

# Curriculum Vitae: Pradeep Sharma

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## **EDUCATION:**

### **1990–1994**

Bachelor of Science in Mechanical Engineering, August 1995  
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.Phy.)---Institute of Physics, London, UK, 2003

## **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-present, 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) Guest Editor: *Mathematics and Mechanics of Solids*, 2007 (special issue on size-effects in mechanics)
- (7) Founding Editor: iMechanica Journal Club, 2007
- (8) Selected as one of the Top Referees (2009); *Proceedings of the Royal Society*
- (9) Thomas J.R. Hughes ASME Young Investigator Award<sup>1</sup>, 2009; **Citation:** “*For outstanding contributions to understanding size-effects of coupled mechanical and physical phenomena in materials*”.
- (10) Faculty of the Year award by local ASME student chapter—2010

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<sup>1</sup> Awarded annually by the ASME to a mechanician under 40.

- (11) University of Houston, Excellence in Research and Scholarship Award, Associate Professor Level, 2011
- (12) Distinguished M.D Anderson Professorship, 2012
- (13) Fulbright Award, 2013
- (14) ASME Melville Medal, 2015
- (15) ASME Fellow, 2013
- (16) University of Houston Teaching Award, 2013
- (17) President, Society of Engineering Science, 2015
- (18) Associate Editor: *Journal of the Mechanics and Physics of Solids*
- (19) (past) Associate Editor: *Journal of Theoretical and Computational Nanoscience*
- (20) (past) Associate Editor: *Journal of Applied Mechanics*
- (21) Editorial Board Member: International Journal of Applied Mechanics, Mathematics and Mechanics of Solids

## RESEARCH PROJECTS/GRANTS

An asterisk indicates that I was the team leader (for the entire project or the UH component) and in the rest, I was a participant. In some cases, the actual awarded amount may be somewhat less than proposed originally.

Agency Name	Project Title	Start Year	End Year	Total Funding
University of Texas-Texas Space Grant Consortium	*Size-Dependent Multi-Physics Phenomenon of Heterogeneous Materials Containing Nano-Inclusions--Task Order E	2004	2007	\$ 10,000
University of Houston - New Faculty Research Program	*Novel Size-effects in the Coupled Opto-electronic and Deformation Behavior of Quantum Dots and Wires	2005	2005	\$ 6,000
U.S. Navy Office of Naval Research	*Novel Size-Effects in the Coupled Mechanical Deformation and Optoelectronic Behavior of Quantum Dots and Wires	2005	2009	\$ 262,471
University of Houston-Small Grants Program	*Spontaneous Electric Fields in Strained Non-Piezoelectric Quantum Dots and Nano-Beams with Consequent Applications for Next Generation Sensors	2006	2006	\$ 3,000
University of Houston-Grant to Enhance and Advance Research (GEAR)	*Spontaneous Electric Fields in Strained Non-Piezoelectric Quantum Dots and Nano-Beams with Consequent Applications for Next Generation Sensors	2006	2007	\$ 29,845
Texas Higher Education Coordinating Board - ARP	*Nanocomposite-Based Piezoelectric Actuators and Sensors Without Use of Piezoelectric Materials	2006	2009	\$100,000
University of Houston-	*Reverse Strain-Band Structure	2007	2007	\$ 3,000

