

Curriculum Vitae: Pradeep Sharma

EDUCATION:

1990–1994

Bachelor of Science in Mechanical Engineering
M.S. University of Baroda, India

2000

M.S. in Mechanical Engineering, University of Maryland at College Park.

1995–2000

Ph.D. in Mechanical Engineering, August 2000
University of Maryland, College Park

PROFESSIONAL ACCREDITATION:

Chartered Physicist (Ch.Phys.)---Institute of Physics, London, UK, 2003
Professional Engineer (P.E.)---registered in the State of Texas. Since 2016.

PROFESSIONAL EXPERIENCES:

2012 - present, M.D. Anderson Professor and Department Chair, Department of Mechanical Engineering, University of Houston, TX

2008-2011, Bill Cook Endowed Associate Professor, Department of Mechanical Engineering, University of Houston, TX

2005-2008, Bill Cook Endowed Assistant Professor, Department of Mechanical Engineering, University of Houston, TX

Jan 2004-2008, Assistant Professor, Department of Mechanical Engineering, University of Houston, TX

September 2000– October 2003, Research Scientist, General Electric Corp. R & D, Schenectady, NY

AWARDS AND HONORS:

- (1) ONR Young Investigator Award, 2005
- (2) Bill D. Cook Faculty Endowed Chair, 2005
- (3) Texas Space Grants Consortium New Investigators Program Award, 2005
- (4) University of Houston, Excellence in Research and Scholarship Award, Assistant Professor Level, 2006
- (5) University of Houston, Cullen College of Engineering Junior Faculty Award, 2007
- (6) Thomas J.R. Hughes ASME Young Investigator Award¹, 2009; **Citation:** “*For outstanding contributions to understanding size-effects of coupled mechanical and physical phenomena in materials*”.
- (7) Faculty of the Year award by local ASME student chapter—2010
- (8) University of Houston, Excellence in Research and Scholarship Award, Associate Professor Level, 2011
- (9) Distinguished M.D Anderson Professorship, 2012
- (10) Fulbright Fellowship, 2013

¹Awarded annually by the ASME to a mechanician under 40.

- (11) ASME Fellow, 2013
- (12) University of Houston Teaching Award, 2013
- (13) ASME Melville Medal, 2015
- (14) James R. Rice Medal from the Society of Engineering Science, 2019
- (15) Charles Russ Richards Medal (joint award of Pi Tau Sigma and ASME), 2019
- (16) The Guggenheim Fellowship, for exceptional scholarship or creativity, 2020
- (17) Elected, U.S. National Academy of Engineering, 2022

SOCIETY LEADERSHIP

- (1) Board member, Society of Engineering Science, 2012-2016
- (2) President, Society of Engineering Science, 2015
- (3) Track chair of ASME Annual IMECE Conference, 2015
- (4) Member of the Executive Committee, Applied Mechanics Division, ASME, 2013-2018
- (5) Chair, Executive Committee, Applied Mechanics Division, ASME, 2018
- (6) Raised funds for and established the Eshelby Mechanics Award for Young Faculty (2012).:
https://en.wikipedia.org/wiki/Eshelby_Mechanics_Award_for_Young_Faculty

JOURNAL EDITORSHIP

- (1) Founding Editor: *iMechanica Journal Club*, 2007
- (2) Chief-editor, *ASME Journal of Applied Mechanics* (2022-present)
- (3) Associate Editor: *Journal of the Mechanics and Physics of Solids*
- (4) Associate Editor: *Mathematics and Mechanics of Solids*
- (5) (past) Associate Editor: *Transactions of the ASME---Journal of Engineering Materials and Technology*
- (6) (past) Associate Editor: *Journal of Theoretical and Computational Nanoscience*
- (7) (past) Associate Editor: *Transactions of the ASME --Journal of Applied Mechanics*
- (8) Editorial Board Member: *International Journal of Applied Mechanics*

GRADUATE STUDENTS/POST-DOCTORAL FELLOWS

- 9 women Ph.D. students advised.
- 8 students/post-docs in academia (2 women).
- Total advisees (MS, Ph.D., post-docs): 30.

