Zhisheng Zhao

List of Publications by Year
in descending order

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148 papers	6,274 citations	159585 30 h-index	74163 75 g-index
151 all docs	151 docs citations	151 times ranked	5899 citing authors

#	Article	IF	Citations
1	Nanocrystalline high-entropy hexaboride ceramics enable remarkable performance as thermionic emission cathodes. Fundamental Research, 2023, 3, 979-987.	3.3	5
2	Discovery of carbon-based strongest and hardest amorphous material. National Science Review, 2022, 9, nwab140.	9.5	49
3	Nanocrystalline highâ€entropy carbide ceramics with improved mechanical properties. Journal of the American Ceramic Society, 2022, 105, 606-613.	3.8	46
4	Extraordinary high-temperature mechanical properties in binder-free nanopolycrystalline WC ceramic. Journal of Materials Science and Technology, 2022, 97, 169-175.	10.7	18
5	Controllable growth of multilayered XSe₂ (X = W and Mo) for nonlinear optical and optoelectronic applications. 2D Materials, 2022, 9, 015012.	4.4	2
6	Ultrasensitive biochemical sensors based on controllably grown films of high-density edge-rich multilayer WS2 islands. Sensors and Actuators B: Chemical, 2022, 353, 131081.	7.8	5
7	Hard and tough ultrafine-grained B4C-cBN composites prepared by high-pressure sintering. Journal of the European Ceramic Society, 2022, 42, 2015-2020.	5.7	9
8	Superconductivity in graphite-diamond hybrid. Materials Today Physics, 2022, 23, 100630.	6.0	7
9	Novel Boron Nitride Polymorphs with Graphite-Diamond Hybrid Structure. Chinese Physics Letters, 2022, 39, 036301.	3.3	5
10	Heterogeneous Diamond-cBN Composites with Superb Toughness and Hardness. Nano Letters, 2022, 22, 4979-4984.	9.1	9
11	Flexible all-perovskite tandem solar cells approaching 25% efficiency with molecule-bridged hole-selective contact. Nature Energy, 2022, 7, 708-717.	39.5	171
12	Prediction of a series of superhard BC4N structures. Diamond and Related Materials, 2022, 127, 109192.	3.9	3
13	The rise of plastic deformation in boron nitride ceramics. Science China Materials, 2021, 64, 46-51.	6.3	11
14	Heat-treated glassy carbon under pressure exhibiting superior hardness, strength and elasticity. Journal of Materiomics, 2021, 7, 177-184.	5.7	12
15	Strong amorphous carbon prepared by sparkâ€plasma sintering C 60. Journal of the American Ceramic Society, 2021, 104, 1655-1660.	3.8	1
16	Porous bismuth antimony telluride alloys with excellent thermoelectric and mechanical properties. Journal of Materials Chemistry A, 2021, 9, 4990-4999.	10.3	32
17	Design of a Series of Metallic BxNx+1 with Tunable Mechanical Properties. Journal of Physical Chemistry Letters, 2021, 12, 1979-1984.	4.6	3
18	Design of a Class of New sp ² â€“ sp ³ Carbons Constructed by Graphite and Diamond Building Blocks. Chinese Physics Letters, 2021, 38, 028102.	3.3	15

