# Subra Suresh

## List of Publications by Year in descending order

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|---|---|---|---|
| 290 papers | 43,897 citations | 1799 103 h-index | 2178 202 g-index |
| 299 all docs | 299 docs citations | 299 times ranked | 26827 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Strengthening Materials by Engineering Coherent Internal Boundaries at the Nanoscale. Science, 2009, 324, 349-352. | 12.6 | 1,953 |
| 2 | Mechanical behavior of nanocrystalline metals and alloys11The Golden Jubilee Issueâ€"Selected topics in Materials Science and Engineering: Past, Present and Future, edited by S. Suresh. Acta Materialia, 2003, 51, 5743-5774. | 7.9 | 1,746 |
| 3 | Computational modeling of the forward and reverse problems in instrumented sharp indentation. Acta Materialia, 2001, 49, 3899-3918. | 7.9 | 1,272 |
| 4 | Biomechanics and biophysics of cancer cellsâ˜†. Acta Biomaterialia, 2007, 3, 413-438. | 8.3 | 957 |
| 5 | Cell and molecular mechanics of biological materials. Nature Materials, 2003, 2, 715-725. | 27.5 | 914 |
| 6 | Sizeâ€Ðependent Endocytosis of Nanoparticles. Advanced Materials, 2009, 21, 419-424. | 21.0 | 895 |
| 7 | Connections between single-cell biomechanics and human disease states: gastrointestinal cancer and malaria. Acta Biomaterialia, 2005, 1, 15-30. | 8.3 | 748 |
| 8 | An experimental and numerical study of deformation in metal-ceramic composites. Acta Metallurgica, 1989, 37, 3029-3050. | 2.1 | 739 |
| 9 | Mechanistic models for the activation volume and rate sensitivity in metals with nanocrystalline grains and nano-scale twins. Acta Materialia, 2005, 53, 3369-3382. | 7.9 | 725 |
| 10 | Graded Materials for Resistance to Contact Deformation and Damage. Science, 2001, 292, 2447-2451. | 12.6 | 716 |
| 11 | A new method for estimating residual stresses by instrumented sharp indentation. Acta Materialia, 1998, 46, 5755-5767. | 7.9 | 700 |
| 12 | Mechanics of the human red blood cell deformed by optical tweezers. Journal of the Mechanics and Physics of Solids, 2003, 51, 2259-2280. | 4.8 | 696 |
| 13 | Deformation of electrodeposited nanocrystalline nickel. Acta Materialia, 2003, 51, 387-405. | 7.9 | 696 |
| 14 | Isolation of exosomes from whole blood by integrating acoustics and microfluidics. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 10584-10589. | 7.1 | 633 |
| 15 | Acoustic separation of circulating tumor cells. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 4970-4975. | 7.1 | 632 |
| 16 | Determination of elastoplastic properties by instrumented sharp indentation. Scripta Materialia, 1999, 40, 1191-1198. | 5.2 | 628 |
| 17 | Atomistic mechanisms governing elastic limit and incipient plasticity in crystals. Nature, 2002, 418, 307-310. | 27.8 | 621 |
| 18 | Refractive index maps and membrane dynamics of human red blood cells parasitized by Plasmodium falciparum. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 13730-13735. | 7.1 | 619 |

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| 19 | Nano-sized twins induce high rate sensitivity of flow stress in pure copper. Acta Materialia, 2005, 53, 2169-2179. | 7.9 | 613 |
| 20 | Some critical experiments on the strain-rate sensitivity of nanocrystalline nickel. Acta Materialia, 2003, 51, 5159-5172. | 7.9 | 527 |
| 21 | Interfacial plasticity governs strain rate sensitivity and ductility in nanostructured metals. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 3031-3036. | 7.1 | 522 |
| 22 | Discrete and continuous deformation during nanoindentation of thin films. Acta Materialia, 2000, 48, 2277-2295. | 7.9 | 497 |
| 23 | Oxide-Induced Crack Closure: An Explanation for Near-Threshold Corrosion Fatigue Crack Growth Behavior. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1981, 12, 1435-1443. | 2.2 | 455 |