PATENTS

- (1) Monolithic light emitting devices based on wide bandgap semiconductor nanostructures and methods for making same; US Patent Issued on October 17, 2006
- (2) Fabrication of self-assembling nanostructures; US Patent issued on March 27, 2008

BOOK CHAPTERS

(Invited) R. Maranganti, and **P. Sharma**, "A Review of Strain Field Calculations in Embedded Quantum Dots and Wires", Chapter 118, *Handbook of Theoretical and Computational Nanotechnology*, Michael Reith and Wolfram Schommers (eds.), 2006

(Invited) Q. Deng, L. Liu, and **P. Sharma**, "A Continuum Theory of Flexoelectricity", Chapter 3, *Flexoelectricity in Solids: From Theory to Applications*, A.K. Tagantsev and P.V. Yudin (eds.), 2017

(Invited) K. Mozaffari, S. Yang, **P. Sharma**, "Surface Energy and Nanoscale Mechanics", *Handbook of Materials Modeling*, Andreoni W., Yip S. (eds.), 1-26, 2019

REFEREED JOURNAL PUBLICATIONS: Reprints or preprints of most listed papers are available on the following website: <http://sharma.me.uh.edu>

1. M. Torbati, K. Mozaffari, L. Liu, **P. Sharma**, "Coupling of mechanical deformation and electromagnetic fields in biological cells", *Reviews of Modern Physics*, **94(2)**, 025003(1-61), 2022
2. K. Mozaffari, L. Liu, **P. Sharma**, "Theory of soft solid electrolytes: Overall properties of composite electrolytes, effect of deformation and microstructural design for enhanced ionic conductivity", *Journal of the Mechanics and Physics of Solids*, **158**, 104621, 2022
3. I. Arias, G. Catalan and **P. Sharma**, "The emancipation of flexoelectricity", *Journal of Applied Physics*, **131(2)**, 020401, 2022
4. Y. Liu, L. Chen, B. Wang, S. Yang, **P. Sharma**, "Tuning Crumpled Sheets for An Enhanced Flexoelectric Response", *Journal of Applied Mechanics*, **89(1)**, 011011(1-8), 2022
5. N. Khodabandehloo, K. Mozaffari, L. Liu, **P. Sharma**, "Micro-Structural Design of Soft Solid Composite Electrolytes with Enhanced Ionic Conductivity", *Journal of Applied Mechanics*, **89(5)**, 051004(1-12), 2022
6. M. Grasinger, K. Mozaffari, **P. Sharma**, "Flexoelectricity in soft elastomers and the molecular mechanisms underpinning the design and emergence of giant flexoelectricity", *Proceedings of the National Academy of Sciences*, **118 (21)**, 2021
7. F. Darbaniyan, K. Mozaffari, L. Liu, **P. Sharma**, "Soft Matter Mechanics and the Mechanisms Underpinning the Infrared Vision of Snakes", *Matter*, **4**, 241-252, 2021 (Highlighted by Physics World)(Highlighted by Scientific American)
8. L. Chen, X. Yang, B. Wang, S. Yang, K. Dayal, **P. Sharma**, "The interplay between symmetry-breaking and symmetry-preserving bifurcations in soft dielectric films and the emergence of giant electro-actuation", *Extreme Mechanics Letters*, 101151, **43**, 2021
9. K. Mozaffari, F. Ahmadpoor, **P. Sharma**, "Flexoelectricity and the entropic force between fluctuating fluid membranes", *Mathematics and Mechanics of Solids*, 2021
10. S. Yang, **P. Sharma**, "A tutorial on the stability and bifurcation analysis of the electromechanical behaviour of soft materials", arXiv preprint arXiv:2011.08665, 2020
11. K. Tan, X. Wen, Q. Deng, S. Shen, L. Liu, **P. Sharma**, "Soft rubber as a magnetoelectric material—Generating electricity from the remote action of a magnetic field", *Materials Today*, 2020
12. A. Apte, K. Mozaffari, L.S. Samghabadi, J.A. Hachtel, L. Chang, S. Susarla, J.C. Idrobo, D.C. Moore, N.R. Glavin, D. Litvinov, **P. Sharma**, A.B. Puthirath, P.M. Ajayan, "2D Electrets of Ultrathin MoO₂ with Apparent Piezoelectricity", *Advanced Materials*, 2000006(1-8), 2020

