Hanchen Huang

List of Publications by Year
in descending order

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122 papers	4,058 citations	117625 34 h-index	123424 61 g-index
122 all docs	122 docs citations	122 times ranked	3582 citing authors

#	Article	IF	Citations
1	Are surfaces elastically softer or stiffer?. Applied Physics Letters, 2004, 84, 1940-1942.	3.3	325
2	Size-dependent elasticity of nanowires: Nonlinear effects. Physical Review B, 2005, 71, .	3.2	323
3	An atomistic simulator for thin film deposition in three dimensions. Journal of Applied Physics, 1998, 84, 3636-3649.	2.5	210
4	Mechanics of Crystalline Nanowires. MRS Bulletin, 2009, 34, 178-183.	3.5	166
5	Mechanical Properties of Silicon Carbide Nanowires: Effect of Size-Dependent Defect Density. Nano Letters, 2014, 14, 754-758.	9.1	161
6	Multiscale modelling of nanomechanics and micromechanics: an overview. Philosophical Magazine, 2003, 83, 3475-3528.	1.6	145
7	Shockley partial dislocations to twin: Another formation mechanism and generic driving force. Applied Physics Letters, 2004, 85, 5983-5985.	3.3	138
8	Growth of Y-Shaped Nanorods through Physical Vapor Deposition. Nano Letters, 2005, 5, 2505-2508.	9.1	133
9	Novel deformation mechanism of twinned nanowires. Applied Physics Letters, 2006, 88, 203112.	3.3	118
10	Lattice Monte Carlo models of thin film deposition. Thin Solid Films, 2000, 365, 189-200.	1.8	114
11	Thin film deposition: fundamentals and modeling. Computational Materials Science, 1998, 12, 354-380.	3.0	112
12	Molecular dynamics determination of defect energetics in beta -SiC using three representative empirical potentials. Modelling and Simulation in Materials Science and Engineering, 1995, 3, 615-627.	2.0	105
13	Schwoebel-Ehrlich barrier: from two to three dimensions. Applied Physics Letters, 2002, 80, 3295-3297.	3.3	100
14	Youngâ€™s moduli of ZnO nanoplates: Ab initio determinations. Applied Physics Letters, 2006, 89, 183111.	3.3	86
15	Stability of single-wall silicon carbide nanotubes â€“ molecular dynamics simulations. Computational Materials Science, 2008, 43, 664-669.	3.0	71
16	Do Twin Boundaries Always Strengthen Metal Nanowires?. Nanoscale Research Letters, 2009, 4, 34-38.	5.7	70
17	Nanoplate elasticity under surface reconstruction. Applied Physics Letters, 2005, 86, 151912.	3.3	69
18	Structural transformation of ZnO nanostructures. Applied Physics Letters, 2007, 90, 023115.	3.3	68

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19	Diffusion barriers on Cu surfaces and near steps. Modelling and Simulation in Materials Science and Engineering, 2004, 12, 1209-1225.	2.0	64
20	Dislocation nucleation in the initial stage during nanoindentation. Philosophical Magazine, 2003, 83, 3609-3622.	1.6	61
21	Three-stage transition during silicon carbide nanowire growth. Applied Physics Letters, 2007, 90, 083106.	3.3	46
22	Functionalized aligned silver nanorod arrays for glucose sensing through surface enhanced Raman scattering. RSC Advances, 2014, 4, 23382.	3.6	45
23	Development of ã€˜110ã€‰ texture in copper thin films. Applied Physics Letters, 2002, 80, 2290-2292.	3.3	44
24	Stability of self-interstitial atoms in hcp-Zr. Journal of Nuclear Materials, 2012, 429, 233-236.	2.7	43
25	Wedding Cake Growth Mechanism in One-Dimensional and Two-Dimensional Nanostructure Evolution. Nano Letters, 2015, 15, 7766-7772.	9.1	43
26	Atomistic study of grain boundary sink strength under prolonged electron irradiation. Journal of Nuclear Materials, 2012, 422, 69-76.	2.7	40
27	Smallest Metallic Nanorods Using Physical Vapor Deposition. Physical Review Letters, 2013, 110, 136102.	7.8	40
28	Surface kinetics: Step-facet barriers. Applied Physics Letters, 2003, 83, 4752-4754.	3.3	39
29	Quantum mechanical calculations of uranium phases and niobium defects in Î³-uranium. Journal of Nuclear Materials, 2008, 375, 113-119.	2.7	38
30	An atomistic perspective on twinning phenomena in nano-enhanced fcc metals. Jom, 2008, 60, 79-84.	1.9	38
31	Multi-scale modeling of polycrystal plasticity: a workshop report. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1998, 251, 1-22.	5.6	37
32	Twin formation during SiC nanowire synthesis. Journal of Applied Physics, 2008, 104, .	2.5	37
33	Shape and surface chemistry effects on the cytotoxicity and cellular uptake of metallic nanorods and nanospheres. Journal of Biomedical Materials Research - Part A, 2015, 103, 3940-3955.	4.0	37
34	Ab initio determination of Ehrlichâ€“Schwoebel barriers on Cu{111}. Applied Physics Letters, 2008, 92, .	3.3	35
35	A swelling model for stoichiometric SiC at temperatures below 1000Â°C under neutron irradiation. Journal of Nuclear Materials, 1997, 250, 192-199.	2.7	31
36	Molecular dynamics calculations of defect energetics in Î²-SiC. Journal of Nuclear Materials, 1994, 212-215, 148-153.	2.7	30