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19	Proximity Enhanced Hydrogen Evolution Reactivity of Substitutional Doped Monolayer WS₂. ACS Applied Materials & Interfaces, 2021, 13, 19406-19413.	8.0	24
20	Grain-boundary-rich polycrystalline monolayer WS2 film for attomolar-level Hg2+ sensors. Nature Communications, 2021, 12, 3870.	12.8	42
21	Rapid fabrication of hierarchical porous SiC/C hybrid structure: toward high-performance capacitive energy storage with ultrahigh cyclability. Journal of Materials Science, 2021, 56, 16068-16081.	3.7	8
22	Preparation of dense B4C ceramics by spark plasma sintering of high-purity nanoparticles. Journal of the European Ceramic Society, 2021, 41, 3929-3936.	5.7	25
23	Design and theoretical study of novel multifunctional 3D-BC2N polymorphs. Chemical Physics Letters, 2021, 774, 138610.	2.6	3
24	Columbite-rich multiphase TiO2 nanoceramic with superior mechanical and dielectric properties. Journal of the European Ceramic Society, 2021, 41, 4951-4957.	5.7	1
25	Strengthening effects of penetrating twin boundary and phase boundary in polycrystalline diamond. Diamond and Related Materials, 2021, 117, 108436.	3.9	13
26	Narrow-gap, semiconducting, superhard amorphous carbon with high toughness, derived from C60 fullerene. Cell Reports Physical Science, 2021, 2, 100575.	5.6	18
27	In Situ Grown Ultrafine RuO₂ Nanoparticles on GeP₅ Nanosheets as the Electrode Material for Flexible Planar Micro-Supercapacitors with High Specific Capacitance and Cyclability. ACS Applied Materials & Interfaces, 2021, 13, 47560-47571.	8.0	11
28	High-sensitivity and versatile plasmonic biosensor based on grain boundaries in polycrystalline 1L WS2 films. Biosensors and Bioelectronics, 2021, 194, 113596.	10.1	13
29	Structural diversity, large interlayer spacing and switchable electronic properties of graphitic systems. Journal of Materials Science, 2021, 56, 5509-5519.	3.7	3
30	Structural Determination of a Graphite/Hexagonal Boron Nitride Superlattice Observed in the Experiment. Inorganic Chemistry, 2021, 60, 2598-2603.	4.0	6
31	Extreme mechanical anisotropy in diamond with preferentially oriented nanotwin bundles. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	10
32	Superhard conductive orthorhombic carbon polymorphs. Carbon, 2020, 158, 546-552.	10.3	27
33	Three metallic BN polymorphs: 1D multi-threaded conduction in a 3D network. Physical Chemistry Chemical Physics, 2020, 22, 489-496.	2.8	4
34	High-Pressure Synthesis of cBN Nanoparticles with High-Density Nanotwin Substructures. ACS Omega, 2020, 5, 650-654.	3.5	2
35	Restacked melon as highly-efficient photocatalyst. Nano Energy, 2020, 77, 105124.	16.0	7
36	Superhard sp²â€“sp³ hybridized B₂C₃N₂ with 2D metallicity. Physical Chemistry Chemical Physics, 2020, 22, 22918-22922.	2.8	5

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37	Superhard and superconductive nondiamond-like BC structure. Diamond and Related Materials, 2020, 110, 108142.	3.9	0
38	Pentadiamond-like Metallic Hard Carbon Nitride. Journal of Physical Chemistry C, 2020, 124, 24978-24983.	3.1	12
39	Ab initio study of pressureâ€“induced metallization and superconductivity in orthorhombic LiBH2 phase under ultra-high pressure. Physics Letters, Section A: General, Atomic and Solid State Physics, 2020, 384, 126525.	2.1	5
40	Application of hard ceramic materials B4C in energy storage: Design B4C@C core-shell nanoparticles as electrodes for flexible all-solid-state micro-supercapacitors with ultrahigh cyclability. Nano Energy, 2020, 75, 104947.	16.0	47
41	Mechanochemically assisted synthesis of titanium carbonitride from metal and organic precursor. Journal of the American Ceramic Society, 2020, 103, 6112-6119.	3.8	2
42	Universal Phase Transitions of AlB₂-Type Transition-Metal Diborides. ACS Omega, 2020, 5, 4620-4625.	3.5	9
43	Synthesis of twin-structured nanodiamond particles. AIP Advances, 2020, 10, 015240.	1.3	4
44	Mechanical polishing of ultrahard nanotwinned diamond via transition into hard sp2-sp3 amorphous carbon. Carbon, 2020, 161, 1-6.	10.3	33
45	Influence of van der Waals epitaxy on phase transformation behaviors in 2D heterostructure. Applied Physics Letters, 2020, 116, .	3.3	7
46	Highâ€Performance Broadband Photodetectors of Heterogeneous 2D Inorganic Molecular Sb₂O₃/Monolayer MoS₂ Crystals Grown via Chemical Vapor Deposition. Advanced Optical Materials, 2020, 8, 2000168.	7.3	17
47	Potential high-T superconductivity in ZrB2 polymorph under pressure. Computational Materials Science, 2020, 176, 109517.	3.0	5
48	Layered porous materials indium triphosphide InP3 for high-performance flexible all-solid-state supercapacitors. Journal of Power Sources, 2019, 438, 227010.	7.8	17
49	Tribological properties of oleylamine-modified nickel nanoparticles as lubricating oil additive. Materials Research Express, 2019, 6, 105037.	1.6	6
50	Lateral Bilayer MoS₂â€“WS₂ Heterostructure Photodetectors with High Responsivity and Detectivity. Advanced Optical Materials, 2019, 7, 1900815.	7.3	65
51	Discovery of superhard materials via CALYPSO methodology*. Chinese Physics B, 2019, 28, 106104.	1.4	20
52	First-principles study of crystal structures and superconductivity of ternary <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>YSH</mml:mi><mml:mn>6</mml:mn></mml:msub></mm and <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>LaSH</mml:mi><mml:mn>6</mml:mn></mml:msub></mr at high pressures. Physical Review B, 2019, 100, .	3.2	33
53	Photoluminescence and Raman Spectra Oscillations Induced by Laser Interference in Annealingâ€Created Monolayer WS₂ Bubbles. Advanced Optical Materials, 2019, 7, 1801373.	7.3	21
54	Effect of layer and stacking sequence in simultaneously grown 2H and 3R WS₂ atomic layers. Nanotechnology, 2019, 30, 345203.	2.6	16