13. C. Liu, X. Yan, **P. Sharma**, Y. Fan, “Unraveling the non-monotonic ageing of metallic glasses in the metastability-temperature space”, *Computational Materials Science*, **172**, 109347, 2020
14. J. Yvonnet, X. Chen, **P. Sharma**, “Apparent Flexoelectricity Due to Heterogeneous Piezoelectricity”, *Journal of Applied Mechanics*, **87**, 111003(1-10), 2020
15. Z. Li, Z. Liu, T. Y. Ng, **P. Sharma**, “The effect of water content on the elastic modulus and fracture energy of hydrogel”, *Extreme Mechanics Letters*, **35**, 100617, 2020
16. F. Darbaniyan, X. Yan, **P. Sharma**, “An atomistic perspective on the effect of strain rate and lithium fraction on the mechanical behavior of silicon electrodes”, *Journal of Applied Mechanics*, **87**, 031011(1-7), 2020
17. B. Wang, S. Yang, **P. Sharma**, “Flexoelectricity as a universal mechanism for energy harvesting from crumpling of thin sheets”, *Physical Review B*, **100**, 035438(1-11), 2019
18. Q. Deng, F. Ahmadpoor, W. E. Brownell, **P. Sharma**, “The collusion of flexoelectricity and Hopf bifurcation in the hearing mechanism”, *Journal of the Mechanics and Physics of Solids*, **130**, 245-261, 2019
19. S. Krichen, L. Liu, **P. Sharma**, “Liquid inclusions in soft materials: capillary effect, mechanical stiffening and enhanced electromechanical response”, *Journal of the Mechanics and Physics of Solids*, **127**, 332-357, 2019
20. F. Darbaniyan, K. Dayal, L. Liu, **P. Sharma**, “Designing soft pyroelectric and electrocaloric materials using electrets”, *Soft Matter*, **15**, 262 – 277, 2019
21. A.H. Rahmati, S. Yang, S. Bauer, **P. Sharma**, “Nonlinear bending deformation of soft electrets and prospects for engineering flexoelectricity and transverse (d31) piezoelectricity”, *Soft Matter*, **15**, 127 – 148, 2019
22. R. Zhao, Y. Kim, S. A. Chester, **P. Sharma**, X. Zhao, “Mechanics of Hard-Magnetic Soft Materials”, *Journal of the Mechanics and Physics of Solids*, **124**, 244-263, 2019
23. L. Liu, **P. Sharma**. “Emergent electromechanical coupling of electrets and some exact relations—the effective properties of soft materials with embedded external charges and dipoles.”, *Journal of the Mechanics and Physics of Solids*, **112**, 1-24, 2018
24. P.S. Owuor, T. Tsafack, H. Agrawal, H.Y. Hwang, M. Zelisko, T. Li, S. Radhakrishnan, J.H. Park, Y. Yang, A.S. Stender, S. Ozden, J. Joyner, R. Vajtai, B.A. Kaiparettu, B. Wei, J. Lou, **P. Sharma**, C.S. Tiwary, P.M. Ajayan, “Poly-albumen: Bio-derived structural polymer from polymerized egg white”, *Materials Today Chemistry*, **9**, 73 – 79, 2018
25. Z. Alameh, S. Yang, Q. Deng, **P. Sharma**. “Emergent magnetoelectricity in soft materials, instability, and wireless energy harvesting”, *Soft Matter*, **14**, 5856 – 5868, 2018
26. X. Yan, A. Gouisse, P. Guduru, **P. Sharma**. “Elucidating the atomistic mechanisms underpinning plasticity in Li-Si nano-structures”, *Physical Review Materials*, 055401(1-9), 2017
27. M. Zelisko, F. Ahmadpoor, H. Gao, P. Sharma. “Determining the Gaussian modulus and edge properties of 2D materials from graphene to lipid bilayers”, *Physical Review Letters*, **119**, 068002(1-6), 2017
28. **P. Sharma**. “Book Review; Extending the Theory of Composites to Other Areas of Science”, *Journal of Applied Mechanics*, **84**, 2017
29. S. Krichen, L. Liu, P. Sharma. “Biological cell as a soft magnetoelectric material: Elucidating the physical mechanisms underpinning the detection of magnetic fields by animals”, *Physical Review E*, 042404(1-11), 2017
30. S. Yang, X. Zhao, **P. Sharma**. “Avoiding the pull-in instability of a dielectric elastomer film and the potential for increased actuation and energy harvesting”, *Soft Matter*, **13**, 4552 – 4558, 2017
31. F. Ahmadpoor, P. Wang, R. Huang, **P. Sharma**. “Thermal fluctuations and effective bending stiffness of elastic thin sheets and graphene: A nonlinear analysis”, *Journal of the Mechanics and Physics of Solids*, **107**, 294–319, 2017