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37	Diffusion and formation energies of adatoms and vacancies on magnesium surfaces. Computational Materials Science, 2009, 47, 121-127.	3.0	27
38	Multi-lattice Monte Carlo model of thin films. Journal of Computer-Aided Materials Design, 1999, 6, 117-127.	0.7	26
39	Micro-scale modeling of interface-dominated mechanical behavior. Journal of Materials Science, 2018, 53, 5546-5561.	3.7	25
40	Atomistic Simulations of Mechanics of Nanostructures. MRS Bulletin, 2009, 34, 160-166.	3.5	24
41	Growth shapes of Ag crystallites on the Si(111) surface. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2002, 20, 2492.	1.6	22
42	Enhanced thermal stability of Ag nanorods through capping. Applied Physics Letters, 2014, 105, 213104.	3.3	21
43	Engineering kinetic barriers in copper metallization. Applied Physics Letters, 2002, 81, 4359-4361.	3.3	20
44	Copper thin film of alternating textures. Applied Physics Letters, 2003, 82, 4265-4267.	3.3	19
45	Glide of edge dislocations in tungsten and molybdenum. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 365, 96-100.	5.6	19
46	Characteristic Length Scale of Nanorod Diameter during Growth. Physical Review Letters, 2008, 101, 266102.	7.8	19
47	Stability of Dislocation Short-Range Reactions in BCC Crystals. Journal of Engineering Materials and Technology, Transactions of the ASME, 1999, 121, 143-150.	1.4	18
48	Nanowebs and nanocables of silicon carbide. Nanotechnology, 2007, 18, 335607.	2.6	18
49	Pressure effect on stabilities of self-Interstitials in HCP-Zirconium. Scientific Reports, 2014, 4, 5735.	3.3	18
50	Degradation Mechanism of Ag Nanorods for Surface Enhanced Raman Spectroscopy. Scientific Reports, 2017, 7, 16282.	3.3	18
51	Three-dimensional Schwoebelâ€“Ehrlich barrier. Journal of Computer-Aided Materials Design, 2000, 7, 195-201.	0.7	17
52	Dislocation nucleation and propagation during thin film deposition under compression. Computational Materials Science, 2002, 23, 155-165.	3.0	17
53	Atomistic simulation of texture competition during thin film deposition. Journal of Computer-Aided Materials Design, 2000, 7, 203-216.	0.7	16
54	Texture competition during thin film deposition â€“ effects of grain boundary migration. Computational Materials Science, 2002, 23, 190-196.	3.0	16

