Hengzhong Zhang

List of Publications by Year
in descending order

78	11,700	41	76
papers	citations	h-index	g-index
		70961	71532

78	78	78	13836
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Aggregation-Based Crystal Growth and Microstructure Development in Natural Iron Oxyhydroxide Biomineralization Products. Science, 2000, 289, 751-754.	6.0	1,650
2	Crystallization by particle attachment in synthetic, biogenic, and geologic environments. Science, 2015, 349, aaa6760.	6.0	1,467
3	Understanding Polymorphic Phase Transformation Behavior during Growth of Nanocrystalline Aggregates:Â Insights from TiO2. Journal of Physical Chemistry B, 2000, 104, 3481-3487.	1.2	1,383
4	Thermodynamic analysis of phase stability of nanocrystalline titania. Journal of Materials Chemistry, 1998, 8, 2073-2076.	6.7	1,173
5	Water-driven structure transformation in nanoparticles at room temperature. Nature, 2003, 424, 1025-1029.	13.7	427
6	Nanoparticles: Strained and Stiff. Science, 2004, 305, 651-654.	6.0	420
7	Two-Stage Crystal-Growth Kinetics Observed during Hydrothermal Coarsening of Nanocrystalline ZnS. Nano Letters, 2003, 3, 373-378.	4.5	370
8	Phase transformation of nanocrystalline anatase-to-rutile via combined interface and surface nucleation. Journal of Materials Research, 2000, 15, 437-448.	1.2	331
9	Structural Characteristics and Mechanical and Thermodynamic Properties of Nanocrystalline TiO₂. Chemical Reviews, 2014, 114, 9613-9644.	23.0	285
10	New kinetic model for the nanocrystalline anatase-to-rutile transformation revealing rate dependence on number of particles. American Mineralogist, 1999, 84, 528-535.	0.9	249
11	Enhanced Adsorption of Molecules on Surfaces of Nanocrystalline Particles. Journal of Physical Chemistry B, 1999, 103, 4656-4662.	1.2	238
12	Kinetics of Crystallization and Crystal Growth of Nanocrystalline Anatase in Nanometer-Sized Amorphous Titania. Chemistry of Materials, 2002, 14, 4145-4154.	3.2	238
13	Characterization of Titanium Dioxide Nanoparticles Using Molecular Dynamics Simulations. Journal of Physical Chemistry B, 2005, 109, 15243-15249.	1.2	197
14	Preparing Single-Phase Nanocrystalline Anatase from Amorphous Titania with Particle Sizes Tailored by Temperature. Nano Letters, 2001, 1, 81-85.	4.5	194
15	Molecular Dynamics Simulations, Thermodynamic Analysis, and Experimental Study of Phase Stability of Zinc Sulfide Nanoparticles. Journal of Physical Chemistry B, 2003, 107, 13051-13060.	1.2	180
16	Atomic structure of nanometer-sized amorphous<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>TiO</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msu Physical Review B, 2008, 78, .	1.1	164
17	The Role of Oriented Attachment Crystal Growth in Hydrothermal Coarsening of Nanocrystalline ZnS. Journal of Physical Chemistry B, 2003, 107, 10470-10475.	1.2	161
18	Phase Stability and Transformation in Titania Nanoparticles in Aqueous Solutions Dominated by Surface Energy. Journal of Physical Chemistry C, 2007, 111, 1962-1968.	1.5	141