32. S. Yang, X. Zhao, P. Sharma, “Revisiting the instability and bifurcation behavior of soft dielectrics”, *Journal of Applied Mechanics*, **84**, 2017
33. F. Ahmadpoor, **P. Sharma**, “A perspective on the statistical mechanics of 2D materials”, *Extreme Mechanics Letters*, 38-43, **84**, 2017
34. X. Yan*, **P. Sharma**, “Time Scaling in Atomistics and the Rate-dependent Mechanical Behavior of Nanostructures”, *Nano Letters*, **16**, 3487–3492, 2016
35. S. Krichen*, **P. Sharma**, “Flexoelectricity: a Perspective on an Unusual Electromechanical Coupling”, *Journal of Applied Mechanics*, **83**, 030801(1-5), 2016
36. F. Ahmadpoor*, **P. Sharma**, “Thermal Fluctuations of Vesicles and Nonlinear Curvature Elasticity-implications for Size-dependent Renormalized Bending Rigidity and Vesicle Size Distribution”, *Soft Matter*, **12**, 2523-2536, 2016
37. F. Liu, L. You, K. L. Seyler, X. Li, P. Yu, J. Lin, X. Wang, J. Zhou, H. Wang, H. He, S. T. Pantelides, W. Zhou, **P. Sharma**, X. Xu, P. M. Ajayan, J. Wang, Z. Liu, “Room-temperature ferroelectricity in CuInP₂S₆ ultrathin flakes”, *Nature Communications*, **7**, 12357(1-6), 2016
38. S. Yang, **P. Sharma**, “Eshelby’s tensor for embedded inclusions and the Elasto-Capillary phenomenon”, *Journal of Micromechanics and Molecular Physics*, **1**, 2016
39. X. Yan, P. Cao, W. Tao, **P. Sharma**, H. S. Park, “Atomistic modeling at experimental strain rates and timescales”, *Journal of Physics D: Applied Physics*, **49**, 493002., 2016
40. H. Agrawal, L. Liu, **P. Sharma**, “Revisiting the curvature-mediated interactions between proteins in biological membranes”, *Soft Matter*, **12.43**, 8907-8918, 2016
41. X. Li, L. P. Liu, **P. Sharma**, “A New Type of Maxwell Stress in Soft Materials Due to Quantum Mechanical-elasticity Coupling”, *Journal of the Mechanics of Physics of Solids*, **87**, 115-129, 2016