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55	Effects of three-dimensional Ehrlich-Schwoebel barrier on texture selection during Cu nanorod growth. Applied Physics Letters, 2007, 91, 121914.	3.3	16
56	Anomaly of film porosity dependence on deposition rate. Applied Physics Letters, 2012, 100, 061601.	3.3	16
57	Kinetics-limited surface structures at the nanoscale. Applied Physics Letters, 2003, 82, 1272-1274.	3.3	15
58	Anomaly in dependence of radiation-induced vacancy accumulation on grain size. Journal of Nuclear Materials, 2010, 405, 261-265.	2.7	15
59	Diffusion and clustering on the titanium (0001) surface. Journal of Computer-Aided Materials Design, 1999, 6, 311-321.	0.7	14
60	Another kinetic mechanism of stabilizing multiple-layer surface steps. Applied Physics Letters, 2011, 98, .	3.3	14
61	Design of Ag nanorods for sensitivity and thermal stability of surface-enhanced Raman scattering. Nanotechnology, 2017, 28, 405602.	2.6	14
62	Simultaneous Thermal Stability and Ultrahigh Sensitivity of Heterojunction SERS Substrates. Nanomaterials, 2019, 9, 830.	4.1	14
63	Destabilization of dislocation dipole at high velocity. Applied Physics Letters, 2001, 79, 3621-3623.	3.3	13
64	Adatom diffusion along and down island steps. Journal of Computer-Aided Materials Design, 2002, 9, 75-80.	0.7	13
65	Atomistic simulator of polycrystalline thin film deposition in three dimensions. Journal of Computer-Aided Materials Design, 2004, 11, 59-74.	0.7	12
66	Size dependence of twin formation energy in cubic SiC at the nanoscale. Applied Physics Letters, 2008, 92, 261908.	3.3	12
67	Response embedded atom method of interatomic potentials. Physical Review B, 2013, 87, .	3.2	12
68	Airtight metallic sealing at room temperature under small mechanical pressure. Scientific Reports, 2013, 3, 3066.	3.3	12
69	Combined Hydrophobicity and Mechanical Durability through Surface Nanoengineering. Scientific Reports, 2015, 5, 9260.	3.3	12
70	Interaction of a transonic dislocation with subsonic dislocation and point defect clusters. Computational Materials Science, 2002, 23, 95-104.	3.0	11
71	Spontaneous growth of indium nanostructures. Journal of Crystal Growth, 2006, 297, 300-305.	1.5	11
72	Controllable introduction of twin boundaries into nanowires. Journal of Applied Physics, 2010, 108, 103507.	2.5	11

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73	Atomistic studies of stress effects on self-interstitial diffusion in Î±-titanium*. Journal of Computer-Aided Materials Design, 2000, 7, 97-110.	0.7	10
74	GFCUBHEX: Program to calculate elastic Green's functions and displacement fields for applications in atomistic simulations of defects in cubic and HCP crystals. Computer Physics Communications, 2001, 137, 312-324.	7.5	10
75	A Framework of Growing Crystalline Nanorods. Jom, 2012, 64, 1253-1257.	1.9	10
76	Axial ratio dependence of the stability of self-interstitials in HCP structures. Journal of Nuclear Materials, 2013, 437, 293-296.	2.7	10
77	Controllable growth of aluminum nanorods using physical vapor deposition. Nanoscale Research Letters, 2014, 9, 400.	5.7	10
78	Atom diffusion of small Cu clusters across facetâ€“facet barriers over Cu{1â€‰1â€‰1} surfaces. Modelling and Simulation in Materials Science and Engineering, 2007, 15, 419-426.	2.0	9
79	Double rotation mechanism in small Cu clusters concerted diffusion over Cu{111} surfaces. Surface Science, 2007, 601, 931-935.	1.9	9
80	Control of Separation and Diameter of Ag Nanorods through Self-organized Seeds. Scientific Reports, 2015, 5, 16826.	3.3	9
81	Diffusion of clusters down aluminum islands. Computational Materials Science, 2002, 23, 85-94.	3.0	8
82	Smallest separation of nanorods from physical vapor deposition. Applied Physics Letters, 2012, 100, .	3.3	8
83	Syntheses and applications of small metallic nanorods from solution and physical vapor deposition. Nanotechnology Reviews, 2013, 2, 259-267.	5.8	8
84	Binding of In and Pb surfactants on Cu{111} surfaces. Surface Science, 2010, 604, 868-871.	1.9	7
85	Clustering on Magnesium Surfaces â€“ Formation and Diffusion Energies. Scientific Reports, 2017, 7, 5167.	3.3	7
86	A generalized theory of thin film growth. Surface Science, 2018, 669, 154-159.	1.9	7
87	Texture Evolution During Thin Film Deposition. , 2005, , 1039-1049.		7
88	Twin Cu nanowires using energetic beams. Applied Physics Letters, 2009, 95, 111914.	3.3	6
89	From covalent bonding to coalescence of metallic nanorods. Nanoscale Research Letters, 2011, 6, 559.	5.7	6
90	Diffusion on (110) surface of molecular crystal pentaerythritol tetranitrate. Applied Physics Letters, 2007, 90, 101906.	3.3	5

