Daryl C Chrzan

List of Publications by Year
in descending order

113	4,265	159585	110387
papers	citations	30 h-index	64 g-index

113	113	113	5175
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Dynamics of irreversible island growth during submonolayer epitaxy. Physical Review B, 1994, 50, 6057-6067.	3.2	414
2	Equilibrium limits of coherency in strained nanowire heterostructures. Journal of Applied Physics, 2005, 97, 114325.	2.5	337
3	Goldâ€Mediated Exfoliation of Ultralarge Optoelectronicallyâ€Perfect Monolayers. Advanced Materials, 2016, 28, 4053-4058.	21.0	307
4	Origin of dramatic oxygen solute strengthening effect in titanium. Science, 2015, 347, 635-639.	12.6	255
5	Ultrahigh stress and strain in hierarchically structured hollow nanoparticles. Nature Materials, 2008, 7, 947-952.	27.5	193
6	â€œIdealâ€•Engineering Alloys. Physical Review Letters, 2007, 98, 105503.	7.8	181
7	Scaling of Misorientation Angle Distributions. Physical Review Letters, 1998, 81, 4664-4667.	7.8	162
8	Defect reconfiguration in a Tiâ€“Al alloy via electroplasticity. Nature Materials, 2021, 20, 468-472.	27.5	142
9	Tuning Ideal Tensile Strengths and Intrinsic Ductility of bcc Refractory Alloys. Physical Review Letters, 2014, 112, 115503.	7.8	139
10	Connecting atomistic and experimental estimates of ideal strength. Physical Review B, 2002, 65, .	3.2	127
11	Large Melting-Point Hysteresis of Ge Nanocrystals Embedded inSiO2. Physical Review Letters, 2006, 97, 155701.	7.8	108
12	Scaling Theory of the Hall-Petch Relation for Multilayers. Physical Review Letters, 1998, 81, 2715-2718.	7.8	104
13	Helical van der Waals crystals with discretized Eshelby twist. Nature, 2019, 570, 358-362.	27.8	91
14	Direct imaging of short-range order and its impact on deformation in Ti-6Al. Science Advances, 2019, 5, eaax2799.	10.3	86
15	Topological description of the Stone-Wales defect formation energy in carbon nanotubes and graphene. Physical Review B, 2009, 79, .	3.2	83
16	Synthetic WSe ₂ monolayers with high photoluminescence quantum yield. Science Advances, 2019, 5, eaau4728.	10.3	78
17	Structure and Energy of the90Â°Partial Dislocation in Diamond: A CombinedAb Initioand Elasticity Theory Analysis. Physical Review Letters, 2000, 84, 5780-5783.	7.8	75
18	Transition from Compact to Fractal Islands during Submonolayer Epitaxial Growth. Physical Review Letters, 1995, 74, 4879-4882.	7.8	70

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19	Effect of solute atoms on dislocation motion in Mg: An electronic structure perspective. Scientific Reports, 2015, 5, 8793.	3.3	69
20	Mechanistic basis of oxygen sensitivity in titanium. Science Advances, 2020, 6, .	10.3	59
21	Continuum analysis of dislocation pile-ups: Influence of sources. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1998, 77, 1185-1204.	0.6	55
22	Ideal tensile strength ofB2transition-metal aluminides. Physical Review B, 2004, 70, .	3.2	52
23	Distortion and Segregation in a Dislocation Core Region at Atomic Resolution. Physical Review Letters, 2005, 95, 145501.	7.8	50
24	The inherent tensile strength of iron. Philosophical Magazine Letters, 2002, 82, 141-147.	1.2	49
25	Spreading of dislocation cores in elastically anisotropic body-centered-cubic materials: The case of gum metal. Physical Review B, 2010, 82, .	3.2	46
26	Elimination of oxygen sensitivity in Î±-titanium by substitutional alloying with Al. Nature Communications, 2021, 12, 6158.	12.8	41
27	Stable, freestanding Ge nanocrystals. Journal of Applied Physics, 2005, 97, 124316.	2.5	38
28	Adatom Transport on Strained Cu(001): Surface Crowdions. Physical Review Letters, 2003, 90, 156102.	7.8	35
29	Deterministic Nucleation of InP on Metal Foils with the Thin-Film Vaporâ€“Liquidâ€“Solid Growth Mode. Chemistry of Materials, 2014, 26, 1340-1344.	6.7	32
30	Ideal strength and ductility in metals from second- and third-order elastic constants. Physical Review B, 2017, 96, .	3.2	31
31	Embedded Binary Eutectic Alloy Nanostructures: A New Class of Phase Change Materials. Nano Letters, 2010, 10, 2794-2798.	9.1	27
32	Selfâ€Passivation of Defects: Effects of Highâ€Energy Particle Irradiation on the Elastic Modulus of Multilayer Graphene. Advanced Materials, 2015, 27, 6841-6847.	21.0	24
33	Kinetic Monte Carlo simulation of dislocation dynamics. Physical Review B, 1999, 60, 3799-3805.	3.2	23
34	Nanoscale Structural Engineering via Phase Segregation: Auâˆ’Ge System. Nano Letters, 2010, 10, 393-397.	9.1	23
35	Spatially Precise Transfer of Patterned Monolayer WS₂ and MoS₂ with Features Larger than 10⁴ Î¼m² Directly from Multilayer Sources. ACS Applied Electronic Materials, 2019, 1, 407-416.	4.3	23
36	Structural properties of Ge nanocrystals embedded in sapphire. Journal of Applied Physics, 2006, 100, 114317.	2.5	22