42. H. Agrawal*, M. Zelisko*, L. Liu, **P. Sharma**, “Rigid Proteins and Softening of Biological Membranes—with Application to HIV-Induced Cell Membrane Softening”, *Scientific Reports*, **6**, 25412(1-12), 2016
43. F. Ahmadpoor*, **P. Sharma**, “Flexoelectricity in Two-dimensional Crystalline and Biological Membranes”, *Nanoscale*, **7**, 16555-16570, 2015
44. X. Li, L. P. Liu, **P. Sharma**, “Geometrically Nonlinear Deformation and the Emergent Behavior of Polarons in Soft Matter”, *Soft Matter*, **11**, 8042-8047, 2015
45. M. Zelisko, J. Li, **P. Sharma**, “What is the mechanism behind biological ferroelectricity?”, *Extreme Mechanics Letters*, **4**, 162-174, 2015
46. A. Gouisseem, R. Sarangi, Q. Deng, **P. Sharma**, “Bridging time-scales: Grain boundary sliding constitutive law from atomistics”, *Computational Materials Science*, **104**, 200-204, 2015
47. X. Yan, A. Gouisseem, **P. Sharma**, “Atomistic insights into Li-ion diffusion in amorphous silicon”, *Mechanics of Materials*, **91**, 306-312, 2015 (Invited Paper for Special Issue on Mechanics of Energy Conversion and Storage)
48. F. Ahmadpoor, L. P. Liu, **P. Sharma**, “Thermal fluctuations and the minimum electrical field that can be detected by a biological membrane”, *Journal of the Mechanics of Physics of Solids*, **78**, 110-122, 2015
49. Y. Hanlumuayang, X. Li, **P. Sharma**, “Mechanical strain can switch the sign of quantum capacitance from positive to negative”, *Physical Chemistry Chemical Physics*, **16(42)**, 22962-22967, 2014
50. Z. Alameh, Q. Deng, L. P. Liu, **P. Sharma**, “Using electrets to design concurrent magnetoelectricity and piezoelectricity in soft materials”, *Journal of Materials Research*, **30**, 93-100, 2015
51. Y. Liu, H. Cai, M. Zelisko, Y. Wang, J. Sun, F. Yan, F. Ma, P. Wang, Q. N. Chen, H. Zheng, X. Meng, **P. Sharma**, Y. Zhang, J. Li, “Ferroelectric switching of elastin”, *Proceedings of the National Academy of Sciences*, **111 (27)**, E2780-E2786, 2014 (Highlighted by Nature Physics)