| 24 | Strength, strain-rate sensitivity and ductility of copper with nanoscale twins. Acta Materialia, 2006, 54, 5421-5432. | 7.9 | 448 |
| 25 | Three-dimensional manipulation of single cells using surface acoustic waves. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 1522-1527. | 7.1 | 448 |
| 26 | Shape and Biomechanical Characteristics of Human Red Blood Cells in Health and Disease. MRS Bulletin, 2010, 35, 382-388. | 3.5 | 424 |
| 27 | A geometric model for fatigue crack closure induced by fracture surface roughness. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1982, 13, 1627-1631. | 1.4 | 400 |
| 28 | Biomechanics and biophysics of cancer cellsâ˜†. Acta Materialia, 2007, 55, 3989-4014. | 7.9 | 393 |
| 29 | Cell separation using tilted-angle standing surface acoustic waves. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 12992-12997. | 7.1 | 390 |
| 30 | Microstructural development in an aluminum alloy-SiC whisker composite. Acta Metallurgica, 1988, 36, 1691-1704. | 2.1 | 388 |
| 31 | Spectrin-Level Modeling of the Cytoskeleton and Optical Tweezers Stretching of the Erythrocyte. Biophysical Journal, 2005, 88, 3707-3719. | 0.5 | 376 |
| 32 | Deformation of metal-matrix composites with continuous fibers: geometrical effects of fiber distribution and shape. Acta Metallurgica Et Materialia, 1991, 39, 735-752. | 1.8 | 365 |
| 33 | Nanoscale heterogeneity promotes energy dissipation in bone. Nature Materials, 2007, 6, 454-462. | 27.5 | 362 |
| 34 | Quantifying the early stages of plasticity through nanoscale experiments and simulations. Physical Review B, 2003, 67, . | 3.2 | 361 |
| 35 | Metabolic remodeling of the human red blood cell membrane. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1289-1294. | 7.1 | 358 |
| 36 | An analysis of the effects of matrix void growth on deformation and ductility in metal-ceramic composites. Acta Metallurgica Et Materialia, 1991, 39, 2317-2335. | 1.8 | 340 |

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| 37 | Crack deflection: Implications for the growth of long and short fatigue cracks. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1983, 14, 2375-2385. | 1.4 | 321 |
| 38 | Study of mechanical deformation in bulk metallic glass through instrumented indentation. Acta Materialia, 2001, 49, 3781-3789. | 7.9 | 313 |
| 39 | Nano-indentation of copper thin films on silicon substrates. Scripta Materialia, 1999, 41, 951-957. | 5.2 | 310 |
| 40 | Grain size effects on the fatigue response of nanocrystalline metals. Scripta Materialia, 2003, 49, 675-680. | 5.2 | 301 |
| 41 | Depth-sensing instrumented indentation with dual sharp indenters. Acta Materialia, 2003, 51, 3713-3729. | 7.9 | 299 |
| 42 | Measuring single-cell density. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 10992-10996. | 7.1 | 287 |
| 43 | Theory of indentation of piezoelectric materials. Acta Materialia, 1999, 47, 2153-2164. | 7.9 | 270 |
| 44 | The biomechanics toolbox: experimental approaches for living cells and biomolecules. Acta Materialia, 2003, 51, 5881-5905. | 7.9 | 268 |
| 45 | Indentation of solids with gradients in elastic properties: Part I. Point force. International Journal of Solids and Structures, 1997, 34, 2357-2392. | 2.7 | 241 |
| 46 | Fatigue behavior of nanocrystalline metals and alloys. International Journal of Fatigue, 2005, 27, 1147-1158. | 5.7 | 241 |
| 47 | Simulation of defect nucleation in a crystal. Nature, 2001, 411, 656-656. | 27.8 | 238 |
| 48 | Cytoskeletal dynamics of human erythrocyte. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 4937-4942. | 7.1 | 234 |
| 49 | On microstructural evolution and micromechanical modelling of deformation of a whisker-reinforced metal-matrix composite. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1989, 107, 49-61. | 5.6 | 231 |
| 50 | Some considerations on fatigue crack closure at near-threshold stress intensities due to fracture surface morphology. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1982, 13, 937-940. | 1.4 | 230 |