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37	Criticality in the plastic deformation ofL12intermetallic compounds. Physical Review B, 1994, 50, 30-42.	3.2	21
38	Oriented Growth of Gold Nanowires on MoS₂. Advanced Functional Materials, 2015, 25, 6257-6264.	14.9	21
39	Compliant substrate epitaxy: Au on<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>MoS</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:math> Physical Review B, 2016, 93, .	3.2	21
40	Ab initiostudy of the ideal shear strength and elastic deformation behaviors of B2FeAlandNiAl. Physical Review B, 2006, 73, .	3.2	20
41	Measuring the Edge Recombination Velocity of Monolayer Semiconductors. Nano Letters, 2017, 17, 5356-5360.	9.1	19
42	Ab initioprediction of the structure of glide set dislocation cores in GaAs. Journal of Physics Condensed Matter, 2002, 14, 12673-12680.	1.8	18
43	Plasticity in carbon nanotubes: Cooperative conservative dislocation motion. Physical Review B, 2010, 81, .	3.2	18
44	Theory of thin-film-mediated exfoliation of van der Waals bonded layered materials. Physical Review Materials, 2018, 2, .	2.4	18
45	Pinning-depinning transition in dislocation dynamics. Physical Review B, 1997, 55, 798-811.	3.2	17
46	Sub-angstrom imaging of dislocation core structures: how well are experiments comparable with theory?. Philosophical Magazine, 2006, 86, 4575-4588.	1.6	17
47	Theory of Nanocluster Size Distributions from Ion Beam Synthesis. Physical Review Letters, 2009, 102, 146101.	7.8	17
48	Nano-topology optimization for materials design with atom-by-atom control. Nature Communications, 2020, 11, 3745.	12.8	17
49	Criticality in the plastic deformation ofNi3Al. Physical Review Letters, 1992, 69, 2795-2798.	7.8	16
50	Structure map for embedded binary alloy nanocrystals. Applied Physics Letters, 2008, 93, 193114.	3.3	16
51	Electrodeposition of High-Purity Indium Thin Films and Its Application to Indium Phosphide Solar Cells. Journal of the Electrochemical Society, 2014, 161, D794-D800.	2.9	16
52	Phonons and phase stability in Ti-V approximants to gum metal. Physical Review B, 2012, 85, .	3.2	15
53	Kinetic phase diagram for crystal growth: A (1+1)-dimensional model. Physical Review Letters, 1991, 67, 220-223.	7.8	14
54	Frank-Read sources within a continuum simulation. Modelling and Simulation in Materials Science and Engineering, 1999, 7, 479-494.	2.0	13