Small Grants Program	Coupling in Quantum Dots			
National Science Foundation	*NIRT: Active Electromechanical Nanostructures Without the Use of Piezoelectric Constituents	2007	2013	\$1,445,078
San Jacinto Community College District	Development of Novel Aerospace Engineering Education Opportunities Using Emerging Technologies	2007	2009	\$ 330,726
University of Houston-Grant to Enhance and Advance Research (GEAR)	*Guided Self-assembly Based Fabrication of Nanostructures, Their Properties and Emergent Applications in Energy and Sensing	2007	2008	\$ 49,970
National Science Foundation	*Supplement: NIRT: Active Electromechanical Nanostructures Without the Use of Piezoelectric Constituents	2008	2011	\$ 62,583
National Science Foundation	*Size-dependent -super-piezoelectricity- in nanostructures	2008	2013	\$ 419,095
National Science Foundation	NUE: Development of the NanoEngineering Minor Option (NEMO) Program at the College of Engineering at the University of Houston	2008	2012	\$199,988
National Science Foundation	*GK-12 Program at the University of Houston: Innovations in Nanotechnology and Nanosciences- Using a Knowledge, Applications, Research, and Technology (KART) Approach	2008	2016	\$2,999,995
U.S. Air Force Office of Scientific Research	Atomistically Informed Materials Design of Ultrahigh Temperature Ceramics for Improved Mechanical Behavior in Oxidizing Environments	2008	2013	\$1,586,667
Texas Engineering Experiment Station	*International Institute on Multifunctional Materials for Energy Conversion (IIMEC)	2008	2015	\$ 501,310
FMC Technologies	Research on High Pressure/High Temperature Seals	2008	2009	\$ 39,800
FMC Technologies	Research of High Pressure High Temperature Seals	2009	2010	\$ 44,840
National Science Foundation	*Supplement: GK-12 Program at the University of Houston: Innovations in Nanotechnology and Nanosciences Using a Knowledge, Applications,	2009	2016	\$ 89,271

	Research, and Technology (KART) Approach			
National Science Foundation	*The Origins of the -Dead-layer- in High Energy Storage Density Nanocapacitors	2010	2015	\$ 396,709
Texas Engineering Experiment Station	*International Institute on Multifunctional Materials for Energy Conversion (IIMEC)	2010	2014	\$ 33,927
National Science Foundation	*REU Supplement: Size-dependent -super-piezoelectricity- in nanostructures	2010	2011	\$ 12,000
National Science Foundation	*REU Supplement: The Origins of the Dead-Layer in High Energy Storage Density Nanocapacitors	2010	2011	\$ 6,000
FMC Technologies	Research of High Pressure High Temperature Seals	2010	2011	\$ 46,683
National Science Foundation	*REU Supplement: NIRT: Active Electromechanical Nanostructures without the Use of Piezoelectric Constituents	2011	2011	\$ 5,975
National Science Foundation	*EAGER/Collaborative Research: Coaxing Graphene to be Piezoelectric	2011	2013	\$ 26,000
National Science Foundation	*Fundamental Research in Quantum Field Induced Strain in Nanostructures	2012	2015	\$ 211,948
Texas Engineering Experiment Station	*Supplement: International Institute on Multifunctional Materials for Energy Conversion (IIMEC)	2013	2014	\$ 50,000
Qatar National Research Fund	*Flexoelectricity, soft nanomaterials and next-generation energy-harvesting	2013	2016	\$ 213,223
National Science Foundation	*Collaborative Research: Generating Electricity from Deformation: Multiscale Modeling and Characterization of Flexoelectricity from Atoms to Devices	2015	2018	\$154,355
National Science Foundation	MRI: Acquisition of a High Performance Computing System for Science and Engineering Research and Education at the University of Houston	2015	2018	\$ 950,000
U.S. Department of Energy	High Performance High-Field Superconducting Wires for Next Generation Accelerators	2016	2019	\$ 891,088

**COURSES TAUGHT AT THE UNIVERSITY OF HOUSTON (2004-present):** Many courses taught multiple times

Undergraduate:

- (1) Mechanics I--Statics
- (2) Mechanics II—Dynamics
- (3) Advanced Mechanics of Solids
- (4) Introduction to Nanotechnology
- (5) Introduction to Materials Science
- (6) Thermodynamics

Graduate:

- (1) Methods of Applied Mathematics I
- (2) Methods of Applied Mathematics II
- (3) Nanomechanics of Materials
- (4) Theoretical and Computational Materials Science
- (5) Micromechanics of Materials
- (6) Thermodynamics and Statistical Mechanics of Materials
- (7) The Future Faculty Program
- (8) Modeling Material Behavior

