal of Fluid Mechanics*, 473, 321-347, 2002.
23. Alaca, B. E., J. C. Selby, M. T. A. Saif, and H. Sehitoglu, "Biaxial Testing of Nanoscale Films on Compliant Substrates: Fatigue and Fracture," *Reviews of Scientific Instruments*, 73, 2963-70, 2002.
24. Haque, M. A. and M. T. A. Saif, "Mechanical Behavior of 30-50 nm Thick Aluminum Films Under Uniaxial Tension," *Scripta Materialia*, 47, 863-867, 2002.
25. Saif, T. and A. Haque, "Mechanical Behavior of Nano Scale Thin Films Using MEMS Sensors," *International Journal of Computational Engineering Sciences*, 4:2, 169-173, June 2003.

26. Haque, M. A. and M. T. A. Saif, "A Review of MEMS-Based Microscale and Nanoscale Tensile and Bending Testing," *Special Issue of Experimental Mechanics*, 43:3, 248-255, September 2003.
27. Saif, M. T. A., C. R. Sager, and S. Coyer, "Functionalized Biomicroelectromechanical Systems Sensor for Force Response Study at Local Adhesion Sites of Single Living Cells on a Substrate," *Annals of Biomedical Engineering*, 31:8, 950-961, 2003.
28. Haque, M. A. and M. T. A. Saif, "Strain Gradient Effect in Nanoscale Thin Films," *Acta Materialia*, 51, 3053-3061, 2003.
29. Sulfridge, M., T. Saif, N. Miller, and M. Meinhart, "Nonlinear Dynamic Study of a Bistable MEMS: Model and Experiment," *J. MEMS*, 13:5, 725-731, October 2004.
30. Alaca, B. E., H. Sehitoglu, and T. Saif, "Guided Self-Assembly of Metallic Nanowires and Channels," *Applied Physics Letters*, 84:23, 4669-4671, June 2004.
31. Saif, T., "Scaling the Depth," *Mechanical Engineering*, 126:4, 2004 (invited article).
32. Bauer, J. M., T. A. Saif, and D. J. Beebe, "Surface Tension Driven Formation of Microstructures," *Journal MEMS*, 13:4, 553-558, August 2004.
33. Haque, M. A. and M. T. A. Saif, "Deformation Mechanisms in Free-standing Nano-scale Thin Films: A Quantitative In-situ Transmission Electron Microscopy Study," *Proceedings of the National Academy of Science*, 101:17, 6335-6340, April 2004.
34. Haque, A. and T. Saif, "Micro Instrumentation for Studying Mechanical Properties of Free Standing Films," *JOM*, 56:11, 308, November 2004.
35. Bauer, J. M., T. A. Saif, and D. J. Beebe, "Liquid Phase Construction of Microstructures," *Journal of MEMS*, 13:4, 553-558, August 2004.
36. Haque, M. A. and M. T. A. Saif, "Thermo-Mechanical Properties of Nano-Scale Freestanding Aluminum Films," *Thin Solid Films*, 484, 364-368, 2005.
37. Haque, M. A. and M. T. A. Saif, "In-situ Tensile Testing of Nanoscale Freestanding Thin Films Inside a Transmission Electron Microscope," *Journal of Materials Research (In-situ Focus Issue)*, 20:7, 1769-1777, July 2005.
38. Yang, S. and T. Saif, "Reversible and Repeatable Linear Local Cell Force Response Under Large Stretches," *Experimental Cell Research*, 305, 42-50, 2005.
39. Yang, S. and T. Saif, "Micromachined Force Sensors for the Study of Cell Mechanics," *Review of Scientific Instruments*, 76, 044301, 2005. Also selected for publication in the April 1, 2005 issue of *Virtual Journal of Biological Physics Research*.
40. Hattar, K., J. Han, M. T. A. Saif, and I. M. Robertson, "In-situ TEM Observation of Toughening Mechanism in Ultra-Fine Grained Columnar Aluminum Thin Films," *Journal of Materials Research (In-situ Focus Issue)*, 20:7, 1869-1877, 2005.
41. Mani, S. and T. M. A. Saif, "Mechanism of Controlled Crack Formation in Thin-Film Dielectrics," *Applied Physics Letters*, 86, 201903, 2005 (available online).
42. Mani, S., M. T. A. Saif, and J. Han, "Effect of Annealing on the Conductivity of Ni Nanowires and Films," *IEEE Transactions on Nanotechnology*, 5:2, 138-141, 2006.
43. Meinhart, M., N. R. Miller, and M. T. A. Saif, "Dry Stiction of Micro Structures – Theory and Experiment," *Proceedings of the Royal Society of London, Series A*, 462, 567-585, 2006.
44. Mani, Sathya, Taher Saif, and Jong H. Han, "Effect of Annealing on the Conductivity of Electroless Deposited Ni Nanowires and Films," *IEEE Transactions on Nanotechnology*, 5:2, 138-141, March 2006.
45. Han, J. H., and M. T. A. Saif, "In-situ Microtensile Stage for Electromechanical Characterization of Nanoscale Freestanding Films," *Review of Scientific Instruments*, 77:4, 45102-1-8, April 2006.
46. Mani, S. and T. Saif, "Stress Development in PECVD Silicon Dioxide Thin-Films Due to Hydrogen Evolution," *Thin Solid Films*, 515:5, 3120-3125, 2007.
- Rajagopalan, J., J. Han, and M. T. A. Saif, "Plastic Deformation Recovery in Freestanding Nanocrystalline Aluminum and Gold Thin Films," *Science*, 315, 1831-1834, March 2007.
- Rajagopalan, J. and M. T. A. Saif, "Single Degree of Freedom Model for Thermoelasticity," *Journal of Applied Mechanics-Transactions of the ASME*, 74:3, 461-468, May 2007.
47. Rajagopalan, J. and M. T. A. Saif, "A Single Degree of Freedom Model for Thermoelastic Damping," *Journal of Applied Mechanics (ASME Transactions)*, 74:3, 461-468, May 2007.
48. Yang, S. and M. T. A. Saif, "MEMS Based Force Sensors for the Study of Indentation Response of Single Living Cells," *Sensors and Actuators A: Physical*, 135:1, 16-22, 2007.

49. Yang, Shengyuan, and M. T. A. Saif, "Force Response and Action Remodeling (Agglomeration) in Fibroblasts Due to Lateral Indentation," *Acta Biomaterialia*, 3:1, 77-78, 2007.
50. Rajagopalan, J., J. H. Han, and M. T. A. Saif, "Bauschinger Effect in Unpassivated Freestanding Nanoscale Metal Films," *Scripta Materialia*, 59:7, 734-737, 2008.
51. Yang, S., and M. T. A. Saif, "Microfabricated Force Sensors and Their Applications in the Study of Cell Mechanical Response," *Experimental Mechanics*, 49:1, 135-151, 2008. Invited Article.
52. Rajagopalan, J., J. H. Han, and M. T. A. Saif, "On Plastic Strain Recovery in Freestanding Nanocrystalline Metal Thin Films," *Scripta Materialia*, 59, 921-926, 2008. Invited Article.
53. Siechen, S., S. Yang, A. Chiba, and T. Saif, "Mechanical Tension Contributes to Clustering of Neurotransmitter Vesicles at Presynaptic Terminals," *Proceedings of the National Academy of Science*, 106:31, 12611-12616, August 4, 2009.
54. Ahmed, W., T. Wolfram, A. Goldyn, K. Bruellhoff, B. Aragues Rioja, M. Moller, J.P. Spatz, M. T. A. Saif, J. Groll, and R. Kemkemer, "Myoblast Morphology and Organization on Biochemically Micro-patterned Hydrogel Coatings under Cyclic Mechanical Strain," *Biomaterials* 31: 250-8, 2010.
55. Ahmed, W. W., M. H. Kural, and T. Saif, "A Novel Platform for in situ Investigation of Cells and Tissues under Mechanical Strain," *Acta Biomaterialia*, 6(8):2979-90, August 2010. Epub 2010 Feb 25.
56. Eberl, C. and T. Saif, "In Situ Mechanical Testing of Biological and Inorganic Materials at the Micro- and Nanoscales," *MRS Bulletin*, Volume 35, No. 5, May 2010.
57. Rajagopalan, J., C. Rentenberger, H. P. Karnthaler, G. Dehm, and M. T. A. Saif, "In situ TEM Study of Microplasticity and Bauschinger Effect in Nanocrystalline Metals," *Acta Materialia*, Volume 58, Issue 14, Pages 4772-4782, August 2010.
58. Tang, X., T. B. Kuhlenschmidt, M. S. Kuhlenschmidt, and M. T. A. Saif, "Mechanical Force Affects Expression of an In vitro Metastasis-like Phenotype in HCT-8 cells," *Biophysical Journal*, Volume 99, Issue 8, 2460-2469, 20 October 2010. (Cover article)
59. Rajagopalan, J., A. Tofangchi, and M. T. A. Saif, "Drosophila Neurons Actively Regulate Tension in their Axons in Vivo," *Biophysical Journal*, 99(10) pp. 3208 – 3215, 17 November 2010.
60. Kang, W. and M.T.A. Saif, "A Novel Method for In Situ Uniaxial Tests at Micro/Nano Scale—Part I: Theory," *Journal of MicroElectroMechanicalSystems*, Vol 19(6), pp1309-1321, Nov 2010.
61. Kang, W., J. H. Han, and M T.A. Saif, "A Novel Method for In Situ Uniaxial Tests at Micro/Nano Scale—Part II: Experiment," *Journal of MicroElectroMechanicalSystems*, Vol 19(6), pp1322-1330, Nov 2010.
62. Rajagopalan, J., A. Tofangchi, and M. T. A. Saif, "Linear, High Resolution BioMEMS Force Sensors with Large Measurement Range," *Journal of MicroElectroMechanicalSystems*, Vol 19(6), pp1380-1389, Nov 2010.
63. Bajaj, P., X. Tang, M. T. A. Saif, and R. Bashir, "Stiffness of the Substrate Influences the Phenotype of Embryonic Chicken Cardiac Myocytes," *Journal of Biomedical Materials Research: Part A*, Volume 95A, Issue 4, pages 1261-1269, 15 December 2010.
64. Kang, W., J. Rajagopalan, and M. T. A. Saif, "In Situ Uniaxial Mechanical Testing of Small Scale Materials - a Review," *Journal of Nanoscience and Nanotechnology Letter*, 2(4), 282-287, 2010 (invited article).
65. Tang, X., P. Bajaj, R. Bashir, and M. T. A. Saif, "How Far Cardiac Cells Can See Each Other Mechanically," *Soft Matter* (Cover article), 7, 6151-6158, 2011. DOI: 10.1039/C0SM01453B
66. Rajagopalan, J. and M. T. A. Saif, "MEMS Sensors and Microsystems for Cell Mechanobiology," Invited article in the *Journal of Micromechanics and Microengineering*, 2011, 21 054002 doi, special focus issue on MEMS for Biology and Medicine.
67. Cha, C., J. H. Jeong, X. Tang, A. T. Zill, Y. S. Prakash, S. C. Zimmerman, T. A. Saif, and H. Kong, "Top-down Synthesis of Versatile Polyaspartamide Linkers for Single-step Protein Conjugation to Materials," *Bioconjugate Chemistry*, 22 (12), pp 2377–2382, 2011.
68. Nishitani, W., T. Saif, and Y. Wang, "Calcium Signaling in Live Cells on Elastic Gels under Mechanical Vibration at Subcellular Levels," *PLoS ONE* 6(10): e26181, 2011.
69. Kang, W. and M. T. A. Saif, "In Situ Thermo-Mechanical Testing for Micro/Nanomaterials," *MRS Communications*, 1(1), 13-16, 2011, (IOP Select Paper).
70. Kang, W. and M. T. A. Saif, "A Novel SiC MEMS Apparatus for In Situ Uniaxial Testing of Micro/Nanomaterials at High Temperature," *Journal of Micromechanics and Microengineering*, 21 105017, 2011.

