David Dunstan

List of Publications by Year
in descending order

120 papers	2,930 citations	186209 28 h-index	182361 51 g-index
120 all docs	120 docs citations	120 times ranked	2435 citing authors

#	Article	IF	Citations
1	Plastic relaxation and relaxed buffer layers for semiconductor epitaxy. Advances in Physics, 1996, 45, 87-146.	35.9	185
2	Grain size dependence of the strength of metals: The Hallâ€“Petch effect does not scale as the inverse square root of grain size. International Journal of Plasticity, 2014, 53, 56-65.	4.1	149
3	Strain and strain relaxation in semiconductors. Journal of Materials Science: Materials in Electronics, 1997, 8, 337-375.	1.1	144
4	Spider dragline silk as torsional actuator driven by humidity. Science Advances, 2019, 5, eaau9183.	4.7	108
5	Materials mechanical size effects: a review. Materials Technology, 2008, 23, 193-209.	1.5	107
6	Geometrical theory of critical thickness and relaxation in strainedâ€layer growth. Journal of Applied Physics, 1991, 70, 3038-3045.	1.1	102
7	The Hallâ€“Petch effect as a manifestation of the general size effect. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20150890.	1.0	102
8	The scaling exponent in the size effect of small scale plastic deformation. International Journal of Plasticity, 2013, 40, 152-162.	4.1	98
9	Plastic relaxation of InGaAs grown on GaAs. Applied Physics Letters, 1991, 59, 3390-3392.	1.5	97
10	Elastic Limit and Strain Hardening of Thin Wires in Torsion. Physical Review Letters, 2009, 103, 155501.	2.9	94
11	Anomalous Plasticity in the Cyclic Torsion of Micron Scale Metallic Wires. Physical Review Letters, 2013, 110, 244301.	2.9	93
12	Frequency-resolved spectroscopy and its application to the analysis of recombination in semiconductors. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1984, 50, 579-597.	0.6	86
13	Size effect in the initiation of plasticity for ceramics in nanoindentation. Journal of the Mechanics and Physics of Solids, 2008, 56, 1170-1185.	2.3	83
14	Grain size and sample size interact to determine strength in a soft metal. Philosophical Magazine, 2008, 88, 3043-3050.	0.7	78
15	Interdiffusion in InGaAs/GaAs quantum well structures as a function of depth. Journal of Applied Physics, 1993, 73, 3782-3786.	1.1	77
16	Theory of the gasket in diamond anvil highâ€pressure cells. Review of Scientific Instruments, 1989, 60, 3789-3795.	0.6	76
17	Miniature cryogenic diamondâ€anvil highâ€pressure cell. Review of Scientific Instruments, 1988, 59, 627-630.	0.6	68
18	Discontinuous Tangential Stress in Double Wall Carbon Nanotubes. Physical Review Letters, 2004, 93, 095506.	2.9	66

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19	Material length scale of strain gradient plasticity: A physical interpretation. International Journal of Plasticity, 2017, 98, 156-174.	4.1	54
20	Plasticity size effects in nanoindentation. Journal of Materials Research, 2004, 19, 137-142.	1.2	40
21	Mechanical properties of graphene. Applied Physics Reviews, 2021, 8, .	5.5	37
22	Measurement of the size effect in the yield strength of nickel foils. Philosophical Magazine Letters, 2005, 85, 339-343.	0.5	36
23	3D Strain in 2D Materials: To What Extent is Monolayer Graphene Graphite?. Physical Review Letters, 2019, 123, 135501.	2.9	35
24	Theory of deformation in small volumes of material. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2004, 460, 2781-2796.	1.0	33
25	Pressure dependence of the direct band gap in tetrahedral semiconductors. Physical Review B, 1998, 58, 12579-12582.	1.1	32
26	Reappraisal of experimental values of third-order elastic constants of some cubic semiconductors and metals. Physical Review B, 2006, 73, .	1.1	32
27	Nanoscale pressure effects in individual double-wall carbon nanotubes. Physical Review B, 2006, 73, .	1.1	32
28	Reversible barocaloric effects over a large temperature span in fullerite C₆₀. Journal of Materials Chemistry A, 2020, 8, 20354-20362.	5.2	32
29	Pressure-induced radial collapse in few-wall carbon nanotubes: A combined theoretical and experimental study. Carbon, 2017, 125, 429-436.	5.4	27
30	The onset of plasticity in nanoscale contact loading. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2003, 459, 2049-2068.	1.0	25
31	Observation of the critical thickness phenomenon in dislocation dynamics simulation of microbeam bending. Acta Materialia, 2012, 60, 1603-1609.	3.8	25
32	Size effects in yield and plasticity under uniaxial and non-uniform loading: experiment and theory. Philosophical Magazine, 2011, 91, 1037-1049.	0.7	23
33	Kinetics of distant-pair recombination III. Bias illumination and frequency-resolved spectroscopy. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1985, 52, 111-119.	0.6	22
34	Equilibrium critical thickness of epitaxial strained layers in the {111} orientations. Journal of Applied Physics, 1997, 81, 2898-2900.	1.1	22
35	Mathematical model for strain relaxation in multilayer metamorphic epitaxial structures. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1996, 73, 1323-1332.	0.7	21
36	Kinetics of distant-pair recombination. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1984, 49, 191-213.	0.6	20