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19	Special phase transformation and crystal growth pathways observed in nanoparticlesâ€. Geochemical Transactions, 2003, 4, 1.	1.8	136
20	Size Dependence of the Kinetic Rate Constant for Phase Transformation in TiO2Nanoparticles. Chemistry of Materials, 2005, 17, 3421-3425.	3.2	127
21	A Unified Description of Attachment-Based Crystal Growth. ACS Nano, 2014, 8, 6526-6530.	7.3	121
22	Particle Size and pH Effects on Nanoparticle Dissolution. Journal of Physical Chemistry C, 2010, 114, 14876-14884.	1.5	111
23	The size dependence of the surface free energy of titania nanocrystals. Physical Chemistry Chemical Physics, 2009, 11, 2553.	1.3	109
24	Interatomic Coulombic interactions as the driving force for oriented attachment. CrystEngComm, 2014, 16, 1568-1578.	1.3	97
25	High-pressure strengthening in ultrafine-grained metals. Nature, 2020, 579, 67-72.	13.7	96
26	Investigating Processes of Nanocrystal Formation and Transformation via Liquid Cell TEM. Microscopy and Microanalysis, 2014, 20, 425-436.	0.2	94
27	Energy Calculations Predict Nanoparticle Attachment Orientations and Asymmetric Crystal Formation. Journal of Physical Chemistry Letters, 2012, 3, 2882-2886.	2.1	93
28	Aggregation-induced growth and transformation of Î²-FeOOH nanorods to micron-sized Î±-Fe₂O₃spindles. CrystEngComm, 2014, 16, 1451-1458.	1.3	93
29	Aggregation, Coarsening, and Phase Transformation in ZnS Nanoparticles Studied by Molecular Dynamics Simulations. Nano Letters, 2004, 4, 713-718.	4.5	89
30	Surface Chemistry Controls Crystallinity of ZnS Nanoparticles. Nano Letters, 2006, 6, 605-610.	4.5	80
31	Early Stage Formation of Iron Oxyhydroxides during Neutralization of Simulated Acid Mine Drainage Solutions. Environmental Science & Technology, 2012, 46, 8140-8147.	4.6	74
32	Reversible, Surface-Controlled Structure Transformation in Nanoparticles Induced by an Aggregation State. Physical Review Letters, 2004, 92, 155501.	2.9	69
33	Precipitation pathways for ferrihydrite formation in acidic solutions. Geochimica Et Cosmochimica Acta, 2016, 172, 247-264.	1.6	67
34	Size-Dependent Bandgap of Nanogoethite. Journal of Physical Chemistry C, 2011, 115, 17704-17710.	1.5	66
35	Anatase Coarsening Kinetics under Hydrothermal Conditions As a Function of Ph and Temperature. Chemistry of Materials, 2008, 20, 3443-3449.	3.2	63
36	Large bandgap of pressurized trilayer graphene. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 9186-9190.	3.3	59

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37	Aggregation-Induced Fast Crystal Growth of SnO₂ Nanocrystals. Journal of the American Chemical Society, 2012, 134, 16228-16234.	6.6	57
38	Size-dependent elasticity of nanocrystalline titania. Physical Review B, 2009, 79, .	1.1	53
39	In Situ Structural Characterization of Ferric Iron Dimers in Aqueous Solutions: Identification of Î¼-Oxo Species. Inorganic Chemistry, 2013, 52, 6788-6797.	1.9	51
40	Stability and Compressibility of Cation-Doped High-Entropy Oxide MgCoNiCuZnO₅. Journal of Physical Chemistry C, 2019, 123, 17735-17744.	1.5	50
41	Kinetically controlled formation of a novel nanoparticulate ZnS with mixed cubic and hexagonal stacking. Journal of Materials Chemistry, 2006, 16, 249-254.	6.7	44
42	Polymorphic Transformations and Particle Coarsening in Nanocrystalline Titania Ceramic Powders and Membranes. Journal of Physical Chemistry C, 2007, 111, 6621-6629.	1.5	43
43	Analysis and simulation of the structure of nanoparticles that undergo a surface-driven structural transformation. Journal of Chemical Physics, 2004, 120, 11785-11795.	1.2	40
44	Molecular Dynamics Simulation Study of the Early Stages of Nucleation of Iron Oxyhydroxide Nanoparticles in Aqueous Solutions. Journal of Physical Chemistry B, 2015, 119, 10630-10642.	1.2	36
45	Interaction between Water Molecules and Zinc Sulfide Nanoparticles Studied by Temperature-Programmed Desorption and Molecular Dynamics Simulations. Journal of Physical Chemistry A, 2007, 111, 5008-5014.	1.1	34
46	Identification and Growth Mechanism of ZnS Nanoparticles with Mixed Cubic and Hexagonal Stacking. Journal of Physical Chemistry C, 2009, 113, 9681-9687.	1.5	31
47	Mechanism of Inhibition of Nanoparticle Growth and Phase Transformation by Surface Impurities. Physical Review Letters, 2007, 98, 106103.	2.9	30
48	Response of nanoparticle structure to different types of surface environments: Wide-angle x-ray scattering and molecular dynamics simulations. Physical Review B, 2010, 81, .	1.1	29
49	A model for exploring particle size and temperature dependence of excess heat capacities of nanocrystalline substances. Scripta Materialia, 1998, 10, 185-194.	0.5	22
50	Nanocrystal growth via oriented attachment. CrystEngComm, 2014, 16, 1407.	1.3	22
51	Melting behaviour of oxide systems for heterogeneous transmutation of actinides. I. The systems Puî—¸Alî—¸O and Puî—¸Mgî—¸O. Journal of Nuclear Materials, 1997, 249, 223-230.	1.3	21
52	A Model for Nucleation When Nuclei Are Nonstoichiometric: Understanding the Precipitation of Iron Oxyhydroxide Nanoparticles. Crystal Growth and Design, 2016, 16, 5726-5737.	1.4	19
53	Kinetics of crystal growth of nanogoethite in aqueous solutions containing nitrate and sulfate anions. CrystEngComm, 2014, 16, 1466-1471.	1.3	18
54	Hollow structured black TiO2 with thickness-controllable microporous shells for enhanced visible-light-driven photocatalysis. Microporous and Mesoporous Materials, 2021, 323, 111228.	2.2	18