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55	In-Situ Observation of the Formation of Fibrous Sulfur under High Pressure. Journal of Physical Chemistry C, 2019, 123, 14696-14700.	3.1	8
56	Electronic structure and superconductivity in hexagonal Li3B2 and Li2B2H phases under pressure. Journal of Applied Physics, 2019, 125, 223902.	2.5	0
57	One-Step Growth of Spatially Graded Mo_{1â€“x}W_xS₂ Monolayers with a Wide Span in Composition (from x = 0 to 1) at a Large Scale. ACS Applied Materials & Interfaces, 2019, 11, 20979-20986.	8.0	12
58	High-pressure phases of boron arsenide with potential high thermal conductivity. Physical Review B, 2019, 99, .	3.2	15
59	First-principles studies of superhard BC8N structures. Journal of Applied Physics, 2019, 125, .	2.5	14
60	Direct large-scale fabrication of C-encapsulated B4C nanoparticles with tunable dielectric properties as excellent microwave absorbers. Carbon, 2019, 148, 504-511.	10.3	30
61	Accelerated Degradation of CrCl₃ Nanoflakes Induced by Metal Electrodes: Implications for Remediation in Nanodevice Fabrication. ACS Applied Nano Materials, 2019, 2, 1597-1603.	5.0	9
62	Potential high- <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>T</mml:mi><mml:mi>c</mml:mi></mml:msub></mml:ma superconductivity in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>CaYH</mml:mi><mml:mn>12</mml:mn></mml:msub></r under pressure. Physical Review B, 2019, 99, .	3.2	109
63	Small onion-like BN leads to ultrafine-twinned cubic BN. Science China Materials, 2019, 62, 1169-1176.	6.3	15
64	Mechanical properties of boron arsenide single crystal. Applied Physics Letters, 2019, 114, .	3.3	31
65	Modifying Carbon Nitride through Extreme Phosphorus Substitution. , 2019, 1, 14-19.		13
66	Continuous strengthening in nanotwinned diamond. Npj Computational Materials, 2019, 5, .	8.7	32
67	Atomically Resolving Polymorphs and Crystal Structures of In₂Se₃. Chemistry of Materials, 2019, 31, 10143-10149.	6.7	71
68	One-step synthetic route and sintering for carbon-coated B4C nanoparticles. Journal of Alloys and Compounds, 2019, 782, 263-269.	5.5	13
69	Prediction of Li2B novel phases and superconductivity under varying pressures. Computational Materials Science, 2019, 158, 255-259.	3.0	6
70	Research Progress in Novel In-situ Integrative Photovoltaic-Storage Tandem Cells. Wuji Cailiao Xuebao/Journal of Inorganic Materials, 2019, , 342.	1.3	1
71	Enhanced thermoelectric performance of high pressure synthesized Sb-doped Mg2Si. Journal of Alloys and Compounds, 2018, 741, 1148-1152.	5.5	17
72	Grain wall boundaries in centimeter-scale continuous monolayer WS₂ film grown by chemical vapor deposition. Nanotechnology, 2018, 29, 255705.	2.6	14