#### **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

**SELECTED REFEREED JOURNAL PUBLICATIONS:** out of 90 total; Reprints and preprints of most listed papers are available on the following website: <http://sharma.me.uh.edu>

**ASTERIX \* indicates graduate student I advised and funded. \*\*indicates a graduate student I co-advised.**

1. X. Yan\*, **P. Sharma**, "Time Scaling in Atomistics and the Rate-dependent Mechanical Behavior of Nanostructures", *Nano Letters*, **16**, 3487–3492, 2016
2. S. Krichen\*, **P. Sharma**, "Flexoelectricity: a Perspective on an Unusual Electromechanical Coupling", *Journal of Applied Mechanics*, **83**, 030801(1-5), 2016

3. 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
4. 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
5. 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
6. F. Ahmadpoor\*, **P. Sharma**, "Flexoelectricity in Two-dimensional Crystalline and Biological Membranes", *Nanoscale*, **7**, 16555-16570, 2015
7. 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
8. Y. Liu, H. Cai, M. Zelisko, Y. Wang, J. Sun, F. Yan, F. Ma, Pwang, 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
9. M. Zelisko, Y. Hanlumuang, 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
10. Q. Deng, L. P. Liu, **P. Sharma**, "Electrets in soft materials: Nonlinearity, size effects, and giant electromechanical coupling", *Physical Review E*, **90**, 012603, 2014
11. Y. Hanlumuang, 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
12. 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
13. Boron Nitride – Graphene Nanocapacitor and the Origins of Anomalous Size-dependent Increase of Capacitance, G. Shi, Y. Hanlumuang, Z. Liu, Y. Gong, W. Gao, J. Lou, R. Vajtai, **P. Sharma**, P.M. Ajayan, *Nano Letters*, **14**, 1739-1744, 2014
14. 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
15. Q. Deng, M. Kammoun, A. Erturk, **P. Sharma**, "Nanoscale flexoelectric energy harvesting", *International Journal of Solids and Structures*, **51**, 3218-3225, 2014
16. Y. Hanlumuang, 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
17. 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
18. **P. Sharma**, " Entropic force between membranes reexamined", *Proceedings of the National Academy of Sciences*, 110(6), 1976-1977, 2013
19. 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
20. 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

21. 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
22. S. Chandratre\*, **P. Sharma**, "Coaxing Graphene to be Piezoelectric", *Applied Physics Letters*, 100, 023114-1-023114-3, 2012
23. 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
24. 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
25. 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
26. 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
27. R. Maranganti\* and **P. Sharma** , "Revisiting Quantum Notions of Stress " , *Proceedings of Royal Society A*, 466,1097-1116, 2010
28. 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
29. 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
30. M. Gharbi\*, Z.H. Sun\*\* , **P. Sharma** , K. White, " The Origins of Electromechanical Indentation Size Effect in Ferroelectrics", *Applied Physics Letters*, 95, 142901 ,2009
31. M.S. Majdoub\*, R. Maranganti\* , **P. Sharma**, "Understanding the origins of the intrinsic dead layer effect in nanocapacitors", *Physical Review B*, **79**, 115412, 2009
32. R. Maranganti\* and **P. Sharma**, "Atomistic Determination of Flexoelectric Properties of Crystalline Dielectrics", *Physical Review. B* 80 , 054109, 2009
33. **(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
34. F. Shi\*, **P. Sharma** and G.H. Gunaratne, "How To Create Perfectly Ordered Quantum Dots via Self-Assembly, *Chaos*, 19 , 033141 ,2009
35. 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
36. 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
37. 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
38. 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
39. 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