71. Rajagopalan, J. and M. Taher A. Saif, "Influence of Microstructural Heterogeneity on the Deformation Behavior of Nanocrystalline Metals," *Journal of Materials Research*, 26, 2826-2832 2011.
72. Ahmed, W. W., T. C. Li, S. S. Rubakhin, A. Chiba, J. V. Sweedler, and T. A. Saif, "Mechanical Tension Modulates Local and Global Vesicle Dynamics in Neurons," *Journal of Cellular and Molecular Bioengineering*, Vol 5(2), pp 155-164, 2012 (invited article).
73. Chan, V., J. H. Jeong, P. Bajaj, M. Collens, T. Saif, H. Kong, and R. Bashir, "Multi-Material Bio-Fabrication of Hydrogel Cantilevers and Actuators with Stereolithography," *Lab on a Chip*, 12(1):88-98, 2012.
74. Tang, X., M. Y. Ali, and M. T. A. Saif, "A Novel Technique for Micro-patterning Proteins and Cells on Polyacrylamide Gels," *Soft Matter*, 8(27), pp. 7197-7206, 2012.
75. Emerson de Souza, W. Ahmed, V. Chan, R. Bashir, T. A. Saif. "Cardiac myocytes' dynamic behavior differs depending on heart segment" *Biotechnology and Bioengineering*, Sept 5, 2012, doi: 10.1002/bit.24725.
76. Tang, X., Q. Wen, T. B. Kuhlenschmidt, K.S. Kuhlenschmidt, P.A. Janmey, and T. A. Saif, "Attenuation of Colon Cancer Cells Mechanosensitivity throughout in vitro Metastasis," *Plos ONE*, 7(11): e50443, 2012. DOI: 10.1371/journal.pone.0050443
77. Chan, V., K. Park, M. Collens, H.J. Kong, T. Saif, and R. Bashir, "Development of miniaturized walking biological machines," *Scientific Reports*, 2(857), Nov 15, 2012, doi:10.1038/srep00857.
78. Kang W. and T. Saif, "Size and Temperature Effect on Brittle-to-Ductile Transition in Single Crystal Silicon," *Advanced Functional Material*, 23(6), 713-719, 2013.
79. Ahmed W., B. Williams, A. Silver, and T. A. Saif, "Measuring the non-equilibrium vesicle dynamics in neurons under tension," *Lab on a Chip*, 2013 (DOI:10.1039/C2LC41109A).
80. Rajagopalan, J. and M. T. A. Saif, "Fabrication of freestanding 1D PDMS microstructures using capillary micromolding," *J MEMS*, 22(5), 992 – 994, 2013, DOI: [10.1109/JMEMS.2013.2262605](https://doi.org/10.1109/JMEMS.2013.2262605).
81. Chaenyung Cha, Eleni Antoniadou, Minkyung Lee, Jae Hyun Jeong, Wylie W. Ahmed, Taher A. Saif, Stephen A. Boppart Hyunjoon Kong. Tailoring Hydrogel Adhesion to Polydimethylsiloxane Substrates Using Polysaccharide Glue. *Angewandte Chemie International Edition*, [Volume 52, Issue 27](https://doi.org/10.1002/anie.201307111), pages 6949–6952, July 1, 2013.
82. Xin T., and T. A. Saif, "Remarkable Surface Adhesion Change of Colon Cancer Cells throughout in vitro Metastasis," *International Journal of Applied Mechanics*, 5(3), 1350025, 2013, DOI: 10.1142/S1758825113500257.
83. M. Yakut Ali and M Taher A Saif, Substrate Stiffness Mediated Metastasis Like Phenotype of Colon Cancer Cells is Independent of Cell to Gel Adhesion. *Cellular and Molecular Bioengineering* (15 July, 2014) DOI: 10.1007/s12195-014-0345-8
84. Ahmed, W. and T. A. Saif. Active transport of vesicles in neurons is modulated by mechanical tension. *Scientific Reports* 4, Article number: 4481 doi:10.1038/srep04481, 27 March 2014.
85. Xin Tang, Alireza Tofangchi, Sandeep V. Anand, and Taher A. Saif. A Novel Cell Traction Force Microscopy to Study Multi-cellular System. *Plos Computational Biology*, 10(6), e1003631, June 5, 2014, DOI: 10.1371/journal.pcbi.1003631
86. Xin Tang, Theresa B. Kuhlenschmidt, Qian Li, Shahjahan Ali, Stephane Lezmi, Hong Chen, Taher A. Saif, Mark S. Kuhlenschmidt. A Mechanically-Induced Colon Cancer Cell Population Shows Increased Metastatic Potential. *Molecular Cancer* 2014 (May 29), 13:131, doi:10.1186/1476-4598-13-131.
87. Brian J. Williams, Sandeep V. Anand, Jagannathan Rajagopalan and M. Taher A. Saif. A self-propelled biohybrid swimmer at low Reynolds number. *Nature Communications*, 5, Article number 3081, Jan 17, 2014, doi:10.1038/ncomms4081.
88. Samantha Knoll, M. Y. Ali and Taher Saif. A Novel Method for Localizing Reporter Fluorescent Beads Near the Cell Culture Surface for Traction Force Microscopy. *Journal of Visualized Experiments*, Date Published: 9/16/2014, [Issue 91](https://doi.org/10.3791/51873); doi: [10.3791/51873](https://doi.org/10.3791/51873)
89. Caroline Cvetkovic, Ritu Raman, Vincent Chan, Brian J. Williams, Madeline Tolish, Piyush Bajaj, Mahmut Selman Sakar, H. Harry Asada, M. Taher A. Saif, and Rashid Bashir. Three-dimensionally printed biological machines powered by skeletal muscle. *PNAS Early Edition*, July 2014, doi/10.1073/pnas.1401577111.
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95. Mohamed Elhebeary and M Taher A Saif. A Micromechanical Bending Stage for Studying Mechanical Properties of Materials Using Nanoindenter. *J. Appl. Mech* 82(12), 121004 (2015) doi: 10.1115/1.4031334.
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97. Junmin Lee, Amr A. Abdeen, Xin Tang, Taher A. Saif, and Kristopher A. Kilian. Geometric guidance of integrin mediated traction stress during stem cell differentiation. *Biomaterials*, [Volume 69](#), November 2015, Pages 174–183.
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99. Sandeep V. Anand and M. Taher A. Saif. Emergent dynamics of cardiomyocyte clusters on deformable polymeric substrates. *Extreme Mechanics Letters*, doi:10.1016/j.eml.2015.09.008 (2015).
100. Samantha Knoll and M T A Saif. Light induced localized and abrupt force relaxations in fibroblasts on soft substrates. *Extreme Mechanics Letters* (to appear)

### Chapters in Books

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111. Saif, T., "Emergent Neuro-muscular Synapse Require Mechanical Tensile Force for Synaptic Plasticity," 6th World Congress of Biomechanics (WCB 2010), Singapore, August 1-6 2010.
112. Wylie Ahmed and Taher Saif, "In situ high resolution optical imaging of cells and tissues on a stretchable substrate", 6th World Congress of Biomechanics (WCB 2010), 1 - 6 August 2010, Singapore.
113. Ahmed, W., T. Li, A. Chiba, and T. A. Saif, " The Mechanical Sensitivity of Neurotransmitter Accumulation at in Vivo Synapses ", Society for Neuroscience Conference, San Diego, CA, November 2010.
114. Ahmed, W., S. Rubakin, J. Sweedler, and T. A. Saif, " Compressive Force Disrupts Vesicle Dynamics in Neuronal Growth Cone ", Society for Neuroscience Conference, November 2010, San Diego, CA.
115. Rajagopalan, J., A. Tofangchi, M. T. A. Saif, "Mechanical Behavior of Neurons in Live Drosophila Embryos," Biomedical Engineering Society Meeting, Austin, TX, October 6-9, 2010.

116. Ahmed, W., T. Li, S. Rubakhin, A. Chiba, J. Sweedler, and T. A. Saif. "The Mechanical Sensitivity of Vesicle Dynamics of In-vitro and In-vivo Neurons," Nanotechnology Technical Proceedings, 2011.
117. Kang, W. and T. Saif, "A SiC MEMS Apparatus for In Situ Thermo-Mechanical Tests at Micro/Nanoscale," ASME 2011 International Mechanical Engineering Congress and Exposition, Denver, CO, November 2011.
118. Ahmed, W., T. Li, S. Rubakhin, A. Chiba, J. Sweedler, and T. A. Saif, "Mechanical Tension Modulates Local and Global Vesicle Dynamics," Society for Neuroscience Conference, Washington DC, November 12-16, 2011.
119. Ahmed, W., T. Li, S. Rubakhin, A. Chiba, J. Sweedler, and T. A. Saif, "Mechanical Stimulation Modulates Local and Global Vesicle Dynamics," Biomedical Engineering Society Conference, Hartford, CT, October 12-15, 2011.
120. Ahmed, W., T. Li, S. Rubakhin, A. Chiba, J. Sweedler, and T. A. Saif, "The Mechanical Sensitivity of Vesicle Dynamics of In-vitro and In-vivo Neurons," Nanotech 2011 Conference, Boston, MA, June 13-16, 2011.
121. Ahmed, W., S. Rubakhin, T. Li, A. Chiba, J. Sweedler, and T. A. Saif, "Mechanical Stimulation Perturbs Vesicle Dynamics in In-vitro and In-vivo Neurons," ASME Applied Mechanics and Materials Conference, Chicago, IL, May 30-June 1, 2011.
122. Tang, X., T. B. Kuhlenschmidt, J. Zhou, P. Bell, F. Wang, M. S. Kuhlenschmidt, and T. A. Saif, "Discovery of an Intracellular-Force-Regulated Metastasis-like Phenotype in HCT-8 Cells," Biophysical Society Meeting, Baltimore, Maryland, March 2011.
123. Society Meeting, Baltimore, Maryland, March 2011.
124. Tang, X., M. Y. Ali, and T. Saif, "Micro-patterning on Hydro-gels to Reveal the Effect of Confinement on Cell Proliferation," ASME McMAT, Chicago, IL, May 30-June 1, 2011.
125. Tang, X., S. Anand, and T. Saif, "Mechanical Communications between Neighboring Fibroblasts on Flexible Hydro-gels," ASME McMAT, Chicago, IL, May 30-June 1, 2011.
126. Li, T., F. Carrero-Martínez, S. Siechen, J. Sun, W. Ahmed, T. A. Saif, A. Chiba. "Mechanical Force Initiates the Neuromuscular Synapse," Drosophila Research Conference, San Diego, CA, March 30-Apr 3, 2011.
127. Ahmed, W., T. Li, S. Rubakhin, A. Chiba, J. Sweedler, T. A. Saif. "The Mechanical Sensitivity of Vesicle Dynamics of In-vitro and In-vivo Neurons," Technical Proceedings of the 2011 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2011 3, pp. 436-439, 2011.
128. Xin, T., T. B. Kuhlenschmidt, J. Zhou, P. Bell, F. Wang, M. S. Kuhlenschmidt, and T. A. Saif, "Discovery of an Intracellular-force-regulated Metastasis-like Phenotype in HCT-8 Cells," Gordon Conference, Cell Contact and Adhesion Section, Vermont, June 19-24, 2011.
129. Tang, X., T. B. Kuhlenschmidt, M. S. Kuhlenschmidt, and T. A. Saif, "Cancer Cell Force Evolves Throughout the in Vitro Cancer Metastasis," BMES, Hartford, CN, Oct 12-15, 2011.
130. Tang, X., M. Y. Ali, and T. Saif, "ECM Micro-patterning on Hydro-gels to Study the Effect of Confinement on Cancer Metastasis," BMES, Hartford, CN, Oct 12-15, 2011.
131. Tang, X., P. Bajaj, R. Bashir, and T. Saif, "Mechanical Interactions between Cardiac Cells and Its Implication on Myocardial Infarction," ASME McMAT, Chicago, IL. May30 - June 1, 2011.
132. Tang, X., P. Bajaj, R. Bashir, and T. Saif, "Mechanical Interactions between Cardiac Cells and Its Implication on Myocardial Infarction," ASME IMECE, Denver, CO. Nov 12-17, 2011.
133. Tang, X., M. Y. Ali, and T. Saif, "ECM Micro-patterning on Hydro-gels to Study the Effect of Confinement on Cancer Metastasis," ASME IMECE, Denver, CO, Nov 12-17, 2011.
134. Tang, X., S. Anand, and T. Saif, "Mechanical Communications between Neighboring Fibroblasts on Flexible Hydro-gels," ASME IMECE, Denver, CO, Nov 12-17, 2011.
135. Ahmed, W. and T. A. Saif, "Tension modulates vesicle dynamics in neurons," BMES-SPRBM Inaugural Conference on Cellular and Molecular Bioengineering, Jan 4, 2012, San Juan, Puerto Rico.
136. Saif, T. and W. Kang, "Size Dependent Brittle to Ductile Transition (BDT) Temperature in Single Crystal Silicon," The 2013 MRS Spring Meeting, April 2013, San Francisco, CA (Invited Talk).
137. Tang, X. & T. A. Saif, "Loss of Cell Adhesion in Colon Cancer Cells during in vitro Metastasis Measured by Bio-MEMS Force Sensor," ASME Summer Bioengineering Conference, Fajardo, Puerto Rico, June 20-23, 2012.