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73	Low-energy 3D sp²carbons with versatile properties beyond graphite and graphene. Dalton Transactions, 2018, 47, 6233-6239.	3.3	7
74	Novel carbon polymorphs with cumulative double bonds in three-dimensional spâ€“sp² hybrid framework. Physical Chemistry Chemical Physics, 2018, 20, 15022-15029.	2.8	7
75	3D hybrid carbon composed of multigraphene bridged by carbon chains. AIP Advances, 2018, 8, 015019.	1.3	0
76	Enhanced Stability of Black Phosphorus Fieldâ€Effect Transistors via Hydrogen Treatment. Advanced Electronic Materials, 2018, 4, 1700455.	5.1	19
77	Enhanced thermoelectric performance of Na-doped PbTe synthesized under high pressure. Science China Materials, 2018, 61, 1218-1224.	6.3	29
78	First principles studies of superhard BC6N phases with unexpected 1D metallicity. Computational Materials Science, 2018, 148, 157-164.	3.0	13
79	Predicting the ground-state structure of sodium boride. Physical Review B, 2018, 97, .	3.2	26
80	Enhanced thermoelectric performance of bismuth-doped magnesium silicide synthesized under high pressure. Journal of Materials Science, 2018, 53, 9091-9098.	3.7	15
81	Two-dimensional boron on Pb (1 1 0) surface. FlatChem, 2018, 7, 34-41.	5.6	7
82	Hard three-dimensional BN framework with one-dimensional metallicity. Journal of Alloys and Compounds, 2018, 731, 364-368.	5.5	27
83	Investigation on the Stability of Derivative Melam from Melamine Pyrolysis under High Pressure. Nanomaterials, 2018, 8, 172.	4.1	17
84	Mechanically ductile 3D spâ€“sp 2 microporous carbon. Journal of Materials Science, 2018, 53, 4316-4322.	3.7	10
85	Multithreaded conductive carbon: 1D conduction in 3D carbon. Carbon, 2017, 115, 584-588.	10.3	17
86	Properties of the exotic metastable ST12 germanium allotrope. Nature Communications, 2017, 8, 13909.	12.8	29
87	Role of plastic deformation in tailoring ultrafine microstructure in nanotwinned diamond for enhanced hardness. Science China Materials, 2017, 60, 178-185.	6.3	21
88	Superhard three-dimensional B3N4 with two-dimensional metallicity. Journal of Materials Chemistry C, 2017, 5, 5897-5901.	5.5	16
89	New hexagonal boron nitride polytypes with triple-layer periodicity. Journal of Applied Physics, 2017, 121, .	2.5	13
90	Pressure-induced boron nitride nanotube derivatives: 3D metastable allotropes. Journal of Applied Physics, 2017, 121, .	2.5	25