| 51 | Predictive modeling of nanoindentation-induced homogeneous dislocation nucleation in copper. Journal of the Mechanics and Physics of Solids, 2004, 52, 691-724. | 4.8 | 227 |
| 52 | A microfabricated deformability-based flow cytometer with application to malaria. Lab on A Chip, 2011, 11, 1065. | 6.0 | 223 |
| 53 | Micromechanisms of fatigue crack growth retardation following overloads. Engineering Fracture Mechanics, 1983, 18, 577-593. | 4.3 | 211 |
| 54 | Ultralarge elastic deformation of nanoscale diamond. Science, 2018, 360, 300-302. | 12.6 | 208 |

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| 55 | Determination of elasto-plastic properties by instrumented sharp indentation: guidelines for property extraction. Scripta Materialia, 2000, 42, 833-839. | 5.2 | 206 |
| 56 | Protection mechanisms of the iron-plated armor of a deep-sea hydrothermal vent gastropod. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 987-992. | 7.1 | 201 |
| 57 | Indentation of solids with gradients in elastic properties: Part II. axisymmetric indentors. International Journal of Solids and Structures, 1997, 34, 2393-2428. | 2.7 | 200 |
| 58 | Mixed-Mode Fracture Toughness of Ceramic Materials. Journal of the American Ceramic Society, 1990, 73, 1257-1267. | 3.8 | 195 |
| 59 | Crack propagation in ceramics under cyclic loads. Journal of Materials Science, 1987, 22, 1173-1192. | 3.7 | 193 |
| 60 | Biomechanics of red blood cells in human spleen and consequences for physiology and disease. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 7804-7809. | 7.1 | 193 |
| 61 | Molecularly based analysis of deformation of spectrin network and human erythrocyte. Materials Science and Engineering C, 2006, 26, 1232-1244. | 7.3 | 190 |
| 62 | Small and large deformation of thick and thin-film multi-layers: Effects of layer geometry, plasticity and compositional gradients. Journal of the Mechanics and Physics of Solids, 1996, 44, 683-721. | 4.8 | 189 |
| 63 | Viscoelasticity of the human red blood cell. American Journal of Physiology - Cell Physiology, 2007, 293, C597-C605. | 4.6 | 187 |
| 64 | Elastoplastic analysis of thermal cycling: layered materials with compositional gradients. Acta Metallurgica Et Materialia, 1995, 43, 1335-1354. | 1.8 | 184 |
| 65 | Effect of plasmodial RESA protein on deformability of human red blood cells harboring Plasmodium falciparum. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 9213-9217. | 7.1 | 184 |
| 66 | Extraction of mechanical properties of materials through deep learning from instrumented indentation. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 7052-7062. | 7.1 | 178 |
| 67 | Effects of thermal residual stresses and fiber packing on deformation of metal-matrix composites. Acta Metallurgica Et Materialia, 1993, 41, 1665-1681. | 1.8 | 175 |
| 68 | Aspects of equivalence between contact mechanics and fracture mechanics: theoretical connections and a life-prediction methodology for fretting-fatigue. Acta Materialia, 1998, 46, 2955-2968. | 7.9 | 172 |
| 69 | Spherical indentation of compositionally graded materials: Theory and experiments. Acta Materialia, 1997, 45, 1307-1321. | 7.9 | 170 |
| 70 | Elastic clues in cancer detection. Nature Nanotechnology, 2007, 2, 748-749. | 31.5 | 165 |
| 71 | Quantifying the biophysical characteristics of Plasmodium-falciparum -parasitized red blood cells in microcirculation. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 35-39. | 7.1 | 165 |
| 72 | Biomechanics of brain tissue. Acta Biomaterialia, 2011, 7, 83-95. | 8.3 | 160 |

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| 73 | Large deformation of living cells using laser traps. Acta Materialia, 2004, 52, 1837-1845. | 7.9 | 159 |
| 74 | Fracture toughness and fatigue crack growth characteristics of nanotwinned copper. Acta Materialia, 2011, 59, 2437-2446. | 7.9 | 158 |