138. Tang, X., P. Bajaj, R. Bashir, and T.A. Saif, "Mechanical Communication between Cardiac Cell Leads to Synchrony in Beating," ASME Summer Bioengineering Conference, Fajardo, Puerto Rico, June 20-23, 2012.
139. Ahmed, W., A. Tofangchi, and T. A. Saif, "Vesicle transport in in vivo neurons in response to mechanical stretch," ASME International Mechanical Engineering Congress, Nov 15-21, 2012, Houston, TX.
140. Tang, X., & T. A. Saif, "Remarkable Surface Adhesion Change of Colon Cancer Cells throughout in Vitro Metastasis," ASME 2012 International Mechanical Engineering Congress and Exposition, November 2012, Houston, TX.
141. Saif T. and W. Kang, "In Situ Study of Size and Temperature Dependent Brittle-to-Ductile Transition in Single Crystal Silicon," ASME 2012 International Mechanical Engineering Congress and Exposition, November 2012, Houston, TX.
142. Ahmed, W., B. Williams, A. Silver, and T. A. Saif. "Vesicle dynamics in neurons under tension: Exploration via experiments and modeling," Physics of Cells - From Soft to Living Matter, Sept 5, 2012, Hyeres, France.
143. Ali, M. Y. and T. Saif, "On the metastasis like phenotype of HCT-8 cells on E-cadherin coated soft substrates," Biomedical Engineering Society (BMES) Annual Meeting, Oct 24-27, 2012, Atlanta, Georgia, USA.
144. Sandeep A., R. Jagannathan, and T.Saif, "Cardiomyocyte Powered Swimming Biohybrid Microrobots," BMES 2012 Annual meeting (Oral presentation), Atlanta, October 24-27, 2012.
145. Knoll, S. G. and T. Saif, "Investigation of Nanoscale Cell-Induced Substrate Deformation," Oral Presentation at Biomedical Engineering Society (BMES) Conference, Atlanta GA, October, 2012.
146. Ahmed, W., B. Williams, A. Silver, and T. A. Saif, "Mechanical strain affects local dynamics of vesicles in neurons," Biomedical Engineering Society Conference, Oct 25, 2012, Atlanta, GA.
147. Saif, T., B. Williams, and E. deSousa, "A swimming biobot from emergent synchrony among cardiac cells due to long-range force interaction," Biomedical Engineering Society Conference, Oct 25, 2012, Atlanta, GA.
148. Brian Williams, Sandeep Anand and Taher Saif. A living artificial swimmer from soft flagella and cardiac cells. Society of Engineering Science 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting, July 28 - 31, 2013, Brown University, 2013.
149. Wylie Ahmed, Alireza Tofangchi, Taher Saif. Neuromechanics of neuronal transport. Society of Engineering Science 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting, July 28 - 31, 2013, Brown University, 2013.
150. Xin Tang, Theresa Kuhlenschmidt, Qian Li, Hong Chen, Mark Kuhlenschmidt and Taher Saif, Genetic Pathway Analysis for Mechanics-induced Colon Cancer Metastasis. Oral presentation, BMES 2013 Annual Meeting, Sept 25-28, 2013, Seattle, WA.
151. Xin Tang, Vivian Jung, Jessica Hsu, Linna Guan, Taher Saif. Alteration of migration pattern for Mechanics-induced colon cancer Metastasis. Poster presentation. BMES 2013 Annual Meeting, Sept 25-28, 2013, Seattle, WA.
152. Muhammad Yakut Ali, Sara Pedron, Christopher Neme, Brendan Harley and Taher Saif. Substrate stiffness modulates cell volume in 2D, but not in 3D. Oral presentation, BMES 2013 Annual Meeting, Sept 25-28, 2013, Seattle, WA.
153. Samantha Knoll, Wylie Ahmed and Taher Saif. Active Nanoscale Fluctuations in Cellular Mechanosensing. Oral presentation, BMES 2013 Annual Meeting, Sept 25-28, 2013, Seattle, WA.
154. Brian Williams, Sandeep Anand and Taher Saif. Engineered Microscale Flagellar Motion Powered by Cardiomyocytes. Oral presentation, BMES 2013 Annual Meeting, Sept 25-28, 2013, Seattle, WA.
155. Wylie Ahmed and Taher Saif. Active transport of vesicles in neurons is modulated by mechanical tension. Poster presentation. BMES 2013 Annual Meeting, Sept 25-28, 2013, Seattle, WA.
156. Alireza Tofangchi, Jagannathan Rajagopalan and Taher Saif. Origin of tension in neurons. ASME Annual Congress and Exposition, Nov 17-21, 2013, San Diego, CA.
157. Brian Williams, Sandeep Anand, Jagannathan Rajagopalan and Taher Saif. A microfabricated, biohybrid, soft robotics flagellar swimmer. IEEE MEMS 2014, San Francisco, CA, Jan 26-30, 2014 (oral presentation).
158. M. Yakut Ali, K. Tangella, D. Ramkumar and M. T. A. Saif. Biophysical and Biomechanical Signature of Primary Human Colon Cancer Cells. ASME 2014 3rd Global Congress on NanoEngineering for Medicine and Biology, Feb. 2-5, 2014 in San Francisco, CA (poster, student award received).



159. Brian Williams and Taher Saif. A swimming biological machine from primary cardiomyocytes. ASME 2014 3rd Global Congress on NanoEngineering for Medicine and Biology, Feb. 2-5, 2014 in San Francisco, CA.
160. Wylie Ahmed and Taher Saif. Axonal force and transport in Aplysia neurons. 2014 3rd Global Congress on NanoEngineering for Medicine and Biology, Feb. 2-5, 2014 in San Francisco, CA.
161. Taher Saif. [From Synchrony to Swimming, American Association for the Advancement of Science \(AAAS\)](#) (Invited talk) Annual Meeting, Feb 13-17, Chicago, 2014.
162. Williams, B.; Anand, S; Rajagopalan, J; Saif, M. T. A. "A biohybrid, low Reynolds number, soft robotics flagellar swimmer." 17th National Congress of Theoretical and Applied Mechanics. E. Lansing, MI, June 15-20, 2014.
163. Brian Williams and Taher Saif, "Mechanical Coupling of Cardiomyocytes on PDMS Film Enables Synchronization". World Congress of Biomechanics, Boston, MA, July 6-11, 2014.
164. Brian Williams, Sandeep Anand, Jagannathan Rajagopalan, Taher Saif, "Soft Platforms To Measure Cellular Forces In Vivo", World Congress of Biomechanics, Boston, MA, July 6-11, 2014.
165. Brian Williams, Sandeep Anand and Taher Saif, "Emergence of a Flagellar Swimmer From Cardiomyocytes And Fibroblasts", World Congress of Biomechanics, Boston, MA, July 6-11, 2014.
166. Knoll, S; Saif, M. T. A. Fluctuations in Cellular Forces: Noise or Signal? Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Aug 26-30, 2014.
167. Elhebeary, M and Saif, M.T.A. "A Novel Bending Device for Testing Mechanical Properties of Nanoscale Single Crystal Silicon", Gordon Research Conference (GRC) on "Thin Film & Small Scale Mechanical Behavior", Waltham, MA, July 13-18.
168. Samantha Knoll and Taher Saif, "Time varying cell forces – a new paradigm in cellular mechanotransduction", Society of Engineering Science Annual Technical Meeting, Oct 1-3, Purdue University, 2014.
169. Brian Williams and Taher Saif, "Long range cell-cell interactions through substrate strain fields", Society of Engineering Science Annual Technical Meeting, Oct 1-3, Purdue University, 2014.
170. Taher Saif, "Ductility of nano scale Si samples", Society of Engineering Science Annual Technical Meeting, Oct 1-3, Purdue University, 2014, (Keynote lecture).
171. Samantha Knoll and Taher Saif, "Cell-induced Nanoscale Displacements Reveal Localized, Autonomous Forces Exerted By Fibroblasts" 2014 Biomedical Engineering Society Annual Meeting, 22–25 October 2014, San Antonio, United States.
172. M Yakut Ali and Taher Saif, "Contractility as a biophysical marker of cancer metastasis for primary human colon cancer cells" 2014 Biomedical Engineering Society Annual Meeting, 22–25 October 2014, San Antonio, United States.
173. Yung Fan and Taher Saif, "Stretch Induced Effects on Callosal Pathway Flavoprotein Autofluorescence" 2014 Biomedical Engineering Society Annual Meeting, 22–25 October 2014, San Antonio, United States.
174. Brian Williams, Sandeep Anand and Taher Saif, "Autonomous living machines: a new frontier of engineering", Proceedings of the 2014 American Association of Bangladeshi Engineers and Architects Biennial Convention, Saturday, November 15, Los Angeles, California.
175. Wonmo Kang, Mohamed Elhebeary and Taher Saif. "Brittle to Ductile Transition in Single Crystal Silicon at Sub-Micro Meter Scale", Materials Research Society Spring meeting, San Francisco, CA, April 6-10, 2015.
176. Brian Williams, Sandeep Anand and Taher Saif. "On the Mechanics of an Engineered Living 1D Swimmer at Low Reynolds Number from Cardiomyocytes", Materials Research Society Spring meeting, San Francisco, CA, April 6-10, 2015.
177. Mohamed Elhebeary and M T A Saif. A Novel Bending Stage for Testing Mechanical Properties of Nanoscale Single Crystal Silicon. Materials Research Society Spring meeting, San Francisco, CA, April 6-10, 2015.
178. Samantha Knoll and Taher Saif. Turning on cells with light. ASME 2015 4th Global Congress on NanoEngineering for Medicine and Biology, 19 - 22 April 2015 / U.S.A, Minneapolis, MN.
179. B. Williams, S. Anand, J Ragjogopalan, M T A Saif. Biohybrid swimming at low Reynolds number. Summer Biomechanics, Bioengineering and Biotransport Conference, Snowbird, Utah, June 17-20, 2015.
180. Samantha Knoll, W Ahmed and M T A Saif. Time Evolution of Photodamage in Fibroblasts as a Measure of Cell Contractility. 2015 BMES Annual Meeting, 7–10 October, 2015, Tampa, Florida.



181. Kyung Choi, Yakut Ali and M Taher A Saif. Cell traction as a potential biophysical marker for cancer prognosis, ASME 2015 Applied Mechanics and Materials Conference, McMAT2015, Seattle, June 29-July 1, 2015.
182. Samantha Knoll and Taher Saif. Effect of light on cell-substrate force interaction. ASME 2015 Applied Mechanics and Materials Conference, McMAT2015, Seattle, June 29-July 1, 2015.
183. B. Williams and M T A Saif. Strain mediated contractile coupling of cardiomyocytes. Society of Engineering Science, 52nd Annual Technical Meeting, Texas A&M University, October 26–28, 2015.

### Invited Lectures

1. "A Micro Loading Machine," Cornell University, Theoretical and Applied Mechanics, Ithaca, NY, February 8, 1995.
2. "A Milli-Newton Micro Loading Device," Johns Hopkins University, Department of Mechanical Engineering, Baltimore, MD, August 3, 1995.
3. "Micron-Scale Structures – A New Dimension for 21st Century Structural Engineering," Bangladesh University of Engineering and Technology, Department of Civil Engineering, Dhaka, Bangladesh, December 18, 1995.
4. "Micro-Instruments for Materials Characterization," Materials Research Society 1996 Spring Meeting, San Francisco Marriott, CA, April 10, 1996.
5. "A Voyage Through the World of Micromachines – A Technology for the 21st Century," Cornell Alumni Reunion, June 7, 1996.
6. "Reliability Studies of Torsional Single Crystal Silicon Beams for Rigid Micromirrors," IEEE/LEOS 1996 Summer Topical Meeting, Keystone, CO, August 5-9, 1996.
7. "MEMS Micro Instruments for Sub-Micron Materials Characterization," Texas Instruments, Dallas, TX, November 21, 1997.
8. "Micro Actuators for Non-Invasive Study of Single Living Cells," Kodak Research and Development, Rochester, NY, June 10, 1998.
9. "Tunable Bi-Stable MEMS Device for High-Performance Switches," DARPA MEMS Program Workshop (Advisory Meeting): MEMS for Mechanical Computation and Information Processing, La Jolla, CA, February 22-23, 1999.
10. "Micro Instrumentation for Material Studies at Nano Scale," 36th Annual Technical Meeting, Society of Engineering Science, University of Texas at Austin, Austin, TX, October 25-27, 1999, Book of Abstract, WB2-4, (invited talk).
11. "A Tunable, Bi-Stable, Low Power MEMS Sensor," International Conference on Smart Materials, Structures, and Systems, Indian Institute of Science, Bangalore, India, July 7-10, 1999.
12. "Micro Instrumentation for Material Studies at Nano Scale," Workshop on Nanomechanics of Surfaces and Interfaces, University of Texas at Austin, Oct. 25-27, 1999. Organizer: Huajian Gao, Division of Mechanics and Computation, Department of Mechanical Engineering, Stanford University, Stanford, CA.
13. "Micro Instruments for Nano-Scale Materials Studies and Digital Sensing," Technical University of Dresden, Institute fur Halbleiter- und Mikrosystemtechnik, Dresden, Germany, June 30, 1999.
14. "Interaction between Small Floating Bodies," Departments of Mechanical Engineering and Materials Science, University of California at Santa Barbara, Santa Barbara, CA, May 2000.
15. "Micromachines – A Technology for the 21st Century," Department of Mechanical Engineering, University of Malaya, Kuala Lumpur, Malasia, June 2000.
16. "Micromachines – A Technology for the 21st Century," Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, July 2000.
17. "Interaction Between Small Thin Floating Solids," Department of Theoretical and Applied Mechanics, UIUC, Urbana, IL, September 2000.
18. "Microinstrumentation for Studies of Single Cells," New York Center for Advanced Thin Film Technology, State University of New York at Albany, Albany, NY, October 2000.
19. "Fabrication Issues of MEMS," NSF Workshop on Manufacturing of Micro-Electro-Mechanical Systems, DoubleTree Club Hotel, Orlando Florida, November 2000.