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91	Strengthening mechanism of Ï‰-Zr. Computational Materials Science, 2017, 135, 134-140.	3.0	5
92	Compressed glassy carbon: An ultrastrong and elastic interpenetrating graphene network. Science Advances, 2017, 3, e1603213.	10.3	110
93	Superhard sp2-sp3 hybridized BC2N: A 3D crystal with 1D and 2D alternate metallicity. Journal of Applied Physics, 2017, 121, .	2.5	13
94	Metastable phases, phase transformation and properties of AlAs based on first-principle study. Computational Materials Science, 2017, 128, 337-342.	3.0	20
95	A superhard sp3 microporous carbon with direct bandgap. Chemical Physics Letters, 2017, 689, 68-73.	2.6	39
96	Publisher's Note: Interpenetrating graphene networks: Three-dimensional node-line semimetals with massive negative linear compressibilities [Phys. Rev. B 94, 245422 (2016)]. Physical Review B, 2017, 95, .	3.2	1
97	Pressure-Induced Polymerization and Disproportionation of Li₂C₂ Accompanied with Irreversible Conductivity Enhancement. Journal of Physical Chemistry Letters, 2017, 8, 4241-4245.	4.6	14
98	Strain Release Induced Novel Fluorescence Variation in CVD-Grown Monolayer WS₂ Crystals. ACS Applied Materials & Interfaces, 2017, 9, 34071-34077.	8.0	17
99	Strengthening in high-pressure quenched Zr. High Pressure Research, 2017, 37, 278-286.	1.2	8
100	Flexible Black-Phosphorus Nanoflake/Carbon Nanotube Composite Paper for High-Performance All-Solid-State Supercapacitors. ACS Applied Materials & Interfaces, 2017, 9, 44478-44484.	8.0	89
101	Preparation of pure Î±â€³-phase titanium alloys with low moduli via high pressure solution treatment. Journal of Alloys and Compounds, 2017, 695, 45-51.	5.5	14
102	Superhard orthorhombic phase of B 2 CO compound. Diamond and Related Materials, 2017, 73, 87-92.	3.9	18
103	Flexible Allâ€Solidâ€State Supercapacitors based on Liquidâ€Exfoliated Blackâ€Phosphorus Nanoflakes. Advanced Materials, 2016, 28, 3194-3201.	21.0	290
104	Novel high-pressure phases of AlP from first principles. Journal of Applied Physics, 2016, 119, .	2.5	11
105	Superhardsp2â€“sp3hybrid carbon allotropes with tunable electronic properties. AIP Advances, 2016, 6, 055020.	1.3	20
106	Interpenetrating graphene networks: Three-dimensional node-line semimetals with massive negative linear compressibilities. Physical Review B, 2016, 94, .	3.2	16
107	Coexistence of multiple metastable polytypes in rhombohedral bismuth. Scientific Reports, 2016, 6, 20337.	3.3	16
108	Novel high-pressure phases of AlN: A first-principles study. Computational Materials Science, 2016, 117, 496-501.	3.0	29

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109	Superhard superstrong carbon clathrate. Carbon, 2016, 105, 151-155.	10.3	33
110	Teâ€Doped Black Phosphorus Fieldâ€Effect Transistors. Advanced Materials, 2016, 28, 9408-9415.	21.0	241
111	Si₁₀: A sp³ Silicon Allotrope with Spirally Connected Si₅ Tetrahedrons. Chemistry of Materials, 2016, 28, 6441-6445.	6.7	16
112	Recent Advances in Superhard Materials. Annual Review of Materials Research, 2016, 46, 383-406.	9.3	119
113	Anomalous melting behavior of polycrystalline bismuth quenched at high temperature and high pressure. Materials Letters, 2016, 168, 36-39.	2.6	3
114	Is orthorhombic iron tetraboride superhard?. Journal of Materiomics, 2015, 1, 45-51.	5.7	29
115	Nanoarchitectured materials composed of fullerene-like spheroids and disordered graphene layers with tunable mechanical properties. Nature Communications, 2015, 6, 6212.	12.8	57
116	Deterministic Polarization Entanglement Purification of Cluster State in Multiple Degrees of Freedom. International Journal of Theoretical Physics, 2015, 54, 1184-1192.	1.2	0
117	Carbon coated face-centered cubic Ruâ€“C nanoalloys. Nanoscale, 2014, 6, 10370-10376.	5.6	17
118	Novel three-dimensional boron nitride allotropes from compressed nanotube bundles. Journal of Materials Chemistry C, 2014, 2, 7022.	5.5	20
119	On implementing nondestructive triplet Toffoli gate with entanglement swapping operations via the GHZ state analysis. Quantum Information Processing, 2014, 13, 2039-2047.	2.2	5
120	Direct Band Gap Silicon Allotropes. Journal of the American Chemical Society, 2014, 136, 9826-9829.	13.7	151
121	Superhard and high-strength yne-diamond semimetals. Diamond and Related Materials, 2014, 46, 15-20.	3.9	18
122	Nanotwinned diamond with unprecedented hardness and stability. Nature, 2014, 510, 250-253.	27.8	611
123	An ab initio study on the transition paths from graphite to diamond under pressure. Journal of Physics Condensed Matter, 2013, 25, 145402.	1.8	22
124	Compressed carbon nanotubes: A family of new multifunctional carbon allotropes. Scientific Reports, 2013, 3, 1331.	3.3	80
125	A novel layer-structured PtN2: First-principles calculations. Journal of Superhard Materials, 2013, 35, 339-349.	1.2	2
126	Ultrahard nanotwinned cubic boron nitride. Nature, 2013, 493, 385-388.	27.8	662