| 75 | Fracture normal to a bimaterial interface: Effects of plasticity on crack-tip shielding and amplification. Acta Metallurgica Et Materialia, 1995, 43, 1157-1169. | 1.8 | 157 |
| 76 | Stress relaxation and the structure size-dependence of plastic deformation in nanotwinned copper. Acta Materialia, 2009, 57, 5165-5173. | 7.9 | 156 |
| 77 | Mechanical response of human red blood cells in health and disease: Some structure-property-function relationships. Journal of Materials Research, 2006, 21, 1871-1877. | 2.6 | 155 |
| 78 | Lipid bilayer and cytoskeletal interactions in a red blood cell. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 13356-13361. | 7.1 | 155 |
| 79 | Mechanisms of Slow Fatigue Crack Growth in High Strength Aluminum Alloys: Role of Microstructure and Environment. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1984, 15, 369-379. | 1.4 | 153 |
| 80 | Accelerated aging in cast Al alloy-SiC particulate composites. Scripta Metallurgica, 1989, 23, 1599-1602. | 1.2 | 150 |
| 81 | Measurement of residual stress in plasma-sprayed metallic, ceramic and composite coatings. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1998, 257, 215-224. | 5.6 | 149 |
| 82 | Stresses, curvatures, and shape changes arising from patterned lines on silicon wafers. Journal of Applied Physics, 1996, 80, 1388-1398. | 2.5 | 143 |
| 83 | Microscopic and macroscopic aspects of fracture in lithium-containing aluminum alloys. Acta Metallurgica, 1987, 35, 25-46. | 2.1 | 140 |
| 84 | Coefficients of thermal expansion of metal-matrix composites for electronic packaging. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1994, 25, 839-850. | 2.2 | 132 |
| 85 | Effective elastic response of two-phase composites. Acta Metallurgica Et Materialia, 1994, 42, 77-97. | 1.8 | 128 |
| 86 | Engineering the resistance to sliding-contact damage through controlled gradients in elastic properties at contact surfaces. Acta Materialia, 1999, 47, 3915-3926. | 7.9 | 127 |
| 87 | Strain rate sensitivity of Cu with nanoscale twins. Scripta Materialia, 2006, 55, 319-322. | 5.2 | 126 |
| 88 | Hertzianâ€Crack Suppression in Ceramics with Elasticâ€Modulusâ€Graded Surfaces. Journal of the American Ceramic Society, 1998, 81, 2301-2308. | 3.8 | 125 |
| 89 | Crack initiation in cyclic compression and its applications. Engineering Fracture Mechanics, 1985, 21, 453-463. | 4.3 | 124 |
| 90 | Statistical Properties of Residual Stresses and Intergranular Fracture in Ceramic Materials. Journal of Applied Mechanics, Transactions ASME, 1993, 60, 77-84. | 2.2 | 122 |

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| 91 | Theory and experiments of fracture in cyclic compression: Single phase ceramics, transforming ceramics and ceramic composites. Acta Metallurgica, 1988, 36, 1455-1470. | 2.1 | 117 |
| 92 | Micromechanical modeling of reinforcement fracture in particle-reinforced metal-matrix composites. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1994, 25, 2403-2420. | 2.2 | 117 |
| 93 | The growth of a fatigue crack approaching a perpendicularly-oriented, bimaterial interface. Scripta Metallurgica Et Materialia, 1992, 27, 1189-1194. | 1.0 | 116 |
| 94 | A comprehensive unit cell model: a study of coupled effects in piezoelectric 1â€“3 composites. International Journal of Solids and Structures, 2000, 37, 5447-5464. | 2.7 | 116 |
| 95 | Circulating Tumor Cell Phenotyping via Highâ€Throughput Acoustic Separation. Small, 2018, 14, e1801131. | 10.0 | 115 |
| 96 | High-Temperature Failure of an Alumina-Silicon Carbide Composite under Cyclic loads: Mechanisms of Fatigue Crack-Tip Damage. Journal of the American Ceramic Society, 1989, 72, 1233-1238. | 3.8 | 114 |
| 97 | Formation and size distribution of self-assembled vesicles. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 2910-2915. | 7.1 | 113 |