20. "Bi-Stable MEMS for Optomechanical Computing in Harsh Environments," Department of Theoretical and Applied Mechanics, Cornell University, Ithaca, NY, November 2000.
21. "MEMS - An Overview," Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, August 1, 2001.
22. "Interaction between Small Floating Bodies," Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, August 13, 2001.
23. "A Bi-stable MEMS for Optomechanical Logic Elements," Microelectronics Seminar, UIUC, September 5, 2001.
24. "Actuation of MEMS by Light," University of Washington, Seattle, WA, October 11, 2001.
25. "Novel Instrumentation for Studying Plasticity at Nano Scale," International Conference on Plasticity, Aruba, January 3-8, 2002.
26. "Capillary Interaction Between a Small Thin Solid Plate and a Liquid," Fundamental Issues of Microsystems, Modeling and Simulation of Microsystems, San Juan, Puerto Rico, April 22-25, 2002.
27. "Capillary Interaction between Solid Plates Forming Menisci on the Surface of a Liquid," Northwestern University, Evanston, IL, April 5, 2002.
28. "Novel Instruments for Studying Mechanical Properties at Nano Scale," Cornell University, Mechanical and Aerospace Engineering, Ithaca, NY, May 16, 2002.
29. "Uniaxial Tensile Experiments on Nanoscale Metal Films," Society for Experimental Conference, Milwaukee, WI, June 10-12, 2002.
30. "Modeling and Experiment on a Bi-stable MEMS Actuated by Radiation Pressure," 14th U.S. National Congress of Applied Mechanics, Virginia Tech., June 23-28, 2002.
31. "Experimental Results on Free Standing Nanoscale Al Films," 14th U.S. National Congress of Applied Mechanics, Virginia Tech., June 23-28, 2002.
32. "Elastic Response of Aluminum at Submicrometer Scale," ASME International Mechanical Engineering Congress and Exposition, New Orleans, LA, November 17-22, 2002.
33. "Force Response of Single Living Cells Due to Localized Deformation," ASME International Mechanical Engineering Congress and Exposition, New Orleans, LA, November 17-22, 2002.
34. "Stress Assisted Self-Assembly of Nano-Wires and Channels," Division of Engineering and Applied Sciences, Harvard University, December 2, 2002.
35. "Study of Nanoscale Materials and Single Biological Cells Using MEMS Sensors," Mechanical Engineering Department, National University of Singapore, December 30, 2002.
36. "Novel Instrumentation for Studying Plasticity at Nano-Scale," Department of Aerospace Engineering and Engineering Mechanics, The University of Texas, Austin, TX, February 25, 2003.
37. "Novel Instrumentation for Studying Plasticity at Nano Scale," Department of Mechanical Engineering, Texas A&M University, College Station, TX, February 26, 2003.
38. "Characterization of Nickel Nanowires Formed by Stress Assisted Self Assembly," Joint Applied Mechanics/Materials ASME Summer Meeting, Scottsdale, AZ, June 17-20, 2003.
39. "Functionalized BioMEMS Sensors for Studying Force Response of Single Living Cells," 2003 Summer Bioengineering Conference, Key Biscayne, FL, June 25-29, 2003.
40. "Guided Self Assembly of Nano Channels and Wires," NSF/MEXT U.S. Japan Young Scientists Symposium on Nanoscience and Nanotechnology, MIT, Cambridge, MA, September 25, 2003.
41. "Guided Self Assembly of Nano Wires and Channels," Center for Nanoscale Science and Technology Seminar, University of Illinois at Urbana-Champaign, IL, October 1, 2003.
42. "Novel Instruments for Studying Mechanical Properties at Nano-Scale," Mechanical Engineering Department, Johns Hopkins University, Baltimore, MD, October 9, 2003.
43. "Deformation Mechanism of Nano Grained Free Standing Thin Aluminum Films," 2003 ASME International Mechanical Engineering Congress, Applied Mechanics Division, Washington, DC, November 15-21, 2003.
44. "Materials Behavior at Nanoscale," International Conference on Materials for Advanced Technologies, Singapore, December 7-12, 2003 (trip cancelled due to SARS threat).
45. "Mechanical Behavior of Nano Grained Metals," Materials Science Seminar, University of Illinois at Urbana-Champaign, IL, March 8, 2004.
46. "Interaction Between Floating Bodies," TAM Seminar, University of Illinois at Urbana-Champaign, IL, March 11, 2004.
47. "Is Smaller Always Stronger?" Mechanical Engineering Department, Stanford University, Stanford, CA, March 31, 2004.

48. "MEMS for Probing Single Cells," Forum on Nanotechnology Growth Opportunities for the Biotech and Medical Devices Sectors, organized by ASME Nanotechnology Institute, Irvine, CA, April 15-16, 2004.
49. "Strain Gradient Effect in Nanoscale Aluminum Films," Gradient Plasticity Theory and Applications, Patras, Greece, May 31-June 4, 2004.
50. "Micro-Instrumentation for Nano-Scale Materials Behavior under Uniaxial Tension," 2004 Gordon Research Conference on Thin Film and Small Scale Mechanical Behavior, Colby College, Waterville, ME, July 18-23, 2004.
51. "Is There a Critical Size in Nano Grained Metals for Ductile to Brittle Transition?" Keynote Lecture, ASME Nanotechnology Institute, 3rd annual Integrated Nanosystems: Design, Synthesis and Applications Conference, Pasadena, CA, September 22-24, 2004.
52. "Mechanical Behavior of Nano-Grained Thin Metal Films," Materials Science and Technology 2004 Conference and Exhibition, New Orleans, LA, September 26-29, 2004.
53. "Thin Plates Floating on a Liquid-Air Interface: Theory and Experiment," Mechanical Engineering Department, Indiana University Purdue University at Indianapolis, October 7, 2004.
54. "Anelasticity in Nano Grained Thin Metal Films," 2004 Materials Research Society Fall Meeting, Boston, MA, December 1-5, 2004.
55. "Mechanical Behavior of Nano-grained Thin Metal Films," University of Michigan, Ann Arbor, MI, February 25, 2005.
56. "Self Assembled Nano Wires and Channels," Nano-characterization and Nanofabrication Using Advanced Physical Fields, Guest Lecture, 10th International Symposium on Advanced Physical Fields, Tsukuba, Japan, March 7-10, 2005.
57. "Micro Instrumentation for Studying Mechanical Properties of Free-standing Films," TMS Annual Meeting, San Francisco, CA, February 14-18, 2005.
58. "Thin Plates on Liquid/Air Interfaces: Theory and Experiment," Brown University, Providence, RI, April 11, 2005.
59. "Self Assembly of Nanowires and Their Characterization," Center for Nanoscale Science and Technology, UIUC, May 5-6, 2005.
60. "Mechanical Behavior of Nano-Grained Thin Metal Films," Massachusetts Institute of Technology, June 1, 2005.
61. Invited panelist at the Discovery Platforms™ Workshop, Sandia National Laboratory, Albuquerque, NM, July 26, 2005.
62. "MEMS- A New Paradigm in Research Labs: From Biology to Materials Science," National University of Singapore, July 26, 2005.
63. "Exploring Mechanical Response of Metals and Single Living Cells at Nano Scale Using Novel Micro Instruments," Max Planck Institute Colloquium, Stuttgart, Germany, November 7, 2005.
64. "Exploring Mechanical Response of Metals and Single Living Cells at Nano Scale Using Novel Micro Instruments," Department of Materials, Swiss Federal Institute of Technology, Zurich (ETH), November 23, 2005.
65. "Exploring Mechanical Response of Metals and Single Living Cells at Nano Scale Using Novel Micro Instruments," Erich Schmid Institute of Materials Science, Austrian Academy of Sciences and Department Material Physics, University of Leoben, December 13, 2005.
66. "Mechanical Behavior of Sing Cells: A Nontoxic Approach towards Disease Detection," International Conference on Microtechnologies in Medicine and Biology (MMB2006), Okinawa, Japan, May 9-12, 2006.
67. "Mechanical Response of Single Living Cells Under Controlled Stretch and Indentation Using Functionalized Micro Force Sensors," International Conference on Microtechnologies in Medicine and Biology (MMB2006), Okinawa, Japan, May 9-12, 2006.
68. "Microinstruments for Studying Metals and Single Cells at Submicron Scale," University of Tokyo, Institute of Industrial Science, Tokyo, Japan, May 15, 2006.
69. "In-situ Studies of Deformation and Failure in Nano Grained Metal Films using Micro Instruments," IUTAM Symposium on Plasticity at the Micron Scale, Denmark, May 21-25, 2006.
70. "Mechanical Behavior of Nano Grained Metals," 16th European Conference on Fracture, Alexandropoulos, Greece, July 2-7, 2006.
71. "Failure Mechanism in Columnar Nano Crystalline Thin Metal Films," Keynote Lecture, 12th International Symposium on Plasticity, Halifax, Nova Scotia, Canada, July 17-22, 2006.

72. "Mechanical Behavior of Single Living Fibroblasts by Micro Force Sensors," Third International Conference on Multiscale Material Modeling (MMM2006), Freiburg, Germany, September 18-22, 2006.
73. "Mechanical Behavior of Single Living Cells Under Stretch and Compression Using Micro Force Sensors," Third International Conference on Multiscale Materials Modeling, Freiburg, Germany, September 18-22, 2006.
74. "Mechanical Behavior of Nano Grained Metals-Smaller is Stronger, Even Smaller May Be Softer," California Institute of Technology (GALCIT Colloquium), Pasadena, CA, November 24, 2006.
75. "A Voyage through the World of Small," California Polytechnic State University (Mechanical Engineering), San Luis Obispo, CA, November 27, 2006.
76. "MEMS-A New Paradigm in Research Labs: From Materials Science to Biology," NSF Sponsored US-Tunisia Workshop: Research and Educational Advances in Design and Fabrication of Micro-Electro-Mechanical Systems, Hammamet, Tunisia, December 14-16, 2006.
77. "A Voyage through the World of Small," Keynote Lecture, 6th International Workshop on Micro-Nano Electronics and Photonics, Islamabad, Pakistan, April 9-13, 2007.
78. "MEMS-A New Paradigm in Research Labs: From Materials Science to Biology," Keynote Lecture, 6th International Workshop on Micro-Nano Electronics and Photonics, Islamabad, Pakistan, April 9-13, 2007.
79. "MEMS Based Sensors for Force Response Studies of Single Cells," National University of Singapore, 2007 GEM4 (Global Enterprise for Micro-Mechanics and Molecular Medicine) Summer School, Singapore June 25 – July 6, 2007.
80. "Mechanical Behavior of Nano Grained Metals - Smaller is Stronger, Even Smaller May Be Softer," International Conference on Smart Materials and NanoTech (SMN2007), Harbin Institute of Technology, Harbin, China, July 2, 2007.
81. "Interplay Between Size and In-homogeneity of Microstructure in Nano Grained Metals – A New Paradigm in Understanding Their Mechanical Property," Institute for Materials Research, Shenyang, China, July 5, 2007.
82. "On The Role of Inhomogeneity of Microstructure in Determining Deformation Mechanism of Nano Grained Metals," Tsinghua University, Department of Engineering Mechanics, July 12, 2007.
83. "Learning by Tension," Purdue University, Electrical and Computer Engineering, July 17, 2007.
84. "Inhomogeneity and Size of Microstructure - A New Paradigm in Understanding Deformation Mechanism of Nano Crystalline Metals," Brown University, Division of Engineering, September 24, 2007.
85. "Cellular Mechano-sensitivity – A New Paradigm in the Understanding of Learning and Memory," Stanford University, "Frontiers in Interdisciplinary Biosciences" Lecture, November 15, 2007.
86. "Seeing the Unseen Using Small Sensors: Two Examples from the World of Small," Pennsylvania State University, November 27, 2007.
87. "Cellular Mechano-sensitivity – A New Paradigm in Understanding Learning and Memory," Max Planck Institute, Stuttgart, Germany, January 31, 2008.
88. "Mechanics of Memory," Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, February 6, 2008.
89. "Cellular Mechano-sensitivity – A New Paradigm in the Understanding of Learning and Memory," BRAC University, Dhaka, Bangladesh, February 7, 2008.
90. "Mechanics of Learning and Memory," Michigan Technological University, Mechanical Engineering-Engineering Mechanics, February 14, 2008.
91. "MEMS for Materials Studies: From Nano to Micro Scale," SEMATEC, Austin, TX, March 18, 2008.
92. "Mechanics of Memory," University of California at Los Angeles, April 2, 2008.
93. "Role of Micro-structural Heterogeneity in Determining Mechanical Properties of Nano-scale Metals," ICHMM-2008: International Conference on Heterogeneous Materials Mechanics, Huangshan, China, June 3-8, 2008.
94. "MEMS Sensors for Studying Cell Mechanosensitivity," Caltech, GEM4 Summer School, July 21-25, 2008.
95. "Memory under Tension," Hong Kong University of Science and Technology, August 28, 2008.
96. "Interfaces and Heterogeneities - The Critical Players in the Field of Nanomechanics," Nanomech 9, Germany, Sept 9-11, 2008.