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55	Ultra-incompressible High-Entropy Diborides. Journal of Physical Chemistry Letters, 2021, 12, 3106-3113.	2.1	17
56	Mesoporous hollow black TiO₂ with controlled lattice disorder degrees for highly efficient visible-light-driven photocatalysis. RSC Advances, 2019, 9, 36907-36914.	1.7	15
57	Melting behaviour of oxide systems for heterogeneous transmutation of actinides. III. The system Amâ€"Mgâ€"O. Journal of Nuclear Materials, 1997, 250, 88-95.	1.3	12
58	1. Nanoparticles in the Environment. , 2001, , 1-58.		11
59	Pressure Dependence of Electrical Conductivity of Black Titania Hydrogenated at Different Temperatures. Journal of Physical Chemistry C, 2019, 123, 4094-4102.	1.5	11
60	Nanocrystals in compression: unexpected structural phase transition and amorphization due to surface impurities. Nanoscale, 2016, 8, 11803-11809.	2.8	10
61	Metallization and Superconductivity in the van der Waals Compound CuP₂Se through Pressure-Tuning of the Interlayer Coupling. Journal of the American Chemical Society, 2021, 143, 20343-20355.	6.6	10
62	Titania nanorods curve to lower their energy. Nanoscale, 2013, 5, 6742.	2.8	8
63	Calorimetry of electrode reaction under linear sweep-current polarization. Journal of Thermal Analysis, 1995, 45, 151-156.	0.7	7
64	Coupling microcalorimeter with electrochemical instruments for thermoelectrochemical research. Thermochimica Acta, 1997, 303, 11-15.	1.2	7
65	Synchrotron-based high-pressure research in materials science. MRS Bulletin, 2016, 41, 473-478.	1.7	7
66	Phase Stability in the Nanocrystalline Tio2 System. Materials Research Society Symposia Proceedings, 1997, 481, 619.	0.1	6
67	Compressibility and structural stability of nanoparticulate goethite. RSC Advances, 2012, 2, 6768.	1.7	6
68	Revealing the ductility of nanoceramic MgAl₂O₄. Journal of Materials Research, 2019, 34, 1489-1498.	1.2	6
69	Deformation behavior of high-entropy oxide (Mg,Co,Ni,Cu,Zn)O under extreme compression. Scripta Materialia, 2022, 219, 114879.	2.6	6
70	Determination of the entropy change for electrode reaction and dilute enthalpy of some ions by thermo-eletrochemical technology. Central South University, 1998, 5, 38-40.	0.5	5
71	Pressure-Induced Phase Transitions of Natural Brookite. ACS Earth and Space Chemistry, 2019, 3, 844-853.	1.2	5
72	Differentiating the Electrical and Optoelectrical Properties of Oxysulfides La₂Ta₂MS₂O₈ (M = Zr, Ti) via Application of Pressure. Journal of Physical Chemistry C, 2020, 124, 14477-14484.	1.5	5

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73	High-Pressure Phase Transitions in Densely Packed Nanocrystallites of TiO₂-II. Journal of Physical Chemistry C, 2020, 124, 1197-1206.	1.5	4
74	Pressure-induced suppression of Jahnâ€“Teller distortions and enhanced electronic properties in high-entropy oxide (Mg0.2Ni0.2Co0.2Zn0.2Cu0.2)O. Applied Physics Letters, 2021, 119, .	1.5	4
75	Melting behaviour of oxide systems for heterogeneous transmutation of actinides. II. The system MgOâ€“Al2O3â€“PuO2. Journal of Nuclear Materials, 1997, 250, 83-87.	1.3	3
76	Structural Stability of l-Cystine under Extreme Conditions. ACS Earth and Space Chemistry, 2021, 5, 1525-1534.	1.2	3
77	Correlating thermochemical data of the oxygen non-stoichiometric compound YBa2Cu3O7 â€“xwith the oxygen content. Journal of Materials Chemistry, 1996, 6, 615-617.	6.7	2
78	WAXS and PDF-Based Analyses of Chromium Doping in Nanocrystalline Titania (Anatase and Brookite). Materials Research Society Symposia Proceedings, 2006, 915, 1.	0.1	0