| 98 | Optical measurement of biomechanical properties of individual erythrocytes from a sickle cell patient. Acta Biomaterialia, 2012, 8, 4130-4138. | 8.3 | 112 |
| 99 | Effects of sic content on fatigue crack growth in. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1992, 23, 2231-2242. | 1.4 | 110 |
| 100 | Large deformation and geometric instability of substrates with thin-film deposits. Journal of Applied Physics, 1997, 81, 3457-3464. | 2.5 | 109 |
| 101 | On the influence of environment on the load ratio dependence of fatigue thresholds in pressure vessel steel. Engineering Fracture Mechanics, 1983, 18, 785-800. | 4.3 | 108 |
| 102 | Multiple stiffening effects of nanoscale knobs on human red blood cells infected with Plasmodium falciparum malaria parasite. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6068-6073. | 7.1 | 108 |
| 103 | Dynamic mechanical response of brain tissue in indentation in vivo, in situ and in vitro. Acta Biomaterialia, 2011, 7, 4090-4101. | 8.3 | 107 |
| 104 | Effects of SiC reinforcement and aging treatment on fatigue crack growth in an Alî—¸SiC composite. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1988, 102, 211-216. | 5.6 | 105 |
| 105 | An experimental and numerical study of cyclic deformation in metal-matrix composites. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1992, 23, 919-934. | 1.4 | 105 |
| 106 | Effective plastic response of two-phase composites. Acta Metallurgica Et Materialia, 1995, 43, 1701-1722. | 1.8 | 105 |
| 107 | Aluminium-Titanium Diboride (Al-TiB2) Metal Matrix Composites: Challenges and Opportunities. Procedia Engineering, 2012, 38, 89-97. | 1.2 | 102 |
| 108 | Host cell deformability is linked to transmission in the human malaria parasite Plasmodium falciparum. Cellular Microbiology, 2012, 14, 983-993. | 2.1 | 102 |

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| 109 | Multiphase equilibrium analysis via a generalized equation of state for associating mixtures. Industrial & Engineering Chemistry Research, 1992, 31, 2783-2794. | 3.7 | 101 |
| 110 | Combined Mode I-Mode III Fracture of Fatigue-Precracked Alumina. Journal of the American Ceramic Society, 1987, 70, 726-733. | 3.8 | 99 |
| 111 | Elastoplastic analysis of thermal cycling: Layered materials with sharp interfaces. Journal of the Mechanics and Physics of Solids, 1994, 42, 979-1018. | 4.8 | 99 |
| 112 | Kinetics of sickle cell biorheology and implications for painful vasoocclusive crisis. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 1422-1427. | 7.1 | 99 |
| 113 | Multiscale Modeling of Red Blood Cell Mechanics and Blood Flow in Malaria. PLoS Computational Biology, 2011, 7, e1002270. | 3.2 | 98 |
| 114 | Size effects on the onset of plastic deformation during nanoindentation of thin films and patterned lines. Journal of Applied Physics, 2003, 94, 6050-6058. | 2.5 | 94 |
| 115 | Gradients in elastic modulus for improved contact-damage resistance. Part I: The silicon nitrideâ€“oxynitride glass system. Acta Materialia, 2001, 49, 3255-3262. | 7.9 | 93 |
| 116 | Mechanics of diseased red blood cells in human spleen and consequences for hereditary blood disorders. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9574-9579. | 7.1 | 93 |
| 117 | Thermal expansion of metals reinforced with ceramic particles and microcellular foams. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1996, 27, 3700-3717. | 2.2 | 88 |
| 118 | Continuous measurements of load-penetration curves with spherical microindenters and the estimation of mechanical properties. Journal of Materials Research, 1998, 13, 1390-1400. | 2.6 | 88 |
| 119 | Combined Simulation and Experimental Study of Large Deformation of Red Blood Cells in Microfluidic Systems. Annals of Biomedical Engineering, 2011, 39, 1041-1050. | 2.5 | 88 |