40. 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
41. X.Zhang\*, **P.Sharma** and H.T.Johnson, "Quantum Confinement Induced Strain in Quantum Dots", *Physical Review B*, **75**, 155319-1– 155319-8, 2007
42. 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
43. 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 (Ir) relevance for Nanotechnologies", *Journal of the Mechanics and Physics of Solids*, Vol. 55, issue 9, p. 1823-1852, 2007
44. 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
45. **(Invited Review Article)** R.Maranganti\*, **P.Sharma**, and L.Wheeler, "Quantum Notion of Stress", *Journal of Aerospace Engineering*, **20**, 22– 37, 2007
46. **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
47. 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
48. 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
49. 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
50. **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
51. 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
52. 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
53. A. Mathur\*\*, **P. Sharma**, R. Cammarata, "Negative Surface Energy: A Cautionary Note", *Nature Materials*, **4**, 186, 2005
54. 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
55. 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



56. 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
57. **P. Sharma**, and S. Ganti, "Gauge-field-theory Solution of the Elastic State of a Screw Dislocation in a Dispersive (non-local) Crystalline Solid ", *Proceedings of the Royal Society*, **461**, 1081, 2005
58. **P. Sharma**, A. Dasgupta, and G.Cuddalorepatta\*\*, "The Connection Between Microstructural Damage Modeling and Continuum Damage Modeling for Eutectic Sn-Pb Solder Alloys", accepted, *International Journal of Damage Mechanics*, 14, 343-363, 2005
59. A. Alizadeh, **P. Sharma**, S. Ganti, S. LeBoeuf, L. Tsakalakos, "Templated Wide Bandgap Nanostructures", *Journal of Applied Physics*, **95**, No. 12, 8199, 2004
60. **P. Sharma**, S. Ganti, H. Ardebili, A. Alizadeh, "Scaling of Thermal Stresses in Passivated Nano-interconnects", *Journal of Applied Physics*, **95**, No. 5, p 2763, 2004
61. **P. Sharma** and S. Ganti, "Size-dependent Eshelby's Tensor for Embedded Nano-inclusions Incorporating Surface/Interface Energies", *Journal of Applied Mechanics*, Vol 71, 663, 2004
62. **P. Sharma**, "Inclusions and Defects in Chiral Solids", *International Journal of Solids and Structures*, **41**, 6317, 2004
63. **P. Sharma**, S. Ganti and N. Bhate, "The Effect of Surfaces on the Size-Dependent Elastic State of (Nano) Inhomogeneities", *Applied Physics Letters*, **82**, No 4, 2003
64. **P. Sharma**, and S. Ganti, "On the Grain-size Dependent Elastic Modulus of Nanocrystalline Materials with and without Grain Boundary Sliding", *Journal of Materials Research*, 1823-1826, 18, No.8, 2003
65. **P. Sharma**, and S. Ganti, "The Size-dependent Elastic State of Inclusions in Non-local Elastic Solids", *Philosophical Magazine Letters*, Vol. 83, No. 12, 745, 2003
66. **P. Sharma**, and R. Sharma, "On the Eshelby's Inclusion Problem for Ellipsoids with Non-Uniform Dilatational Gaussian and Exponential Eigenstrains", *Journal of Applied Mechanics*, 70, No 3, 418-425, 2003
67. **P. Sharma**, A. Dasgupta, S. Ganti and J. Loman, "Prediction of Rate-Independent Constitutive Behavior of Pb-Free Solders Based on First Principles", *IEEE Transactions on Components and Packaging*, **26**, 659, 2003
68. **P. Sharma**, and A. Dasgupta, "Scale-Dependent Average Elastic Fields of Spherical and Cylindrical Inhomogeneities in Micropolar Medium and Overall Properties", *Physical Review B* **66**, 2241XX, 2002
69. **P. Sharma**, and S. Ganti, "Interfacial Elasticity Corrections to the Elastic State of Quantum Dots", *Physica Status Solidi (b)* **234**, No.3, R10-R12, 2002
70. **P. Sharma**, H. Ardebili and J. Loman, "A Note on the Thermal Stresses in Passivated Metal Interconnects", *Applied Physics Letters*, Vol. 79, No. 11, p 1706, 2001