52. M. Zelisko, Y. Hanlumuayang, S. Yang, Y. Liu, C. Lei, J. Li, P. M. Ajayan, **P. Sharma**, "Anomalous piezoelectricity in two-dimensional graphene nitride nanosheets", *Nature Communications*, **5:4284**, 2014
53. Q. Deng, L. P. Liu, **P. Sharma**, "Electrets in soft materials: Nonlinearity, size effects, and giant electromechanical coupling", *Physical Review E*, **90**, 012603, 2014
54. Q. Deng, L.P. Liu, **P. Sharma**, "Flexoelectricity in soft materials and biological membranes", Invited Paper for Sixtieth anniversary issue in honor of Professor Rodney Hill, *Journal of the Mechanics of Physics of Solids*, **62**, 209-227, 2014
55. G. Shi, Y. Hanlumuayang, Z. Liu, Y. Gong, W. Gao, J. Lou, R. Vajtai, **P. Sharma**, P.M. Ajayan, "Boron Nitride – Graphene Nanocapacitor and the Origins of Anomalous Size-dependent Increase of Capacitance", *Nano Letters*, **14**, 1739-1744, 2014
56. P. Mohammadi, L.P. Liu, **P. Sharma**, "A theory of flexoelectric membranes and effective properties of heterogeneous membranes", *Journal of Applied Mechanics*, **81**, 011007-2, 2014
57. Q. Deng, M. Kammoun, A. Erturk, **P. Sharma**, "Nanoscale flexoelectric energy harvesting", *International Journal of Solids and Structures*, **51**, 3218-3225, 2014
58. Y. Hanlumuayang, L.P. Liu, **P. Sharma**, "Revisiting the entropic force between fluctuating biological membranes", *Journal of the Mechanics of Physics of Solids*, **63**, 179-186, 2014
59. R. Mbarki, N. Baccam, Kaushik Dayal, **P. Sharma**, "Piezoelectricity above the Curie temperature? Combining exoelectricity and functional grading to enable high-temperature electromechanical coupling", *Applied Physics Letters*, **104**, 122904, 2014
60. **P. Sharma**, "Entropic force between membranes reexamined", *Proceedings of the National Academy of Sciences*, 110(6), 1976-1977, 2013
61. L.P. Liu, **P. Sharma**, "Giant and universal magneto-electric coupling in soft materials and the concomitant ramifications for materials science and biology", *Physical Review E*, **88**, 040601(R), 2013
62. F. Ahmadpoor, Q. Deng, L. P. Liu, **P. Sharma**, "Apparent flexoelectricity in lipid bilayer membranes due to external charge and dipolar distributions", *Physical Review E*, **88**, 050701(R) (2013).
63. A. Gouissem, W. Fan, A.C.T. van Duin, **P. Sharma**, "A reactive force-field for Zirconium and Hafnium Di-Boride", *Computational Materials Science*, **70**, 171-177, 2013
64. L.P. Liu and **P. Sharma**, "Flexoelectricity and thermal fluctuations of lipid bilayer membranes: Renormalization of flexoelectric, dielectric, and elastic properties", *Physical Review E*, **87**, 032715, 2013
65. Z. Liu, Y. Zhan, S. Moldovan, M. Gharbi*, L. Song, G. Shi, L. Ma, W. Gao, S. Zhao, J. Huang, R. Vajtai, F. Banhart, **P. Sharma**, J. Lou, P.M. Ajayan, "Anomalous High Capacitance in a Coaxial Nanowire Capacitor", *Nature Communications*, **3:879**, 2012
66. S. Chandratre*, **P. Sharma**, "Coaxing Graphene to be Piezoelectric", *Applied Physics Letters*, **100**, 023114-1-023114-3, 2012
67. P. Mohammadi and **P. Sharma**, "Atomistic elucidation of the effect of surface roughness on curvature-dependent surface energy, surface stress, and elasticity", *Applied Physics Letters*, **100**, 133110-1-133110-4, 2012
68. C. R. Robinson, K. W. White and **P. Sharma**, "Elucidating the mechanism for indentation size-effect in dielectrics", *Applied Physics Letters*, **101**, 122901, 2012
69. P. Chhapadia*, P. Mohammadi*, **P. Sharma**, "Curvature-dependent Surface Energy and Implications for Nanostructures", *Journal of the Mechanics and Physics of Solids*, **59**, 2103-2115, 2011
70. P. Mohammadi, L.P. Liu, **P. Sharma**, R.V. Kukta, "Surface energy, elasticity and the homogenization of rough surfaces", *Journal of the Mechanics of Physics of Solids*, **61**, 325-340, 2013