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37	A determination of the relative bulk moduli of GaInAsP and InP. Philosophical Magazine Letters, 1988, 58, 37-44.	0.5	19
38	Predictability of plastic relaxation in metamorphicepitaxy. Materials Science and Technology, 1996, 12, 181-186.	0.8	19
39	Coherency Strain as an Athermal Strengthening Mechanism. Physical Review Letters, 1997, 78, 3912-3914.	2.9	19
40	Pressure coefficients of Raman modes of carbon nanotubes resolved by chirality: Environmental effect on graphene sheet. Physical Review B, 2013, 87, .	1.1	19
41	Optical characterization of thermal mixing in quantum wells and heterostructures using a Greenâ€™s function model. Journal of Applied Physics, 1991, 69, 7581-7584.	1.1	18
42	Numerical calculation of equilibrium critical thickness in strained-layer epitaxy. Semiconductor Science and Technology, 1994, 9, 1265-1267.	1.0	17
43	Effect of humidity on the interlayer interaction of bilayer graphene. Physical Review B, 2019, 99, .	1.1	17
44	Temporal mapping of photochemical reactions and molecular excited states with carbon specificity. Nature Materials, 2017, 16, 467-473.	13.3	16
45	Effect of coherency strain on the deformation of InxGa1â^'xAs superlattices under nanoindentation and bending. Philosophical Magazine, 2005, 85, 2469-2490.	0.7	15
46	Peculiar torsion dynamical response of spider dragline silk. Applied Physics Letters, 2017, 111, .	1.5	15
47	On energetic and dissipative gradient effects within higher-order strain gradient plasticity: Size effect, passivation effect, and Bauschinger effect. International Journal of Plasticity, 2021, 141, 102994.	4.1	15
48	Light scattering of double wall carbon nanotubes under hydrostatic pressure: pressure effects on the internal and external tubes. Physica Status Solidi (B): Basic Research, 2004, 241, 3360-3366.	0.7	14
49	Determination of the Linear Pressure Coefficients of Semiconductor Bandgaps. Physica Status Solidi (B): Basic Research, 1996, 198, 57-60.	0.7	13
50	The role of experimental error in arrhenius plots: Self-diffusion in semiconductors. Solid State Communications, 1998, 107, 159-163.	0.9	13
51	Effective thermodynamic elastic constants under finite deformation. Applied Physics Letters, 2002, 80, 2672-2674.	1.5	13
52	Relaxation behavior of undoped InxGa1â^'xP 0.5<x<0.7 grown on GaAs by atomic layer molecularâ€beam epitaxy. Journal of Applied Physics, 1996, 80, 3327-3332.	1.1	12
53	Micromechanical testing with microstrain resolution. Review of Scientific Instruments, 2011, 82, 093906.	0.6	12
54	Validation of a phenomenological strain-gradient plasticity theory. Philosophical Magazine Letters, 2016, 96, 305-312.	0.5	12