97. "Cellular Mechano-sensitivity for Implantable Devices," Interuniversity Microelectronics Centre (IMEC), Leuven, Belgium, September 25-26, 2008.
98. "Memory under Tension," University of Pennsylvania, October 28, 2008.
99. "Unusual Mechanical Behaviors of Nanocrystalline Metals- Effect of Size and Heterogeneity of Microstructure," Materials Research Society Fall Meeting, Boston, MA, December 1-5, 2008.
100. "Nanomechanics of Memory and Learning," Weizmann Institute of Science and Technion, Israel Institute of Technology, Workshop on Nano-Bio Systems, December 17-18, 2008.
101. "Effect of Size and Heterogeneity of Microstructure on Nanocrystalline Plasticity," Keynote lecture, International Symposium on Plasticity, St Thomas, US Virgin Islands, January 2009.
102. "Nanomechanics of Memory and Learning," University of Washington, February 3, 2009.
103. "Mechanics of Memory," Arizona State University, April 10, 2009.
104. "A MEMS Force Sensor and The Tale of Two Accidental Encounters," GEM4 2009 Summer School on "Cell and Molecular Mechanics in Biomedicine with a focus on Enabling Technologies," University of Illinois at Urbana-Champaign, June 8-19, 2009.
105. "Microstructural Size and Heterogeneity: The Two Key Players at The Nano Scale," 2nd International Conference on Smart Materials and Nanotechnology in Engineering, Weihai, China, July 8-11, 2009.
106. "Microstructural Size and Heterogeneity: The Two Key Players at The Nano Scale," Purdue University, August 7, 2009.
107. "Mechanical Tension in Neurons is Essential for Neurotransmission," Boston University, October 20, 2009.
108. "Mechanics Link to Memory and Learning: Lessons from Fruit Flies," Montana State University, Feb 5, 2010.
109. "Synaptic Terminal Tension: Lessons from Fruit Flies," Texas Tech University at Lubbock, March 5, 2010.
110. "Mechanics Link to Memory and Learning: Lessons from Fruit Flies," University of Texas at Austin, Feb 9, 2010.
111. "Mechanics Link to Memory and Learning: Lessons from Fruit Flies," University of California, Berkeley, April 5, 2010.
112. "The Role of Mechanical Tension in Neurons," Materials Research Society Meeting, San Francisco, California, April 6, 2010.
113. "Seeing The Unseen Using Small Sensors: Two Examples From The World of Small," Keynote Lecture, The Seventh International Symposium on Mechatronics and Its Application, American University of Sharjah, Sharjah, United Arab Emirates, April 20, 2010.
114. "Seeing The Unseen Using Small Sensors: Two Examples From The World of Small," Khalifa University of Science, Technology and Research (KUSTAR), Abu Dhabi, United Arab Emirates, April 21, 2010.
115. "Mechanisms of Plasticity in Nanograined Metals," International Workshop on Materials Behavior at Micro and Nano- Scale, Xi'an Jiaotong University, Xi'an, China, June 8-11, 2010.
116. "Neuronal Mechanics of Memory and Learning," Keynote Lecture, 16th US National Congress of Theoretical and Applied Mechanics, Pennsylvania State University in University Park, PA, June 27- July 2, 2010.
117. "Cancer Metastasis and Elasticity of Micro-environment," Keynote Lecture, 16th US National Congress of Theoretical and Applied Mechanics, Pennsylvania State University in University Park, PA, June 27-July 2, 2010.
118. "Feeling the Cell Force," GEM4 Summer School, July 26-31, National University of Singapore, Singapore, July 30, 2010.
119. "Emergent Neuro-muscular Synapse Require Mechanical Tensile Force for Synaptic Plasticity," World Congress on Biomechanics, Aug 1-6, 2010, Singapore, Aug 3, 2010.
120. "A Novel Stage for in situ Imaging of Cells and Tissues under Mechanical Stimulation," World Congress on Biomechanics, Aug 1-6, 2010, Singapore, Aug 6.
121. "Synaptic Tension: Force Connection to Memory and Learning," Bioengineering Seminar Series, University of Illinois at Urbana-Champaign, Sept 16, 2010.
122. "Synaptic Tension : force connection to memory and learning," KAUST (King Abdullah University of Science and Technology), Saudi Arabia, October 1, 2010.

123. "Neuron as a Mechanical Material," Keynote Lecture, ASME International Mechanical Engineering Congress and Exposition, Nov 12-18, Vancouver, British Columbia, Canada. Nov 16, 2010. (trip cancelled due to medical emergency)
124. "Micro Machines for Nanoscale Materials Studies," Faculty of Physics, University of Vienna, Nov 2010. (trip cancelled due to medical emergency)
125. "Mechanics of Nanostructured Metals: Effect of Size," Faculty of Physics, University of Vienna, Nov 2010. (trip cancelled due to medical emergency)
126. "Mechanics of Nanostructured Metals: Effect of Microstructural Heterogeneity," Faculty of Physics, University of Vienna, January 2011. (trip cancelled due to medical emergency)
127. "Micro Machines for Biological Studies: Mechanics of Memory and Learning," Faculty of Physics, University of Vienna, January 2011. (trip cancelled due to medical emergency)
128. "Mechanisms of Plasticity in Nanograined Metals," Plasticity 2011, Puerto Vallarta, Mexico, January 3-8, 2011. (trip cancelled due to medical emergency)
129. "Synaptic Tension: Force Connection to Memory and Learning," Michigan State University, February 23, 2011.
130. "Mechanisms of Plasticity in Nanograined Metals: Role of Microstructural Heterogeneity - Part I," Department of Physics, University of Vienna, May 25, 2011.
131. "Mechanisms of Plasticity in Nanograined Metals: Role of Microstructural Heterogeneity - Part II," Department of Physics, University of Vienna, June 6, 2011.
132. "Mechanical Force Determines Neuronal Growth and Synaptic Function," Max Planck Institute, Stuttgart, Germany, June 10, 2011.
133. "Mechanical Interactions between Cardiac Cells and Its Implication on Myocardial Infarction," ASME 2011 Applied Mechanics and Materials Conference, Chicago, IL, May 30-June 1, 2011.
134. "Mechanical Force Determines Neuronal Growth and Synaptic Function," Max Planck Institute, Stuttgart, Germany, June 10, 2011.
135. "Guidance Cues for Emergent Biological Machines," Georgia Institute of Technology, GEM4 Summer School, June 28, 2011.
136. "A Few Basics of Mechanics in Light of Cell Biology," University of Illinois at Urbana-Champaign, Workshop on Mechanobiology, July 26, 2011.
137. "Mechanisms of Plasticity in Nanograined Metals," University of Houston, Mechanical Engineering Dept., October 6, 2011.
138. "Microplasticity in Nanograined Metals: Role of Microstructural Heterogeneity," Society of Engineering Science Meeting, Northwestern University, October 12-14, 2011.
139. "Cancer Cell Adhesion during Metastatic Progression," Society of Engineering Science Meeting, Northwestern University, October 12-14, 2011.
140. "Microplasticity in Nanograined Metals," Université Catholique de Louvain Louvain School of Engineering October 17, 2011.
141. "Neuromechanics of Memory and Learning," Northwestern University, October 24, 2011.
142. "A MEMS Stage For Testing Nano To Micro Scale Samples," Materials Research Society, 2011 Fall Meeting, Boston, MA, Nov 28.
143. "Mechanical Tension in Axons and Synaptic Vesicle Clustering," Weizmann Institute, Clore Center for Biological Physics, Minisymposium on Biological Machines: Physics and Bioengineering, Feb 28, 2012.
144. "Emergence of Synchrony in Living Materials through Force Interaction," University of Illinois at Urbana-Champaign, Agricultural Engineering Seminar, February 24, 2012.
145. "Emergence of Synchrony in Living Materials through Force Interaction," University of Maryland Institute for Systems Research, Feb 28, 2012.
146. "Emergence of Synchrony in Living Materials through Force Interaction," Keynote talk, 2012 TMS annual meeting, Orlando, Florida, March 12, 2012.
147. "Emergence of Synchrony in Living Materials through Force Interaction," Khalifa University of Science, Technology and Research, March 22, 2012.
148. "Elasticity of microenvironment and cancer metastasis", NSF IGERT Workshop, Washington, DC, May 30, 2012.
149. "Emergence of synchrony in living systems," Technical University of Munich, Physics Seminar July 24, 2012.

150. Keynote talk: "A micro scale swimming biobot powered by synchronous beating of cardiac cells," 6th ASME Micro- and Nano-Systems Conference, Aug 13, 2012.
151. "Mechanobiology in neuronal development," Massachusetts Institute of Technology, GEM4 Summer Workshop, July 19, 2012.
152. "Mechanobiology in neuronal development", University of Illinois at Urbana-Champaign, BioSensing and BioActuation Summer Institute, Aug 3, 2012.
153. "Emergence of synchrony in cardiac cells through mechanical communication," 23rd International Congress of Theoretical and Applied Mechanics, Beijing, Aug 23, 2012 (trip canceled due to family reasons).
154. "Emergence of synchrony in complex living systems through force interaction," Physics of Cells - PhysCell2012 Workshop, Hyères, France, Sept 7, 2012.
155. "A swimming biobot from emergent synchrony among cardiac cells due to long-range force interaction," Biomedical Engineering Society Conference, Oct 25, 2012, Atlanta, GA.
156. "A Micro Scale Swimming Biobot Powered by Synchronous Beating of Cardiac Cells," University of Texas at Arlington, Distinguished Lecture Series in Nano & Micro Systems, November 6, 2012.
157. "Substrate and ECM elasticity mediate metastasis like phenotype in vitro in human colon cancer cells," BMES Cellular and Molecular Bioengineering special interest group's inaugural meeting, Hawaiian Big Island of Kona, January 2-5, 2013.
158. "Substrate and ECM elasticity mediate metastasis like phenotype in vitro in human colon cancer cells," Keynote talk, ASME 2013 2nd Global Congress on NanoEngineering for Medicine and Biology, February 4-6, 2013 – Boston, MA.
159. "Synchrony to swimming at low Reynolds number," Brigham Young University, Mathematics Department, February 28, 2013.
160. "Size Dependent Brittle to Ductile Transition (BDT) Temperature in Single Crystal Silicon," Keynote talk, MRS Spring Meeting, April 2013, San Francisco, CA.
161. "A living artificial swimmer from soft flagella and cardiac cells", Society of Engineering Science 50<sup>th</sup> Annual Technical Meeting, July 18-31, 2013, Brown University.
162. "Mechanobiology in neuronal development", GEM4 Summer School, Aug 31, 2013, University of Illinois at Urbana-Champaign.
163. "Synchrony in cardiac cells due to long-range force interactions", University of Connecticut, Mechanical Eng Dept Seminar, Oct 4, 2013.
164. "Role of mechanical forces in health and disease", International Center for Theoretical Physics, Trieste, Italy, October 18, 2013.
165. "Metastasis on a dish", Max Planck Institute, Mainz, Germany, October 17, 2013.
166. Taher Saif. A swimming biological machine from primary cardiomyocytes. Bio Interest Group Seminar, UIUC, Feb 10, 2014.
167. "[From Synchrony to Swimming](#)", [American Association for the Advancement of Science \(AAAS\)](#) (Invited talk) Annual Meeting, Feb 13-17, Chicago, 2014.
168. "Mechanical micro environment and cancer metastasis", Nutritional Sciences Seminar, March 12, 2014, UIUC.
169. "Micro-instruments for nano-mechanical studies of materials". Solid Mechanics For Nanoscientists, Workshop, March 16-21, 2014, Autrans, France.
170. "Role of mechanics in development and disease". Solid Mechanics For Nanoscientists, Workshop, March 16-21, 2014, Autrans, France.
171. "An Engineered Living Flagellum", Mechanical Engineering Seminar, Texas A&M University, April 9, 2014.
172. "Biohybrid Manufacturing", Illinois-Tsinghua Nanotechnology Symposium/CNST 12th Annual Nanotechnology Workshop, April 16, 2014, UIUC.
173. "An Engineered Living Flagellum", Mechanical Engineering Seminar, Virginia Tech, April 18, 2014.
174. "Soft Platforms To Measure Cellular Forces In Vivo", Keynote lecture, July 11, World Congress of Biomechanics, Boston, MA, July 6-11, 2014.
175. "Emergence of a Flagellar Swimmer From Cardiomyocytes And Fibroblasts", Invited talk, July 9, World Congress of Biomechanics, Boston, MA, July 6-11, 2014.
176. "Fluctuations in cellular forces: noise or signal?" Mini symposium on Nano-biomechanics, IEEE conference on Engineering in Medicine and Biology Conference, Aug 27, 2014, Chicago.