71. S. Dai**, M. Gharbi*, **P. Sharma**, H.S. Park, Surface Piezoelectricity, Size-effects in Nanostructures and Emergent Piezoelectricity in Non-piezoelectric Materials”, Journal of Applied Physics, 110, 104305, 2011
72. C. Mi, D. A. Buttry, **P. Sharma**, D.A. Kouris, “Atomistic insights into dislocation-based mechanisms of void growth and coalescence”, Journal of the Mechanics and Physics of Solids, Volume 59, Issue 9, 1858, 2011
73. R. Maranganti* and **P. Sharma**, "Revisiting Quantum Notions of Stress " , Proceedings of Royal Society A, 466,1097-1116, 2010
74. M. Gharbi*, Z.H. Sun, K. White, S. El-Borgi, and **P. Sharma**, "Flexoelectric properties of ferroelectrics and the nanoindentation size-effect " , International Journal of Solids and Structures, 48 (2011) 249-256
75. N.D.Sharma*, C.M.Landis and **P. Sharma** , "Piezoelectric Thin-Film Super Lattices Without Using Piezoelectric Materials " , Journal of Applied Physics , 108,024304, 2010
76. M. Gharbi*, Z.H. Sun** , **P. Sharma** , K. White, " The Origins of Electromechanical Indentation Size Effect in Ferroelectrics", Applied Physics Letters, 95, 142901 ,2009
77. M.S. Majdoub*, R. Maranganti*, **P. Sharma**, "Understanding the origins of the intrinsic dead layer effect in nanocapacitors", Physical Review B,**79**, 115412, 2009
78. R. Maranganti* and **P. Sharma**, "Atomistic Determination of Flexoelectric Properties of Crystalline Dielectrics", Physical Review. B 80 , 054109, 2009
79. **(Invited)** A. K. Tagantsev, V. Meunier, and **P. Sharma**, “Novel Electromechanical Phenomena at the Nanoscale: Phenomenological Theory and Atomistic Modeling”, MRS bulletin, volume 34 , 2009
80. F. Shi*, **P. Sharma** and G.H. Gunaratne, "How To Create Perfectly Ordered Quantum Dots via Self-Assembly, Chaos, 19, 033141 ,2009
81. X. Zhang*, M. Gharbi*, **P. Sharma**, and H. T. Johnson, "Quantum Field Induced Strains in Nanostructures and Prospects for Optical Actuation", International Journal of Solids and Structures, 46,3810–3824, 2009
82. M.S. Majdoub*, **P. Sharma** and T. Cagin, Enhanced Size-Dependent Piezoelectricity And Elasticity in Nanostructures Due to The Flexoelectric Effect", Physical Review B, 77, 125424-1 – 125424-9, 2008
83. M.S. Majdoub*, **P. Sharma** and T. Cagin, "Dramatic Enhancement in Energy Harvesting For a Narrow Range of Dimensions in Piezoelectric Nanostructures", Physical Review B, 78, 121407 (R), 2008
84. S. Sahoo, R. Maranganti*, S. Lastella, G. Mallick, S. Karna, **P. Sharma** and P.M. Ajayan, "Reversible Separation of Single-Walled Carbon Nanotubes in Bundles", Applied Physics Letters, **93**, 083120, 2008
85. F. Shi*, **P. Sharma**, D.J. Kouri, F. Hussain and G.H. Gunaratne, "Nanostructures with Long-Range Order in Monolayer Self-Assembly " , Physical Review E, 78, 025203, 2008
86. S. Anandampillai, X. Zhang, **P. Sharma**, Gillian C. Lynch, M.A. Franchek and K.V. Larin, “Quantum dot-DNA interaction: computational issues and preliminary insights on use of quantum dots as biosensors”, Computer Methods in Applied Mechanics and Engineering, **197**, 3378-3385, 2008
87. R. Maranganti* and **P. Sharma**, "Length Scales at Which Classical Elasticity Breaks Down for Various Materials", Physical Review Letters, **98**, 195504-1– 195504-4, 2007
88. X.Zhang*, **P.Sharma** and H.T.Johnson, "Quantum Confinement Induced Strain in Quantum Dots", Physical Review B, **75**, 155319-1– 155319-8, 2007
89. N.D. Sharma*, R. Maranganti* and **P. Sharma**, "On the Possibility of Piezoelectric Nanocomposites without using Piezoelectric Materials", Journal of the Mechanics and Physics of Solids, **55**, 2328–2350, 2007
90. R. Maranganti* and **P. Sharma**, "A Novel Atomistic Approach to Determine Strain Gradient Elasticity Constants: Tabulation and Comparison for Various Metals, Semiconductors, Silica,