| 120 | Quantitative biomechanics of healthy and diseased human red blood cells using dielectrophoresis in a microfluidic system. Extreme Mechanics Letters, 2014, 1, 35-41. | 4.1 | 88 |
| 121 | Improved fatigue resistance of gradient nanograined Cu. Acta Materialia, 2019, 166, 56-66. | 7.9 | 87 |
| 122 | Influence of corrosion deposits on near-threshold fatigue crack growth behavior in 2xxx and 7xxx series aluminum alloys. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1982, 13, 2271-2280. | 1.4 | 86 |
| 123 | Dynamic fatigue crack growth in polycrystalline alumina under cyclic compression. Journal of Materials Science Letters, 1986, 5, 774-778. | 0.5 | 86 |
| 124 | Static and dynamic light scattering of healthy and malaria-parasite invaded red blood cells. Journal of Biomedical Optics, 2010, 15, 020506. | 2.6 | 85 |
| 125 | Effects of mechanical properties and surface friction on elasto-plastic sliding contact. Mechanics of Materials, 2008, 40, 206-219. | 3.2 | 84 |
| 126 | Electric impedance microflow cytometry for characterization of cell disease states. Lab on A Chip, 2013, 13, 3903. | 6.0 | 84 |

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| 127 | Biophysics of Malarial Parasite Exit from Infected Erythrocytes. PLoS ONE, 2011, 6, e20869. | 2.5 | 84 |
| 128 | Plasticity effects on fracture normal to interfaces with homogeneous and graded compositions. International Journal of Solids and Structures, 1997, 34, 3415-3432. | 2.7 | 82 |
| 129 | Fatigue crack propagation in dual-phase steels: Effects of ferritic-martensitic microstructures on crack path morphology. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1984, 15, 1193-1207. | 2.2 | 80 |
| 130 | Analyses of internal structures and defects in materials using physics-informed neural networks. Science Advances, 2022, 8, eabk0644. | 10.3 | 80 |
| 131 | Plastic near-tip fields for branched cracks. International Journal of Fracture, 1986, 30, 237-259. | 2.2 | 78 |
| 132 | Shell buckling of individual multiwalled carbon nanotubes using nanoindentation. Applied Physics Letters, 2005, 87, 103109. | 3.3 | 78 |
| 133 | Mechanics of indentation of plastically graded materialsâ€"I: Analysis. Journal of the Mechanics and Physics of Solids, 2008, 56, 157-171. | 4.8 | 78 |
| 134 | Nanostructured Alâ€"Fe alloys produced by e-beam deposition: static and dynamic tensile properties. Acta Materialia, 2003, 51, 4197-4208. | 7.9 | 76 |
| 135 | Computational Biorheology of Human Blood Flow in Health and Disease. Annals of Biomedical Engineering, 2014, 42, 368-387. | 2.5 | 73 |
| 136 | An experimental study of spherical indentation on piezoelectric materials. Acta Materialia, 1999, 47, 2417-2430. | 7.9 | 72 |
| 137 | Deformation of the ultra-strong. Nature, 2008, 456, 716-717. | 27.8 | 71 |
| 138 | A unified mechanistic model for size-dependent deformation in nanocrystalline and nanotwinned metals. Acta Materialia, 2011, 59, 6861-6868. | 7.9 | 70 |
| 139 | Deep elastic strain engineering of bandgap through machine learning. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 4117-4122. | 7.1 | 70 |
| 140 | Plastic deformation of continuous fiber-reinforced metal-matrix composites: Effects of fiber shape and distribution. Scripta Metallurgica Et Materialia, 1990, 24, 325-330. | 1.0 | 69 |
| 141 | Cyclic strain hardening of nanocrystalline nickel. Scripta Materialia, 2006, 54, 1151-1155. | 5.2 | 69 |
| 142 | Mechanics of indentation of plastically graded materialsâ€"II: Experiments on nanocrystalline alloys with grain size gradients. Journal of the Mechanics and Physics of Solids, 2008, 56, 172-183. | 4.8 | 69 |
| 143 | The frictional sliding response of elasto-plastic materials in contact with a conical indenter. International Journal of Solids and Structures, 2007, 44, 1970-1989. | 2.7 | 68 |
| 144 | Biomechanics of single cortical neurons. Acta Biomaterialia, 2011, 7, 1210-1219. | 8.3 | 68 |