177. "Bio-hybrid flagellar swimmer - a new paradigm for engineered life", Micro-Nano Robotic Swarms for Biomedical Applications, IROS Workshop, September 14 2014, Chicago.
178. "Nanotechnology for health and energy", Nanotechnology for Development of Advanced Applications: Solar and Energy Devices, September 22-24, 2014, Gazi University, Ankara, Turkey.
179. "Synchrony to swimming", Sept 24, 2014, Koc University, Istanbul, Turkey.
180. "From synchrony to swimming through long range cell-cell interactions", Mechanical Engineering, University of Pennsylvania, Oct 21, 2014.
181. "Ductility of nano scale Si samples", Keynote lecture, Society of Engineering Science Annual Technical Meeting, Oct 1-3, Purdue University, 2014.
182. "Axonal transport is modulated by axonal tension", Nov 5, 2014, Axonal transport and Neuronal Mechanics Meeting, Nov 3-7, 2014, Mathematical Biosciences Institute, Ohio State University.
183. "Autonomous living machines: a new frontier of engineering", 2014 American Association of Bangladeshi Engineers and Architects Biennial Convention, Saturday, November 15, 2014, Los Angeles, California.
184. "From synchrony to swimming through long range cell-cell interactions", EMBS Micro and Nanotechnology in Medicine Conference: Translating Medicine from bench to the bedside, 8-12 December, 2014, Turtle Bay Resort, Ohahu, Hawaii.
185. "Small size and microstructural heterogeneity of materials offer both high strength and ductility", Keynote talk, Plasticity 2015, Montego Bay, Jamaica, January 4-9, 2015.
186. "Role of tissue mechanical micro environment in health and disease", Bioengineering Department Seminar, University of Iowa, March 6, 2015.
187. "From synchrony to swimming through long range cell-cell interactions", Distinguished seminar series, Mechanical Engineering, University of Colorado, March 13, 2015.
188. Brittle to Ductile Transition in Single Crystal Silicon at Sub-Micro Meter Scale. 2015 MRS Spring Meeting & Exhibit, April 6-10, 2015 San Francisco, California (invited talk).
189. Neuromechanics. GEM4 workshop, Carnegie Mellon University, June 25, 2015.
190. Mechanics and Mechanobiology. 2015 BioNanotechnology Summer Institute- Cancer nanotechnology and Cell Mechanics, July 27-Aug 7, 2015, University of Illinois at Urbana-Champaign.
191. From synchrony to swimming through long range cell-cell interactions – an example of engineered life. Mechanical Engineering Seminar, Purdue University, Nov 12, 2015.
192. Small size may offer both strength and ductility to material samples – even if they are macroscopically brittle. Keynote lecture, [2015 International Mechanical Engineering Congress & Exposition \(IMECE\)](#), Houston, TX, Nov 13-19, 2015
193. Lessons learned from nano scale specimens tested by MEMS based apparatus. Invited talk at the 2015 MRS Fall Meeting & Exhibit, November 29-December 4, 2015 Boston, Massachusetts.
194. Living engineered materials and systems – a new paradigm for manufacturing. Keynote talk at the 1st IUT International Conference on Materials and Manufacturing Engineering (ICMME 2015), 25 – 27 December, 2015, Dhaka, Bangladesh.
195. Nanotechnology in health and disease. Military Institute of Science and Technology, Dec. 27, 2015, Dhaka, Bangladesh.
196. Memory under tension. (Keynote talk) NanoEngineering for Medicine and Biology Conference, Houston, Texas, February 21 - 24, 2016.
197. Emerging transformation in Engineering Science and Education. Plenary talk, North South University, Dhaka, Bangladesh, March 9, 2016.

## Patents

1. Saif, M. T. A., and N. C. MacDonald, "Microelectromechanical Integrated Micro Loading Device," U.S. Patent No. 5,786,621, July 28, 1998
2. Saif, M. T. A., T. Huang, and N. C. MacDonald, "Micromotion Amplifier," U.S. Patent No. 5,862,003, Jan. 19, 1999
3. Saif, M. T. A., and N. C. MacDonald, "Micromotion Amplification Based Sensors," U.S. Patent No. 6,183,097 B1, Feb. 6, 2001



4. Haque, A. and M. T. A. Saif, "Tensile Testing of Submicron Scale Freestanding Specimens in SEM and TEM," U.S. Patent No. 6,817,255 B2, Nov. 16, 2004
5. Han, J., M. T. A. Saif, and M. D. Uchic, "Apparatus and Method for Material Testing of Microscale and Nanoscale Samples," US Patent no: 7,752,916 B2, July 13, 2010.
6. Han, J., M. T. A. Saif, and M. D. Uchic, "Apparatus and Method for Material Testing of Microscale and Nanoscale Samples," US Patent no: 7,752,916 B2, July 13, 2010.
7. Kang, W. and T. Saif, "Apparatus and Method for In Situ Testing of Microscale and Nanoscale Samples," US Patent No. 9019512B2, April 28, 2015.
8. Jagannathan Rajagopalan and M Taher A Saif, "High Aspect Ratio Polymer Elongate And One-Dimensional Microstructure Fabrication", US 2014/0127508, May 8, 2014.

### **Improvement Activities**

Teaching College - Faculty Development Program, 1997-98  
 Engineering Faculty Leadership Program, 2011-12.

### **Conferences Organized or Chaired**

- Co-Chair, MEMS Session, MEMS 2000, International Mechanical Engineering Congress and Exposition, Orlando, FL, Nov. 2000
- International Advisory Committee, International Millennium Conference on Housing and Hazards for the Rural Community: Village Infrastructure to Cope with the Environment, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Nov. 24-25, 2000; also at Exter, United Kingdom, Dec. 4-5, 2000
- Chair of Session, MEMS Applications, International Mechanical Engineering Congress and Exposition, New York, NY, Nov. 2001
- Served as one of four organizers of the Materials Symposium of the 2003 ASME International Congress and Exposition, Washington, D.C., Nov. 15-21, 2003
- Organizer, NanoFabrication Hands on Training, UIUC, Nov. 2004
- Organizer, MEMS Education Workshop (sponsored by NSF and NASA), Miami, FL, Jan. 2005
- International Advisory Board, International Conference on MEMS and Nanotechnology: Current Challenges and Future Needs, Kuala Lumpur, Malaysia, March 14-15, 2006
- Scientific Committee Member, Third International Conference on Advances in Mechanical Engineering and Mechanics, Hammamet, Tunisia, Dec. 17-19, 2006
- International Scientific Committee, International MEMS Conference, Singapore, May 9-12, 2006
- Mechanics and Nano- and Biosystems Symposium, Society of Engineering Science 43rd Technical Meeting, Pennsylvania State University, PA, August 13-16, 2006
- Member of the IEEE SENSORS Conference Technical Program Committee, 2010-
- Member, Scientific Advisory Board, Singapore-MIT Alliance for Research and Technology (SMART) Center, Infectious Disease Inter-disciplinary Research Group, 2010-date
- Member of UIUC panel evaluating the academic engineering program of Jubail Industrial & University Colleges of the Royal Commission, Jubail, Saudi Arabia, 2011
- Served in the organizing committee of the ASME 2011 Applied Mechanics and Materials Conference, May 30-June 1, 2011, Chicago, IL.
- Co-organizer of the session, Mechanics in Biology and Medicine, at the ASME 2011 Applied Mechanics and Materials Conference, May 30-June 1, 2011, Chicago, IL.
- Co-organizers of the ASME Annual Congress, 2011 (Applied Mechanics Division), Nov 2011.
- Co-organizer of the NSF Workshop on Micro, Nano, Bio Systems: Building on the past and planning for the future, Arlington, VA. March 30-31, 2012.
- Served in the Mechanics in Biology and Medicine Committee under Applied Mechanics Division, ASME, 2012, 13.
- Session organizer at IMECE 2013: Mechanics in Biology and Medicine session until last IMECE.
- Steering committee member of the ASME Global Congress on Nanoengineering for Medicine and Biology, San Francisco, CA, Feb 2-4, 2014.

- Member, International Advisory Committee for the International Conference on Materials and Manufacturing Engineering to be held at Dhaka, Bangladesh, 25-27 December, 2015

### Graduate Thesis Research Advising

#### M.S. Thesis Students

Student Name	Year Graduated	Thesis Title	Placement
C. R. Sager (Zayd Leseman)	2000	Adhesion Studies of a Single Living Cell Using MEMS Sensors	Professor, University of New Mexico
Mark Meinhart	2004	Fatigue in MEMS due	Ford
Deepti Tewari	2005	Internal Friction of Resonant Micro Beams	PhD Student, MIT

#### Ph.D. Thesis Students

Student Name	Year Graduated	Thesis Title	Placement
Md. Amanul Haque	2002	Materials Behavior at Nano Scale Using MEMS Based Micro Instruments	Professor, Penn State University
E. Alaca (H. Sehitoglu, co-advisor)	2003	Fabrication of Directed Nanowire Networks Through Stress-Guided Self-Assembly	Professor, KOC University, Istanbul, Turkey
M. Sulfridge	2003	Optical Actuation of MEMS Devices	Micron
Sathyanarayanan Mani	2006	Transport in Nano Wires	LAM Research
Jong Han	2007	Dissipation Mechanisms in Nano Grained Materials	Dow Corning
Shengyuan Yang	2007	Mechanotransduction in Single Cells	Assistant Professor, Florida Institute of Technology
Jaganathan Rajagopal	2009	Mechanism of Internal Friction of Nano Grained Metals	Assistant Professor, Arizona State University
Wonmo Kang	2012	Mechanics of Microscale Materials	Post doc, Northwestern U.
Wylie Ahmed	2012	Role of Tension in Synaptic Development	Post doc, Curie Institute, Paris
Xin Tang	2013	Cancer Cell Adhesion	Post doc, Harvard University
Alireza Tofangchi	2014 (anticipated)	Mechanics of Memory and learning	
Sandeep Anand	2014 (anticipated)	Emerging behavior of cellular clusters: neuro muscular junction	
Muhammad Yakut Ali	2014 (anticipated)	Emerging behavior of cellular clusters: axonal guidance	
Samantha Knoll	2015 (anticipated)	Local dynamics in living cells	
Brian Williams	2015 (anticipated)	Force mediated cell growth	

### Post-doctoral Associates and Visiting Scientists

Name	Title	Country of Origin	Permanent Employer	Years
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Name	Title	Country of Origin	Permanent Employer	Years
Emerson de Sousa	Post Doc	Brazil		2009-12
Jagannathan Rajagopalan	Post Doc	India	Arizona State University	2009-11
Ibrahim Khan	Visiting Scholar	Pakistan	COMSATS	2009-10
Shabana Afsar	Visiting Scholar	Pakistan	COMSATS	2010
Ji Ma	Post Doc	China		2012-13

## Doctoral Committees

### Detailed Committee Information (in reverse chronological order) (University of Illinois)

Prep Date	Exam Type	Student Name	Department	Chair(s)	Dir. of Dissertation	Members
2015-01-13	Final	Khaldoon N Altahhan	PHD:Theor&Appl Mechanics -UIUC 10KS0242PHD	M Taher Saif	Michael Insana	Brendan Harley Iwona Jasiuk
2014-12-05	Preliminary	Muhammad Yakut Ali	PHD:Theor&Appl Mechanics -UIUC 10KS0242PHD	M Taher Saif	M Taher Saif	Iwona Jasiuk Alison Dunn Brendan Harley
2014-11-19	Preliminary	Sandeep Venkit Anand	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher Saif	M Taher Saif	Rashid Bashir Hyun Joon Kong SungWoo Nam
2014-10-16	Preliminary	Vikhram Vilasur Swaminathan	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher Saif	Rashid Bashir	Placid Ferreira Sascha Hilgenfeldt
2014-07-02	Preliminary	Khaldoon N Altahhan	PHD:Theor&Appl Mechanics -UIUC 10KS0242PHD	M Taher Saif	Michael Insana	Iwona Jasiuk Brendan Harley
2014-05-01	Preliminary	Alireza Tofangchi	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher Saif	M Taher Saif	Iwona Jasiuk Amy Wagoner Johnson Rhanor Gillette
2013-12-10	Preliminary	Piyas Bal Chowdhury	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Huseyin Sehitoglu	Huseyin Sehitoglu	M Taher Saif Elif Ertekin Arif Masud
2013-09-06	Final	Xin Tang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher Saif	M Taher Saif	Mark Kuhlenschmidt Sascha Hilgenfeldt Ning Wang John Katzenellenbogen
2013-09-06	Final	Xin Tang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher Saif	M Taher Saif Mark Kuhlenschmidt	Sascha Hilgenfeldt Ning Wang John Katzenellenbogen
2013-07-25	Final	Cheng Wang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Sascha Hilgenfeldt	Sascha Hilgenfeldt	David Saintillan William O'Brien M Taher Saif
2013-06-04	Final	Curtis Laurence Johnson	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	John Georgiadis	John Georgiadis	M Taher Saif Brad Sutton Zhi-Pei Liang
2013-05-30	Final	Michael James Poellmann	PHD: Bioengineering-UIUC 10KS0408PHD	Michael Insana	N/A	Amy Wagoner Johnson Brendan Harley M Taher Saif