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55	Collapse phase diagram of carbon nanotubes with arbitrary number of walls. Collapse modes and macroscopic analog. Carbon, 2021, 178, 552-562.	5.4	12
56	The new high field photoexcitation muon spectrometer at the ISIS pulsed neutron and muon source. Review of Scientific Instruments, 2016, 87, 125111.	0.6	11
57	A General Approach to Measurement of Band Offsets of Nearâ€GaAs Alloys. Physica Status Solidi (B): Basic Research, 1996, 198, 349-353.	0.7	10
58	Effective elastic constants in nonlinear elasticity. Journal of Applied Physics, 2005, 97, 103505.	1.1	10
59	Critical Thickness Theory Applied to Micromechanical Testing. Advanced Engineering Materials, 2012, 14, 942-947.	1.6	10
60	Snails home. Physica Scripta, 2014, 89, 068002.	1.2	10
61	Diamondâ€anvil uniaxial stress cell. Review of Scientific Instruments, 1996, 67, 489-493.	0.6	9
62	Zen diamond-anvil low-pressure cell. Review of Scientific Instruments, 2000, 71, 4174.	0.6	9
63	Reliable non-linear elastic constants. Physica Status Solidi (B): Basic Research, 2003, 235, 396-400.	0.7	9
64	Slip distance model for the indentation size effect at the initiation of plasticity in ceramics and metals. Journal of Materials Research, 2009, 24, 966-972.	1.2	9
65	Nanomechanics of Carbon Nanotubes. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 7-10.	0.2	9
66	Graphite under uniaxial compression along the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>c</mml:mi></mml:math>axis: A parameter to relate out-of-plane strain to in-plane phonon frequency. Physical Review B, 2015, 92, .	1.1	9
67	Raman spectroscopy of single-walled carbon nanotubes at high pressure: Effect of interactions between the nanotubes and pressure transmitting media. Physica Status Solidi (B): Basic Research, 2007, 244, 147-150.	0.7	8
68	High-pressure studies of carbon nanotubes. High Pressure Research, 2009, 29, 548-553.	0.4	8
69	Critical thickness phenomenon in single-crystalline wires under torsion. Acta Materialia, 2018, 150, 213-223.	3.8	8
70	NEGATIVE EFFECTIVE PRESSURES IN LIQUID MIXTURES. High Pressure Research, 2003, 23, 205-209.	0.4	7
71	Resonance Raman spectroscopy of carbon nanotubes: pressure effects on G-mode. High Pressure Research, 2014, 34, 191-197.	0.4	7
72	Unexpected softness of bilayer graphene and softening of A-A stacked graphene layers. Physical Review B, 2020, 101, .	1.1	7

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73	Easy computation of the Bayes factor to fully quantify Occamâ€™s razor in least-squares fitting and to guide actions. Scientific Reports, 2022, 12, 993.	1.6	7
74	Laminated gaskets for absorption and electrical measurements in the diamond anvil cell. Review of Scientific Instruments, 1992, 63, 5760-5763.	0.6	6
75	Electronâ€beamâ€generated carrier distributions in semiconductor multilayer structures. Journal of Microscopy, 1997, 187, 119-124.	0.8	6
76	Analysis of high-resolution x-ray diffraction in semiconductor strained layers. Journal of Applied Physics, 1999, 86, 782-790.	1.1	6
77	The strength of thin films, small structures and materials under localised stresses. Thin Solid Films, 2009, 517, 3781-3783.	0.8	6
78	Effect of High Pressure on the Optical Transmission Spectra of AIIIBIIIC2VI Crystals. Physica Status Solidi (B): Basic Research, 1989, 151, 759-764.	0.7	5
79	The pressure dependence of the photoluminescence intensity in hydrogenated amorphous silicon. Philosophical Magazine Letters, 1989, 59, 37-42.	0.5	5
80	Miniature cryogenic diamond anvil cell. High Pressure Research, 1990, 5, 794-796.	0.4	5
81	High Pressure Instrumentation: Low and Negative Pressures. High Pressure Research, 2002, 22, 773-778.	0.4	5
82	Double subtractive spectrometer as a tunable high-resolution broad-bandpass optical filter. Review of Scientific Instruments, 2002, 73, 3742-3746.	0.6	5
83	Derivation of special relativity from Maxwell and Newton. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 1861-1865.	1.6	5
84	Gâ€mode behaviour of closed ended single wall carbon nanotubes under pressure. Physica Status Solidi (B): Basic Research, 2009, 246, 491-495.	0.7	5
85	Raman excitation spectroscopy of carbon nanotubes: effects of pressure medium and pressure. High Pressure Research, 2012, 32, 67-71.	0.4	5
86	Yield and plastic flow of soft metals in small volumes loaded in tension and flexure. Philosophical Magazine, 2012, 92, 3199-3215.	0.7	5
87	Graphite under compression: shift of layer breathing and shear modes frequencies with interlayer spacing. Journal of Physics Communications, 2018, 2, 045004.	0.5	5
88	Magneto-optical studies of CdTe/CdMnTe semimagnetic semiconductor superlattices under high pressure. High Pressure Research, 1990, 3, 72-74.	0.4	4
89	CdTe/ZnTe strained layer superlattices under high pressure. High Pressure Research, 1990, 3, 63-65.	0.4	4
90	The pressure dependence of the valence band discontinuity in quantum well structures. High Pressure Research, 1990, 3, 57-59.	0.4	4