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| 145 | Differential growth and shape formation in plant organs. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12359-12364. | 7.1 | 68 |
| 146 | Actuation and locomotion driven by moisture in paper made with natural pollen. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 8711-8718. | 7.1 | 68 |
| 147 | Fatigue cracking in materials with brittle surface coatings. Scripta Metallurgica Et Materialia, 1993, 29, 237-242. | 1.0 | 67 |
| 148 | Gradients in elastic modulus for improved contact-damage resistance. part ii: the silicon nitrideâ€“silicon carbide system. Acta Materialia, 2001, 49, 3263-3268. | 7.9 | 67 |
| 149 | Human natural killer cells control Plasmodium falciparum infection by eliminating infected red blood cells. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 1479-1484. | 7.1 | 67 |
| 150 | Determination of processing-induced stresses and properties of layered and graded coatings: Experimental method and results for plasma-sprayed Niî—¸Al2O3. Acta Materialia, 1997, 45, 3123-3134. | 7.9 | 65 |
| 151 | Model experiments for direct visualization of grain boundary deformation in nanocrystalline metals. Applied Physics Letters, 2003, 83, 1441-1443. | 3.3 | 65 |
| 152 | Three-dimensional model of strength and ductility of polycrystalline copper containing nanoscale twins. Acta Materialia, 2008, 56, 4647-4657. | 7.9 | 65 |
| 153 | Size effects on the mechanical properties of thin polycrystalline metal films on substrates. Acta Materialia, 2002, 50, 1881-1893. | 7.9 | 62 |
| 154 | Curvature changes during thermal cycling of a compositionally graded Niî—¸Al2O3 multi-layered material. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1996, 205, 59-71. | 5.6 | 61 |
| 155 | Electrical response during indentation of piezoelectric materials: A new method for material characterization. Journal of Applied Physics, 1999, 85, 380-387. | 2.5 | 61 |
| 156 | Pf155/RESA protein influences the dynamic microcirculatory behavior of ring-stage Plasmodium falciparum infected red blood cells. Scientific Reports, 2012, 2, 614. | 3.3 | 61 |
| 157 | Real-time, high-resolution study of nanocrystallization and fatigue cracking in a cyclically strained metallic glass. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 19725-19730. | 7.1 | 61 |
| 158 | Stress evolution in passivated thin films of Cu on silica substrates. Journal of Materials Research, 1998, 13, 1928-1937. | 2.6 | 60 |
| 159 | An experimental investigation of fretting fatigue in Ti-6Al-4V: the role of contact conditions and microstructure. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2001, 32, 1131-1146. | 2.2 | 60 |
| 160 | Identification of crack location and depth in a cantilever beam using a modular neural network approach. Smart Materials and Structures, 2004, 13, 907-915. | 3.5 | 60 |
| 161 | Constitutive behavior of a microcracking brittle solid in cyclic compression. Journal of the Mechanics and Physics of Solids, 1987, 35, 721-742. | 4.8 | 58 |
| 162 | Elasto-plastic deformation of compositionally graded metal-ceramic composites. Acta Materialia, 1997, 45, 3401-3417. | 7.9 | 58 |

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|---|---|---|---|
| 163 | Transformation of hard pollen into soft matter. Nature Communications, 2020, 11, 1449. | 12.8 | 58 |
| 164 | Microstructural evolution in passivated Al films on Si substrates during thermal cycling. Acta Materialia, 2002, 50, 3435-3452. | 7.9 | 57 |
| 165 | The influence of chromium addition on the toughness of Î³-NiÎ±-Al2O3 interfaces. Acta Materialia, 1997, 45, 3503-3513. | 7.9 | 56 |
| 166 | Effects of grain refinement and strength on friction and damage evolution under repeated sliding contact in nanostructured metals. International Journal of Fatigue, 2005, 27, 1159-1163. | 5.7 | 55 |
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