2013-03-08	Final	Wylie Weera Ahmed	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher Saif	M Taher Saif	Randy Ewoldt Sascha Hilgenfeldt Rhanor Gillette
2012-11-27	Final	Vincent Chan	PHD: Bioengineering-UIUC 10KS0408PHD	Rashid Bashir Hyun Joon Kong	N/A	M Taher A Saif Lawrence B Schook
2012-08-24	Prelim	Wylie Weera Ahmed	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	Randy H Ewoldt Sascha Hilgenfeldt Rhanor Gillette
2012-06-19	Prelim	Alireza Tofangchi	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	K Jimmy Hsia Amy Jaye Wagoner Johnson Rhanor Gillette
2012-04-10	Final	Won Mo Kang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	Ilesanmi Adesida K Jimmy Hsia Min-Feng Yu
2012-03-30	Prelim	Curtis Laurence Johnson	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	John G Georgiadis	John G Georgiadis	Brad Sutton Zhi-Pei Liang M Taher A Saif
2012-03-29	Prelim	Xin Tang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	Ning Wang Sascha Hilgenfeldt John A Katzenellenbogen Davendra Ramkumar Mark S Kuhlenschmidt
2012-03-28	Prelim	James Peter Kemp Jr	PHD:Cell&Develpmntl Biol -UIUC 10KS4094PHD	Martha L Gillette	N/A	Michel Bellini Fei Wang M Taher A Saif
2012-03-02	Final	Han Na Cho	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Min-Feng Yu	Min-Feng Yu Alexander F Vakakis	Lawrence A Bergman M Taher A Saif
2012-01-06	Prelim	Cheng Wang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Sascha Hilgenfeldt	Sascha Hilgenfeldt	M Taher A Saif David Saintillan William D O'Brien
2011-10-26	Prelim	Vincent Chan	PHD: Bioengineering-UIUC 10KS0408PHD	Rashid Bashir	N/A	Hyun Joon Kong Lawrence B Schook M Taher A Saif
2011-07-25	Final	Wagner Shin Nishitani	PHD: Bioengineering-UIUC 10KS0408PHD	Yingxiao Wang	Yingxiao Wang	Michael Insana Hyun Joon Kong Min-Feng Yu Su-A Myong M Taher A Saif
2011-06-28	Prelim	Michael James Poellmann	PHD: Bioengineering-UIUC 10KS0408PHD	Amy Jaye Wagoner Johnson	N/A	Brendan A Harley M Taher A Saif Michael Insana
2011-06-24	Final	Huan Li	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	K Jimmy Hsia	K Jimmy Hsia	M Taher A Saif Sascha Hilgenfeldt Rashid Bashir
2011-03-14	Final	Zhuo Wang	PHD:Electr & Computer Eng-UIUC 10KS1200PHD	Gabriel Popescu	Gabriel Popescu	Stephen Allen Boppart Paul Scott Carney Brian T Cunningham M Taher A Saif

2011-03-09	Final	Tarun Malik	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Nicholas Xuanlai Fang	Nicholas Xuanlai Fang	M Taher A Saif Anthony M Jacobi Paul J A Kenis
2010-08-12	Final	Majid Minary Jolandan	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Min-Feng Yu	Min-Feng Yu	Ning Wang M Taher A Saif Yingxiao Wang
2010-06-25	Prelim	Han Na Cho	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Min-Feng Yu	Min-Feng Yu	Alexander F Vakakis M Taher A Saif Lawrence A Bergman Michael McFarland
2010-06-01	Prelim	Zhuo Wang	PHD:Electr & Computer Eng-UIUC 10KS1200PHD	Gabriel Popescu	Gabriel Popescu	Stephen Allen Boppart Brian T Cunningham M Taher A Saif
2010-04-23	Prelim	Huan Li	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	K Jimmy Hsia	K Jimmy Hsia	Sascha Hilgenfeldt Nicholas Xuanlai Fang M Taher A Saif Rashid Bashir
2010-03-05	Prelim	Won Mo Kang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	Ilesanmi Adesida K Jimmy Hsia Min-Feng Yu
2009-10-15	Prelim	Majid Minary Jolandan	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Min-Feng Yu	Min-Feng Yu	Ning Wang M Taher A Saif Yingxiao Wang
2009-09-16	Prelim	Tarun Malik	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Nicholas Xuanlai Fang	Nicholas Xuanlai Fang	Anthony M Jacobi M Taher A Saif Paul J A Kenis
2009-09-10	Prelim	Duc Minh Ngo	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	M Taher A Saif Glaucio Hermogenes Paulino Min-Feng Yu
2009-05-11	Final	Eric Ho-Yin Lee	PHD:Biophys&Computnl Bio -UIUC 10KS0319PHD	Klaus J Schulten	Klaus J Schulten	Emadeddin Tajkhorshid Chad Rienstra M Taher A Saif
2009-04-07	Prelim	Xing Liang	PHD:Electr & Computer Eng-UIUC 10KS1200PHD	Stephen Allen Boppart	Stephen Allen Boppart	James Gary Eden Michael Insana Gabriel Popescu M Taher A Saif
2009-03-19	Final	Duc Minh Ngo	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	M Taher A Saif Glaucio Hermogenes Paulino Min-Feng Yu
2009-02-16	Final	Jagannathan Rajagopalan	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	K Jimmy Hsia Min-Feng Yu Ioannis Chasiotis
2008-11-26	Final	Khalid Mikhiel Hattar	PHD:Materials Sci & Engr -UIUC 10KS0130PHD	Ian McLean Robertson	Ian McLean Robertson	Pascal Bellon M Taher A Saif Petros Sofronis Jian-Min Zuo
2007-11-12	Final	Zhaoyu Wang	PHD:Mechanical Enginerng -UIUC	Min-Feng Yu	Min-Feng Yu	Jian-Min Zuo Jian Ku Shang

2007-11-08	Final	Abhijit Suryavanshi	10KS0133PHD PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Min-Feng Yu	Min-Feng Yu	M. Taher A. Saif Chang Liu Placid Mathew Ferreira M. Taher A. Saif
2007-10-25	Prelim	Eric Ho-Yin Lee	PHD:Biophys&Computnl Bio -UIUC 10KS0319PHD	Klaus J. Schulten	Klaus J. Schulten	Chad Rienstra Emadeddin Tajkhorshid M. Taher A. Saif
2007-08-01	Final	Jong Hee Han	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M. Taher A. Saif	M. Taher A. Saif	Ilesanmi Adesida Huseyin Sehitoglu Min-Feng Yu Michael D. Uchic
2007-07-03	Final	Shengyuan Yang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M. Taher A. Saif	M. Taher A. Saif	Huseyin Sehitoglu John G. Georgiadis Yingxiao Wang
2007-05-08	Prelim	Jagannathan Rajagopalan	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M. Taher A. Saif	M. Taher A. Saif	Yonggang Huang Min-Feng Yu Ioannis Chasiotis
2007-01-29	Final	Jizhou Song	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	M. Taher A. Saif Min-Feng Yu Arif Masud
2007-01-24	Prelim	Abhijit Suryavanshi	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Min-Feng Yu	Min-Feng Yu	M. Taher A. Saif Placid Mathew Ferreira Chang Liu
2007-01-05	Prelim	Jizhou Song	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	M. Taher A. Saif Min-Feng Yu Arif Masud
2006-12-21	Prelim	Zhaoyu Wang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Min-Feng Yu	Min-Feng Yu	M Taher A. Saif Jian-Min Zuo Jian Ku Shang
2006-11-09	Final	Sathyanarayanan Mani	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M. Taher A. Saif	M. Taher A. Saif	Huseyin Sehitoglu Ilesanmi Adesida Min-Feng Yu
2006-08-30	Prelim	Jong Hee Han	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A. Saif	M Taher A. Saif	Ilesanmi Adesida Min-Feng Yu Michael Uchic
2006-06-09	Final	Seong Kee Yoon	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	Paul J A Kenis	Placid Mathew Ferreira John G Georgiadis
2006-02-22	Final	Ki Myung Lee	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Andreas A Polycarpou	Andreas A Polycarpou	Huseyin Sehitoglu M Taher A Saif Thomas F Conry
2005-08-24	Prelim	Sathyanarayanan Mani	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A. Saif	M Taher A. Saif	Huseyin Sehitoglu Ilesanmi Adesida Min-Feng Yu
2005-07-20	Final	Zayd Chad Leseman	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Thomas J Mackin	Thomas J Mackin	M Taher A Saif Min-Feng Yu Robert S Averback
2005-05-17	Prelim	Zayd Chad Leseman	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Thomas J Mackin	Thomas J Mackin	M Taher A Saif Robert S Averback Min-Feng Yu
2005-04-08	Prelim	Khalid Mikhiel Hattar	PHD:Materials Sci & Engr -UIUC 10KS0130PHD	Ian McLean Robertson	Ian McLean Robertson	Pascal Bellon Jian-Min Zuo Petros Sofronis M Taher A Saif

2005-03-02	Prelim	Shengyuan Yang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	John G Georgiadis Russell Douglas Jamison Huseyin Sehitoglu
2005-02-01	Prelim	Seong Kee Yoon	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	Paul J A Kenis	Placid Mathew Ferreira John G Georgiadis
2004-12-10	Prelim	Ki Myung Lee	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Andreas A Polycarpou	N/A	Thomas F Conry M Taher A Saif Huseyin Sehitoglu
2004-11-05	Final	David Andrew Bullen	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Chang Liu	Chang Liu	M Taher A Saif Narayana R Aluru Anthony M Jacobi
2004-09-08	Final	Shaoxing Qu	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	Thomas J Mackin Glaucio Hermogenes Paulino M Taher A Saif
2004-04-07	Final	Rahul Padmakar Panat	PHD:Theor&Appl Mechanics -UIUC 10KS0242PHD	K Jimmy Hsia	K Jimmy Hsia	Gustavo Gioia Petros Sofronis M Taher A Saif
2003-09-19	Final	Burhanettin Alaca	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Huseyin Sehitoglu	Huseyin Sehitoglu	M Taher A Saif Phillip H Geil David A Payne
2003-09-19	Prelim	David Andrew Bullen	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Chang Liu	Chang Liu	M Taher A Saif Narayana R Aluru Anthony M Jacobi
2003-08-12	Final	Eric A Olson	PHD:Materials Sci & Engr -UIUC 10KS0130PHD	Leslie H Allen	Leslie H Allen	Angus Alexander Rockett David G Cahill M Taher A Saif
2003-04-29	Final	Bin Chen	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	Armand Joseph Beaudoin Jr M Taher A Saif Glaucio Hermogenes Paulino
2003-03-11	Prelim	Shaoxing Qu	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	Armand Joseph Beaudoin Jr M Taher A Saif Glaucio Hermogenes Paulino
2002-10-29	Final	Md Amanul Haque	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	Huseyin Sehitoglu Yonggang Huang K Jimmy Hsia Amy Jaye Wagoner Johnson
2002-10-29	Prelim	Eric A Olson	PHD:Materials Sci & Engr -UIUC 10KS0130PHD	Leslie H Allen	Leslie H Allen	David G Cahill Angus Alexander Rockett M Taher A Saif
2002-09-05	Prelim	Laura Jean Meyer	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Leslie M Phinney	N/A	Anthony M Jacobi M Taher A Saif Nancy R Sottos Amy Jaye Wagoner Johnson Samhita Dasgupta