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91	Stress control in polycrystalline thin filmsâ€"reduction in adatoms diffusion into grain boundaries via surfactants. Applied Physics Letters, 2010, 96, 211903.	3.3	5
92	Radiation effects and tolerance mechanism in Î²-eucryptite. Journal of Applied Physics, 2013, 113, 033504.	2.5	5
93	Mechanisms of Cu<111> Columns Growth. Materials Research Society Symposia Proceedings, 2004, 849, 177.	0.1	4
94	Controversy Over Elastic Constants Based on Interatomic Potentials. Journal of Engineering Materials and Technology, Transactions of the ASME, 2013, 135, .	1.4	4
95	Growth and Structure of Metallic Barrier Layers and Interconnect Films II: Atomistic Simulations of Film Deposition onto Inclined Surfaces. Materials Research Society Symposia Proceedings, 1999, 562, 129.	0.1	3
96	Parallelization strategies for Monte Carlo simulations of thin film deposition. Computer Physics Communications, 2002, 144, 34-45.	7.5	3
97	Size dependence of twin formation energy of metallic nanowires. International Journal of Smart and Nano Materials, 2013, 4, 112-118.	4.2	3
98	Closed-form theory of nuclei separation on highly anisotropic surfaces. Applied Surface Science, 2016, 390, 107-110.	6.1	3
99	A theory of growing crystalline nanorods â€“ Mode I. Surface Science, 2018, 674, 18-24.	1.9	3
100	Generalized theory of smallest diameter of metallic nanorods. Physical Review Materials, 2017, 1, .	2.4	3
101	Chemistry-mediated two-dimensional to three-dimensional transition of In thin films. Applied Physics Letters, 2004, 84, 5401-5403.	3.3	2
102	Kinetic Limitations in Two-and Three-Dimensional Growth. Materials Research Society Symposia Proceedings, 2004, 849, 100.	0.1	2
103	From uniform Cu thin films to ã€ˆ110ã€‰ and ã€ˆ111ã€‰ columns. Vacuum, 2007, 81, 583-589.	3.5	2
104	Branching of Titanium Nanorods. Nanomaterials, 2021, 11, 1070.	4.1	2
105	Young's Modulus Variation with Thickness of Thin Films. Materials Research Society Symposia Proceedings, 2003, 795, 409.	0.1	1
106	Development of microstructure in nanostructures and thin films. , 2003, , .		1
107	Collective behavior of complex dislocation structures. Philosophical Magazine, 2010, 90, 3617-3619.	1.6	1
108	Twin boundaries in nanowiresâ€"controllable introduction. Jom, 2011, 63, 58-61.	1.9	1

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109	Interaction of Edge Dislocation With Stacking Fault Tetrahedron in Cu. Journal of Engineering Materials and Technology, Transactions of the ASME, 2012, 134, .	1.4	1
110	Synergy to discovery and innovation â€" Growth of nanorods. Theoretical and Applied Mechanics Letters, 2016, 6, 249-252.	2.8	1
111	A first-principles study of the avalanche pressure of alpha zirconium. RSC Advances, 2016, 6, 72551-72558.	3.6	1
112	Texture Evolution During Thin Film Deposition. , 2005, , 1039-1049.		1
113	Design of high SERS sensitive substrates based on branched Ti nanorods. Scientific Reports, 2022, 12, .	3.3	1
114	Atomistic simulations of interconnect metallization. , 0, , .		0
115	Self-interstitial Diffusion in Î±-Zirconium. Materials Research Society Symposia Proceedings, 2001, 677, 7311.	0.1	0
116	Dislocation Nucleation and Propagation During Deposition of Cubic Metal Thin Films. Materials Research Society Symposia Proceedings, 2001, 677, 7321.	0.1	0
117	Facet-Facet Barrier on Surfaces: Proposal and Experimental Validation. Materials Research Society Symposia Proceedings, 2002, 749, 1.	0.1	0
118	Multiple Layers of Copper Thin Films of Alternating Textures. Materials Research Society Symposia Proceedings, 2002, 750, 1.	0.1	0
119	Growth study of nanocrystalline Ni and Ni3Al using molecular dynamics. Materials Research Society Symposia Proceedings, 2006, 978, .	0.1	0
120	Influence of soaking effects to the shear strength of the colluviums on Mt. Da-Lum. Wuhan University Journal of Natural Sciences, 2007, 12, 577-582.	0.4	0
121	Diffusion boundary condition at surface steps. Journal of Crystal Growth, 2012, 353, 174-176.	1.5	0
122	When is Lonely Adatom Model valid?. Surface Science, 2019, 682, 60-63.	1.9	0