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55	Nanomechanical Testing of Gum Metal. Experimental Mechanics, 2010, 50, 37-45.	2.0	13
56	Twin nucleation from a single <c+a> dislocation in hexagonal close-packed crystals. Acta Materialia, 2021, 202, 35-41.	7.9	13
57	Dislocation core radii near elastic stability limits. Physical Review B, 2013, 87, .	3.2	12
58	Convergence of calculated dislocation core structures in hexagonal close packed titanium. Modelling and Simulation in Materials Science and Engineering, 2018, 26, 014003.	2.0	12
59	Deterministic Assembly of Arrays of Lithographically Defined WS2 and MoS2 Monolayer Features Directly From Multilayer Sources Into Van Der Waals Heterostructures. Journal of Micro and Nano-Manufacturing, 2019, 7, .	0.7	12
60	Large zero-point fluctuations of the K(110) surface. Physical Review Letters, 1993, 70, 1964-1967.	7.8	11
61	Size-distribution evolution of ion-beam-synthesized nanoclusters in silica. Physical Review B, 2009, 80, .	3.2	11
62	What is the Limit of Nanoparticle Strengthening?. MRS Bulletin, 2009, 34, 173-177.	3.5	11
63	Electronic and magnetic structure of {111} stacking faults in nickel. Physical Review B, 1991, 43, 9442-9451.	3.2	10
64	Electronic effects of Se and Pb dopants in TlBr. Applied Physics Letters, 2012, 100, 202102.	3.3	9
65	Intrinsic ductility of random substitutional alloys from nonlinear elasticity theory. Physical Review Materials, 2019, 3, .	2.4	9
66	Equilibrium Analysis of Lattice-Mismatched Nanowire Heterostructures. Materials Research Society Symposia Proceedings, 2002, 737, 262.	0.1	8
67	MATERIALS SCIENCE: Metallurgy in the Age of Silicon. Science, 2005, 310, 1623-1624.	12.6	8
68	Structure and energy of the partial dislocation cores in GaAs. Physica Status Solidi (B): Basic Research, 2006, 243, 2122-2132.	1.5	8
69	Elasticity theory of topological defects in carbon nanotubes and graphene. Philosophical Magazine Letters, 2008, 88, 159-167.	1.2	8
70	Shape-controlled single-crystal growth of InP at low temperatures down to 220 Â°C. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 902-906.	7.1	8
71	Molecular dynamics studies of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mo>âŒ©</mml:mo><mml:mi>a</mml:mi><mml:mo>âŒª</mml:mo></mml:mrow></mml:math> -type screw dislocation core structure polymorphism in titanium. Physical Review Materials, 2022, 6, .	2.4	8
72	Theoretical phase stability of incommensurable spin structures on the {001} surfaces of MnO-type antiferromagnetic semiconductors. Physical Review B, 1989, 39, 3159-3167.	3.2	7

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73	Phillips and Chrzan reply. Physical Review Letters, 1992, 68, 2855-2855.	7.8	7
74	Reversible phase changes in Geâ€“Au nanoparticles. Applied Physics Letters, 2011, 98, 193101.	3.3	7
75	Computing elastic anisotropy to discover gum-metal-like structural alloys. Physical Review Materials, 2017, 1, .	2.4	7
76	Orientated Growth of Ultrathin Tellurium by van der Waals Epitaxy. Advanced Materials Interfaces, 2022, 9, .	3.7	7
77	Phase stability of ternary alloys in the four-sublattice Bragg-Williams approximation. Physical Review B, 1988, 37, 3894-3899.	3.2	6
78	Self-assembled nanostructures through wavelength-controlled spinodal decomposition. Applied Physics Letters, 2003, 83, 1364-1366.	3.3	6
79	Characterization and Manipulation of Exposed Ge Nanocrystals. Materials Research Society Symposia Proceedings, 2004, 818, 1.	0.1	6
80	Photoluminescence enhancement of Er-doped silica containing Ge nanoclusters. Applied Physics Letters, 2009, 95, .	3.3	6
81	Processing route for size distribution narrowing of ion beam synthesized nanoclusters. Applied Physics Letters, 2009, 95, 083120.	3.3	6
82	Gate Quantum Capacitance Effects in Nanoscale Transistors. Nano Letters, 2019, 19, 7130-7137.	9.1	6
83	Self-immobilization of superdislocations in L1₂alloys: A simple statistical analysis. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1999, 79, 2397-2412.	0.6	5
84	Incommensurable Magnetic Surface Structures for MnO-Type Antiferromagnetic Insulators. Physical Review Letters, 1988, 61, 1509-1511.	7.8	4
85	Modeling the Stress Evolution of Ion Beam Synthesized Nanocrystals. Materials Research Society Symposia Proceedings, 2004, 821, 252.	0.1	4
86	Embedded Binary Eutectic Alloy Nanostructures. Jom, 2012, 64, 1158-1164.	1.9	4
87	Dislocations near elastic instability in high-pressure body-centered-cubic magnesium. Physical Review B, 2017, 95, .	3.2	4
88	Exactly soluble model for antiphase boundaries in binary ordering alloys. Physical Review B, 1989, 40, 8194-8202.	3.2	3
89	Magnetic structure of {111} stacking faults in nickel. Journal of Applied Physics, 1990, 67, 4558-4560.	2.5	3
90	Invasion percolation model of co-interpenetrating ceramic-metal composites. Modelling and Simulation in Materials Science and Engineering, 2002, 10, 103-119.	2.0	3