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91	Soldering diamonds into the diamond anvil cell. Review of Scientific Instruments, 1991, 62, 1660-1661.	0.6	3
92	Strength of coherently strained layered superlattices. Philosophical Magazine, 2005, 85, 4429-4444.	0.7	3
93	Significance of Bundling Effects on Carbon Nanotubesâ€™ Response to Hydrostatic Compression. Journal of Physical Chemistry C, 2016, 120, 1863-1870.	1.5	3
94	Factors determining the magnitude of grain-size strengthening in polycrystalline metals. Materialia, 2018, 4, 182-191.	1.3	3
95	Buckling of compressively strained epitaxial crystal structures. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1994, 70, 233-246.	0.7	2
96	Coherency Strain and High Strength at High Temperature. Materials Research Society Symposia Proceedings, 1996, 434, 147.	0.1	2
97	Theory of the Anomalous Low Band-Gap Pressure Coefficients of Semiconductor Strained Layers. Physica Status Solidi (B): Basic Research, 2001, 223, 205-211.	0.7	2
98	New experimental test of strain-gradient plasticity theory: metal foil sandwich structures in flexure. Philosophical Magazine Letters, 0, , 1-6.	0.5	2
99	Nanostrain sensitivity in a wire torsion experiment. Review of Scientific Instruments, 2020, 91, 013901.	0.6	2
100	Graphene on silicon: Effects of the silicon surface orientation on the work function and carrier density of graphene. Physical Review B, 2022, 105, .	1.1	2
101	Utilising buckling modes for the determination of the anisotropic mechanical properties of As₂S₃ nanosheets. Nanoscale, 2022, 14, 7872-7880.	2.8	2
102	Multi-beam time-resolved spectroscopy in a-Si:H. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1986, 53, 77-86.	0.6	1
103	Interpretation of doubleâ€crystal xâ€ray rocking curves in relaxed strainedâ€layer structures. Journal of Applied Physics, 1996, 79, 3011-3015.	1.1	1
104	Determination of the Mode GrÃ¼neisen Parameter of AlN using different Fits on Experimental High Pressure Data. High Pressure Research, 2002, 22, 37-41.	0.4	1
105	PRACTICAL NON-LINEAR ELASTICITY THEORY FOR LARGE STRAINS. High Pressure Research, 2003, 23, 323-327.	0.4	1
106	A novel high pressure tool: the solvation pressure of liquids. Journal of Physics Condensed Matter, 2004, 16, S1181-S1186.	0.7	1
107	Enhanced Raman signal of CH3 on carbon nanotubes. Materials Research Society Symposia Proceedings, 2004, 858, 107.	0.1	1
108	Harmonic and anharmonic components of third-order elastic constants. Physical Review B, 2004, 69, .	1.1	1

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109	Evidence of Î“-Free or Bound-to-Deep Acceptor Character of the Y-1.2 eV Deep Photoluminescence Line in n-type Ge-doped GaAs Derived from High Hydrostatic Pressure Experiments in Diamond Anvil Cell. Acta Physica Polonica A, 1993, 84, 649-652.	0.2	1
110	Plasticity size effects in nanoindentation. Journal of Materials Research, 2004, 19, 137-142.	1.2	1
111	Pressure Induced Shallow-Deep A₁Transition for Sn Donor in GaAs Observed in Diamond Anvil Cell Photoluminescence Experiment. Acta Physica Polonica A, 1995, 87, 457-460.	0.2	1
112	New determination of the band structure of disordered AlGaInP and its influence on visible laser characteristics. , 0, , .		0
113	Band offsets in near-GaAs alloys. , 1997, , .		0
114	A Theory of Non-Linear Elasticity Compatible With the Murnaghan Equation of State. High Pressure Research, 2002, 22, 231-235.	0.4	0
115	Determination of ordering effects on GaInP pressure coefficients. Physica Status Solidi (B): Basic Research, 2004, 241, 3123-3127.	0.7	0
116	Strength of strained quantum wells and other small scale structures. Physica Status Solidi (B): Basic Research, 2007, 244, 93-99.	0.7	0
117	Size and Environment Effect on the Room Temperature Plastic Deformation of Ceramic Nanoparticles. Microscopy and Microanalysis, 2016, 22, 48-49.	0.2	0
118	Reply to: On the observation of photo-excitation effects in molecules using muon spin spectroscopy. Nature Materials, 2021, , .	13.3	0
119	Softening of the Euler Buckling Criterion under Discretization of Compliance. Physical Review Applied, 2021, 16, .	1.5	0
120	Significant interlayer coupling in bilayer graphene and double-walled carbon nanotubes: A refinement of obtaining strain in low-dimensional materials. Physical Review B, 2022, 105, .	1.1	0