- Polymers and the (lr) relevance for Nanotechnologies", *Journal of the Mechanics and Physics of Solids*, Vol. 55, issue 9, p. 1823-1852, 2007
91. S. Hu**, G. Nathan**, F. Hussain, D.J. Kouri, **P. Sharma**, and G.H. Gunaratne, "On Stability of Self-Assembled Nanoscale Patterns", *Journal of the Mechanics and Physics of Solids*, **55**, 1357– 1384, 2007
 92. **(Invited Review Article)** R.Maranganti*, **P.Sharma**, and L.Wheeler, "Quantum Notion of Stress", *Journal of Aerospace Engineering*, **20**, 22– 37, 2007
 93. **P. Sharma**, and L.T. Wheeler, "Size-dependent Elastic State of Ellipsoidal Nano-inclusions Incorporating Surface/Interface Tension", *Journal of Applied Mechanics*, **74**, 447– 454, 2007
 94. X. Peng**, S. Ganti, **P. Sharma**, A. Alizadeh, S. Nayak, S. Kumar, "Strain Engineered Photoluminescence of Silicon Nanoclusters", *Physical Review B* **74**,035339-1– 035339-5, 2006
 95. R. Maranganti*, N.D. Sharma* and **P. Sharma**, "Electromechanical Coupling in Non-piezoelectric Materials due to Nonlocal Size Effects at the Nanoscale: Fundamental Solutions (Green's Functions) and Embedded Inclusions", *Physical Review B* **74**,014110-1– 014110-14, 2006
 96. X. Zhang*, J.Kun**, **P. Sharma** and B. Yakobson, "An Atomistic and Non-classical Continuum Field Theoretic Perspective of Elastic Interactions between Defects (Force Dipoles) of Various Symmetries and Application to Graphene", *Journal of the Mechanics and Physics of Solids*, **54**, 2304-2329, 2006
 97. **P. Sharma** and X. Zhang*, "Gauge Field Theoretic Solution of a Uniformly Moving Screw Dislocation and Admissibility of Supersonic Speeds", *Physics Letters A* **349**, 170–176, 2006
 98. X. Zhang* and **P. Sharma**, "On the Scaling of Strain in Arbitrary Shaped, Anisotropic Embedded Quantum Dots due to (Nonlocal) Dispersive Effects ", *Physical Review B*, **72**, 195345, 2005
 99. X. Peng**, S. Ganti, **P.Sharma**, A. Alizadeh, S. Nayak, S. Kumar, "Novel Scaling Laws for Band Gaps of Quantum Dots", *Journal of Computational and Theoretical Nanotechnology*, **2**, 3, 2005
 100. A. Mathur**, **P. Sharma**, R. Cammarata, "Negative Surface Energy: A Cautionary Note", *Nature Materials*, **4**, 186, 2005
 101. Z. Li**, P. Dharap**, **P. Sharma**, S. Nagarajaiah and B. Yakobson, "A Physically Inspired Continuum Field Interpretation of (Stone-Wales) Defect Formation in Single Walled Carbon Nanotubes", *Journal of Applied Physics*, **97**,074303, 2005
 102. X. Zhang and **P. Sharma**, "Impact of size-dependent nonlocal elastic strain on electronic band structure of embedded quantum dots", *Proceedings of the Institution of Mechanical Engineers, Part N: Journal of Nanoengineering and Nanosystems*, **219**, 135-145, 2005
 103. X. Peng, S. Ganti, **P. Sharma**, A. Alizadeh, S. Nayak, and S. Kumar, "Novel scaling laws for band gaps of quantum dots", *Journal of Computational and Theoretical Nanoscience*, **2**, 469-472, 2005
 104. F. Shahedipour-Sandvik, J. Grandusky, A. Alizadeh, C. Keimel, S. P. Ganti, S. T. Taylor, S. F. LeBoeuf and **P. Sharma**, "Strain Dependent Facet Stabilization in Selective-area Heteroepitaxial Growth of GaN Nanostructures", *Applied Physics Letters*, **87**, 233108, 2005
 105. X. Zhang* and **P. Sharma**, "Inclusions and Inhomogeneities in Second Gradient Elasticity with Couple Stresses and Related Problems", *International Journal of Solids and Structures*, **42**,3833, 2005
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