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91	Electrical and Optical Studies of Deep Levels in Nominally Undoped Thallium Bromide. IEEE Transactions on Nuclear Science, 2014, 61, 689-694.	2.0	3
92	Nucleation of melting and solidification in confined high aspect ratio thin films. Journal of Applied Physics, 2017, 122, 105304.	2.5	3
93	Strain-induced variant selection in heterogeneous nucleation of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>Î±</mml:mi></mml:math> -Ti at screw dislocations in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>Î²</mml:mi></mml:math> -Ti. Physical Review Materials, 2018, 2, .	2.4	3
94	Thermodynamic model for polymorphic dislocation core spreading within hexagonal close packed metals. Physical Review Materials, 2022, 6, .	2.4	3
95	Kinetics of visible light photo-oxidation of Ge nanocrystals: Theory and in situ measurement. Applied Physics Letters, 2007, 90, 163118.	3.3	2
96	Statistical approach to the unfolding of mechanically stressed biopolymers. Journal of the Mechanical Behavior of Biomedical Materials, 2009, 2, 603-606.	3.1	2
97	Modeling pulsed-laser melting of embedded semiconductor nanoparticles. Journal of Applied Physics, 2011, 110, 094307.	2.5	2
98	Imaging Short-range Order and Extracting 3-D Strain Tensor Using Energy-filtered 4D-STEM Techniques. Microscopy and Microanalysis, 2020, 26, 936-938.	0.4	2
99	Ab initio calculation of thermal expansion with application to understanding Invar behavior in gum metal. Physical Review Materials, 2018, 2, .	2.4	2
100	Nucleation of Islands During Epitaxial Growth: Influence of a Second Species. Materials Research Society Symposia Proceedings, 1998, 528, 25.	0.1	1
101	Is computational materials science overrated?. Materials Today, 1999, 2, 21-23.	14.2	1
102	Amplitude Dependent Internal Friction within a Continuum Simulation. Materials Research Society Symposia Proceedings, 1999, 578, 161.	0.1	1
103	Self-consistent mean-field theory of size distribution narrowing during ramped temperature ion beam synthesis. Journal of Applied Physics, 2013, 114, 234301.	2.5	1
104	Theory of liquid-mediated strain release in two-dimensional materials. Physical Review Materials, 2022, 6, .	2.4	1
105	Structural heterogeneity in non-crystalline Te_x Se1â^'x thin films. Applied Physics Letters, 2022, 121, 012101.	3.3	1
106	Size Scaling in the Self-Immortalization of Superdislocations in the L12 Compounds Displaying the Yield Strength Anomaly. Materials Research Society Symposia Proceedings, 1998, 552, 1.	0.1	0
107	Simulation of Dislocation Dynamics in Ni3Al: A Study of Velocity Autocorrelations. Materials Research Society Symposia Proceedings, 1999, 578, 143.	0.1	0
108	Structure of Dislocation Cores in GaAs. Materials Research Society Symposia Proceedings, 2003, 779, 321.	0.1	0

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109	The Structure of Intrinsic Stacking Faults in GaAs. AIP Conference Proceedings, 2005, , .	0.4	0
110	Interfacial free energies determined from binary embedded alloy nanocluster geometry. APL Materials, 2013, 1, 052105.	5.1	0
111	Understanding the Slip Planarity and Residual Strain Field in Ti-6Al using Nanobeam Electron Diffraction and First Principles Calculations. Microscopy and Microanalysis, 2019, 25, 1892-1893.	0.4	0
112	Asymmetry in deformation. Nature Materials, 2021, 20, 1305-1306.	27.5	0
113	Lattice softening in body-centered-cubic lithium-magnesium alloys. Physical Review Materials, 2017, 1, .	2.4	0