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127	Tian et al. reply. Nature, 2013, 502, E2-E3.	27.8	10
128	POLARIZATION ENTANGLEMENT CONCENTRATIONS WITH LESS-HYPERENTANGLED PHOTON PAIRS IN MULTIPLE DEGREES OF FREEDOM. International Journal of Quantum Information, 2012, 10, 1250075.	1.1	2
129	Highâ€pressure phases of NaAlH4 from first principles. Applied Physics Letters, 2012, 100, 061905.	3.3	10
130	Exotic Cubic Carbon Allotropes. Journal of Physical Chemistry C, 2012, 116, 24233-24238.	3.1	53
131	High-pressure behaviors of carbon nanotubes. Journal of Superhard Materials, 2012, 34, 371-385.	1.2	28
132	Metastable C-centered orthorhombic Si₈and Ge₈. Journal of Physics Condensed Matter, 2012, 24, 405803.	1.8	4
133	First-principles study of O-BN: A sp3-bonding boron nitride allotrope. Journal of Applied Physics, 2012, 112, .	2.5	53
134	Superhard F-carbon predicted byab initioparticle-swarm optimization methodology. Journal of Physics Condensed Matter, 2012, 24, 165504.	1.8	42
135	Tetragonal Allotrope of Group 14 Elements. Journal of the American Chemical Society, 2012, 134, 12362-12365.	13.7	170
136	Microscopic theory of hardness and design of novel superhard crystals. International Journal of Refractory Metals and Hard Materials, 2012, 33, 93-106.	3.8	900
137	Novel High-Pressure Phase of RhB: First-Principles Calculations. Journal of Physical Chemistry C, 2011, 115, 19910-19915.	3.1	16
138	Prediction of a superconductive superhard material: Diamond-like BC7. Journal of Applied Physics, 2011, 110, 013501.	2.5	21
139	Three Dimensional Carbon-Nanotube Polymers. ACS Nano, 2011, 5, 7226-7234.	14.6	110
140	Novel Superhard Carbon: C-Centered Orthorhombic<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi mathvariant="normal">C</mml:mi><mml:mn>8</mml:mn></mml:msub></mml:math>. Physical Review Letters, 2011, 107, 215502.	7.8	225
141	Universal Phase Transitions of B1-Structured Stoichiometric Transition Metal Carbides. Inorganic Chemistry, 2011, 50, 9266-9272.	4.0	11
142	Superconducting ultraincompressible hard cubic Re4C. Computational Materials Science, 2011, 50, 1592-1596.	3.0	13
143	Properties of CaB6 single crystals synthesized under high pressure and temperature. Science China: Physics, Mechanics and Astronomy, 2011, 54, 1791-1795.	5.1	6
144	Prediction of a conducting hard ductile cubic IrC. Physica Status Solidi - Rapid Research Letters, 2010, 4, 230-232.	2.4	8

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145	Semiconducting Superhard Ruthenium Monocarbide. Journal of Physical Chemistry C, 2010, 114, 9961-9964.	3.1	40
146	Prediction of a Three-Dimensional Conductive Superhard Material: Diamond-like BC₂. Journal of Physical Chemistry C, 2010, 114, 22688-22690.	3.1	33
147	Bulk Re₂C: Crystal Structure, Hardness, and Ultra-incompressibility. Crystal Growth and Design, 2010, 10, 5024-5026.	3.0	46
148	Hard nanocrystalline gold materials prepared via high-pressure phase transformation. Nano Research, 0, , .	10.4	3