2002-08-31	Final	Marc Sulfridge	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	Norman R Miller Leslie M Phinney Ilesanmi Adesida Amy Jaye Wagoner Johnson M Taher A Saif Harley T Johnson K Jimmy Hsia Glaucio Hermogenes Paulino Jian-Min Zuo M Taher A Saif Harley T Johnson K Jimmy Hsia Jian-Min Zuo Amy Jaye Wagoner Johnson
2002-07-19	Final	Peng Zhang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	M Taher A Saif Harley T Johnson K Jimmy Hsia Jian-Min Zuo Amy Jaye Wagoner Johnson
2002-07-05	Final	Peng Zhang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	Norman R Miller Leslie M Phinney Ilesanmi Adesida
2002-05-09	Prelim	Marc Sulfridge	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	M Taher A Saif Phillip H Geil David A Payne
2002-01-15	Prelim	Burhanettin Alaca	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Huseyin Sehitoglu	Huseyin Sehitoglu	M Taher A Saif Glaucio Hermogenes Paulino Armand Joseph Beaudoin Jr
2001-10-29	Prelim	Bin Chen	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	M Taher A Saif Thomas J Mackin Glaucio Hermogenes Paulino
2001-10-11	Prelim	Peng Zhang	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	Huseyin Sehitoglu Yonggang Huang K Jimmy Hsia
2001-10-02	Prelim	Md Amanul Haque	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	M Taher A Saif	M Taher A Saif	K Jimmy Hsia Armand Joseph Beaudoin Jr M Taher A Saif
2001-06-22	Final	Zhenyu Xue	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	K Jimmy Hsia Armand Joseph Beaudoin Jr M Taher A Saif
2001-01-19	Prelim	Zhenyu Xue	PHD:Mechanical Enginerng -UIUC 10KS0133PHD	Yonggang Huang	Yonggang Huang	M Taher A Saif

Outside UIUC  
Doctoral Candidate

Michael Coulombier (Université catholique de Louvain, Belgium)

**Final Exam  
Date**

Oct/2011



## Grants, contracts and gifts

### For Research

Years (Inclusive)	Brief Title or Description	Source of Funds	Total Funding	Funds Allocated to Saif	#PI's and lead PI if not Saif
97 to 00	Integrated Mesoscopic Cooler Circuits / M. L. Philpott, M. A. Shannon (M. T. A. Saif is a faculty associate.)	DARPA	\$3,991,118	\$213,101	2/M. L. Philpott
98 to 99	Noninvasive Analysis and Manipulation of Single Cells Using MEMS Actuators / Co-PI: M. Wheeler (Animal Sci.)	NSF	\$65,000	\$30,000	3/L. Allen (M&SE)
98 to 03	NSF Faculty Early Development (CAREER) Award: Interface and Reliability Studies of MEMS and Microelectronics Using New MEMS Instruments	NSF	\$230,000	\$230,000	1
98 to 99	Fatigue Mechanisms in Thermal Actuators	Kodak	\$20,000	\$20,000	1
98 to 99	NSF Faculty Early Development (CAREER) Award: Interface and Reliability Studies of MEMS and Microelectronics Using New MEMS Instruments	NSF (Matching Fund)	\$20,000	\$20,000	1
99 to 00	NSF Faculty Early Development (CAREER) Award: Interface and Reliability Studies of MEMS and Microelectronics Using New MEMS Instruments	NSF (Matching Fund)	\$20,000	\$20,000	1
99 to 00	Study of Single Living Cells and Materials at Micron to Submicron Scale Using MEMS Instruments	Campus Research Board	\$25,000	\$25,000	1
00 to 03	Bi-Stable MEMS for Non-volatile Information Storage and Opto-mechanical Computing in Harsh Environments / Co-PI: N. R. Miller	NSF	\$336,000	\$168,000	2
01 to 04	Biomems Based Micro Instrumentation for In-Situ Quantitative Investigations of Adhesion, Structural Mechanics	NSF	\$239,907	\$239,907	1
02 to 03	Self Assembled Nano Wires / Co PI: H. Sehitoglu	NSF SGER	\$80,000	\$40,000	2
02 to 05	In-Situ TEM and SEM Studies of	NSF	\$405,000	\$202,500	2 /I. M.

Years (Inclusive)	Brief Title or Description	Source of Funds	Total Funding	Funds Allocated to Saif	#PI's and lead PI if not Saif
	Fundamental Deformation and Failure Processes of Nano-Grained FCC Metals Using MEMS Stages / I. M. Robertson (MSE)				Robertson
03	Self Assembled Nano-Wires	M&IE Gauthier Program for Exploratory Studies	\$25,000	\$25,000	1
03 to 06	Effect of Grain Boundary and Size on Electro-Thermo-Mechanical Properties and internal Friction of Nano Grained Thin Metal Films	NSF	\$356,000	\$356,000	1
05 to 06	Novel Test Methodology for High Temperature Micro-and Nano-Tensile Testing	AFOSR	\$69,307	\$69,307	1
05 to 06	Soybean Disease Biotechnology Center III – Development of Nanoelectromechanical Systems (NEMS) for the Study of Gaeumannomyces gramininis Infection and Pathogenesis	Agr Engr/UIUC	\$10,625	\$10,625	2 / Wilkinson
05 to 06	Soybean Disease Biotechnology Center III	OVCR/Agr Engr	\$30,000	\$20,000	2 / Wilkinson
05 to 06	Effect of Grain Boundary and Size on Electro-Thermo-Mechanical Properties and Internal Friction of Nano Grained Thin Metal Films Using MEMS Devices	NSF	\$29,000	\$29,000	1
05 to 08	Thermo Mechanical Studies of Cells with Nano Probes on A Si Substrate	NSF	\$225,000	\$225,000	1
07 to 08	Thermo Mechanical Studies of Cells with Nano Probes on a Si	NSF REU Supplement	\$12,000	\$12,000	1
07 to 09	Thermo Mechanical Studies of Cells with Nano Probes on a Si Substrate	NSF IREE	\$26,750	\$26,750	1
07 to 10	A Nanomechanical Approach to Understanding Metastasis through Cell Adhesion Measurement	NSF	\$300,000	\$197,200	2
07 to 10	Interplay between In-homogeneity and Size Scale of Microstructure - A New Paradigm in the Mechanistic Exploration of Nano Grained Metal Deformation	NSF CMMI	\$335,000	\$335,000	1

<b>Years (Inclusive)</b>	<b>Brief Title or Description</b>	<b>Source of Funds</b>	<b>Total Funding</b>	<b>Funds Allocated to Saif</b>	<b>#PI's and lead PI if not Saif</b>
08	Towards a Neuro-mechanical Synapse	UIUC Campus Research Board	\$11,586	\$11,586	1
08 to 11	Towards a Neuro-mechanical Memory Element	NSF	\$330,000	\$330,000	2
08 to 11	Understanding Force-induced Learning and Memory	NSF CMMI	\$320,000	\$320,000	1
08 to 12	Does Mechanical Force Initiate, Enhance and Repair Neural Connectivity	NIH RO1	\$800,000	\$200,000	4
09 to 12	Mechanical Control of Cell Growth and Differentiation	NIH R01 supplement	\$159,333	\$159,333	1
10 to 13	Regulation of Cancer Cell Metastasis by Mechanical Force	NSF	\$360,000	\$230,000	2
10 to 15	Emergent Behaviors of Integrated Cellular Systems	NSF STC	\$25,000,000	\$8,000,000	30/Roger Kamm of MIT
10 to 15	NSF IGERT: Training the Next Generation of Researchers in Cellular & Molecular Mechanics and Bionanotechnology	NSF IGERT	\$3,200,000	\$400,000	5/Rashid Bashir
08 to 12	Micro and Nano-mediated 3D Cardiac Tissue Engineering	ARMY	\$2,546,000	1 Post Doc Salary \$40k/year	5/Rashid Bashir
10 to 15	NIH Midwest Cancer Nanotechnology Training Center (M-CNTC) Exploring Size Dependent Brittle-to-	NIH Training Grant	\$216,0000	\$187,825	7/Rashid Bashir
11 to 14	Ductile Transition in Single Crystal Silicon Using High Temperature MEMS	NSF ECCS	\$360,000	\$360,000	1
12-13	Metastasis on a dish	IN3, UIUC	\$100,000	\$100,000	2
12-13	Understanding force induced memory and learning, NSF CMMI 08-00870	NSF REU	\$12,000	\$12,000	1
13-16	Exploring the impact of mechanical force on synaptic functions using novel approaches	NSF	\$390,000	\$360,000	2

For Instruction

<b>Years (Inclusive)</b>	<b>Brief Title or Description</b>	<b>Source of Funds</b>	<b>Total Funding</b>	<b>Funds Allocated to this prof</b>	<b>#PI's and lead PI if not this prof</b>
98 to 02	MEMS Video Instructional Unit	NSF (REU)	\$30,000	\$30,000	1
99 to 01	MEMS Instructional Laboratory / M. A. Shannon (PI), M. L. Philpott (Alternate PI), I. Adesida, L. H. Allen, N. R. Aluru, D. J. Beebe, J. J. Coleman, C. Liu, and L. M. Phinney	Intel and College of Engineering, UIUC	\$150,000	0	10/M. A. Shannon
07 to 08	A Hands-on Summer School on Cell Mechanics for Engineers and Biologists	NSF	\$30,685	\$30,685	1
08 to 13	Gem4 Summer School on Cellular and Molecular Mechanics	NSF	577,271	0	2/Hsia

**Service**

To the Mechanical Science and Engineering Department  
Engineering Open House Committee, 1997-1998  
Seminar Committee, 1997-03; Chair, 1999-2003, 2009-11  
MMS Laboratory Transition Committee, 2001-date  
MMS Laboratory Oversight Committee, 2002-date  
Advisory Committee, 2003-date; Chair, 2004-2005, 2007-2008  
Graduate Policy Committee, 2003-2005  
Graduate Admissions Committee, 2003-2005  
Graduate Admissions Committee, 2007-date  
Graduate Programs Committee, 2007-2008  
Ad Hoc Committee on the Future of Mechanics, 2007-2009  
Faculty Recruiting Committee, 2007-2010, 2011-  
Ad Hoc Committee on Nanocourse Development, 2008  
Ad Hoc Committee on Undergraduate Course Design, 2008  
MechSe Faculty Advisory committee, 2009-date  
MechSe Named Appointment Committee, 2010-2012.  
Promotions and Tenure Committee, 2011-present  
Faculty search Committee, 2014-present  
MechSE Head Search Committee, 2014-15

To the College of Engineering, UIUC

Micro Nanotechnology Laboratory Building Committee, 2002-2004  
Nanotechnology Seminar Committee, 2002-date  
Innovation Leadership Advisory Board (ILAB)  
Search Committee for MNTL Director, 2007  
Director, Center for Cellular Mechanics  
MechSE Head Search Committee, 2008-2009  
Committee on Endowed Appointments, College of Engineering (2011-date)  
Faculty Recruiting Committee for the Grainger Bioengineering Breakthrough Initiative, 2013-  
MechSE Head Search Committee, 2014-15

To the University

Steering Committee Member and UIUC Representative, GEM 4 (Global Enterprise for Micro Mechanics and Molecular Medicine)  
Executive Committee Member, NSF Science and Technology Center (EBICS), 2010-date  
Faculty advisory committee to the Vice Chancellor for Research, 2011-date  
Dean Search Committee, College of Veterinary Medicine, 2012

**To Federal Agencies**

Review panelist, NSF PFET Electrical and Communications Systems (ECS), Nanoscale Science and Engineering Initiative, Washington, D.C., Feb. 2001  
Served as a Member of the Committee of Visitors (COV), ECS, NSF, Sept. 9-10, 2002  
Review panelist for NSF's CAREER Panel, Electrical and Communications Systems (ECS), 1997, Nov. 1998, Nov. 1999, Nov. 2000, Nov. 2001, Oct. 20-21, 2003, Nov. 8-9, 2004  
NSF ECS (Electrical and Communications Systems) Review Panelist, 1997, March 1998, June 1998, Feb. 2001, Jan. 2002  
NSF MRI Panel, May 2003  
NSF NER Panel, March 2004  
Invited Panelist, Discovery Platforms workshop, Sandia National Laboratory, Albuquerque, New Mexico, June 29-30, 2005  
Review Panelist, Microscopic Imaging Study Section, National Institute of Health, July 7-8, 2005  
Invited Panelist, Integrating and Leveraging the Physical Sciences to Open a New Frontier in Oncology, National Cancer Initiative, Arlington, VA, February 26-28, 2008  
NSF CAREER review panel, Nov 2009  
NSF panelist, 2009-  
NSF panelist, ECCS and CMMI divisions, 2012, 2013, 2014, 2015

**Reviewer service**

**Book review:**

Introduction of Design, Manufacture and Packaging of Microsystems, Mc-Graw Hill Higher Education, June 1999

Fundamentals of Machine Elements, Hamrock et al, Second Edition, Mc-Graw Hill Higher Education, 2003

**Journal Reviewer:**

Proceedings of the National Academy of Sciences, USA  
Nature Materials  
Nature Communications  
Biophysical Journal  
International Journal of Solids and Structures  
Journal of Micro-Electro-Mechanical Systems  
Journal of Engineering Materials  
Journal of Materials Research  
Review of Scientific Instruments  
Journal of Thin Solid Films  
Journal of Fluid Mechanics  
Journal of Applied Mechanics  
Journal of the Mechanics and Physics of Solids