

Zhigang Zak Fang

List of Publications by Year in descending order

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120
papers

6,182
citations

66343

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74163

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130
docs citations

130
times ranked

4817
citing authors

#	ARTICLE	IF	CITATIONS
1	A Novel Method for Densification of Titanium Using Hydrogenation-Induced Expansion under Constrained Conditions. <i>Scripta Materialia</i> , 2022, 210, 114432.	5.2	5
2	A high throughput dynamic method for characterizing thermodynamic properties of catalyzed magnesium hydrides by thermogravimetric analysis. <i>Physical Chemistry Chemical Physics</i> , 2021, 23, 15374-15383.	2.8	5
3	Roles of Ti-Based Catalysts on Magnesium Hydride and Its Hydrogen Storage Properties. <i>Inorganics</i> , 2021, 9, 36.	2.7	23
4	A study on the synthesis of coarse TiO ₂ powder with controlled particle sizes and morphology via hydrolysis. <i>Powder Technology</i> , 2021, 393, 650-658.	4.2	8
5	Analysis of microstructural facet fatigue failure in ultra-fine grained powder metallurgy Ti-6Al-4V produced through hydrogen sintering. <i>International Journal of Fatigue</i> , 2020, 131, 105355.	5.7	12
6	Analysis of the Elevated Temperature Plastic Flow Response of Ti-6Al-4V Produced via the Hydrogen Sintering and Phase Transformation (HSPT) Process. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2020, 51, 3956-3966.	2.2	1
7	Deoxygenation of Ti metal. , 2020, , 181-223.		3
8	Selected processes for Ti production – a cursory review. , 2020, , 351-362.		2
9	Energy consumption of the Kroll and HAMR processes for titanium production. , 2020, , 389-410.		4
10	Effect of air exposure on hydrogen storage properties of catalyzed magnesium hydride. <i>Journal of Power Sources</i> , 2020, 454, 227936.	7.8	36
11	Effects of Process Gas Pressure and Type on Oxygen Content in Sintered Titanium Produced using Jet-Milled Titanium Hydride Powders. <i>Jom</i> , 2020, 72, 1286-1291.	1.9	1
12	Hydrogen assisted magnesiothermic reduction (HAMR) of TiO ₂ to produce titanium metal powder. , 2020, , 165-179.		2
13	Deoxygenation of Ti metal: A review of processes in literature. <i>International Journal of Refractory Metals and Hard Materials</i> , 2020, 91, 105270.	3.8	17
14	The effect of Ni doping on the mechanical behavior of tungsten. <i>International Journal of Refractory Metals and Hard Materials</i> , 2020, 92, 105281.	3.8	7
15	The uses and applications of hydrogen processing for titanium additive manufacturing. <i>MATEC Web of Conferences</i> , 2020, 321, 03003.	0.2	1
16	Manipulation of microstructure and mechanical properties during dehydrogenation of hydrogen-sintered Ti-6Al-4V. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2019, 764, 138244.	5.6	9
17	Amorphous TiCu-Based Additives for Improving Hydrogen Storage Properties of Magnesium Hydride. <i>ACS Applied Materials & Interfaces</i> , 2019, 11, 38868-38879.	8.0	54
18	Isothermal hydrogenation kinetics of ball-milled nano-catalyzed magnesium hydride. <i>Materialia</i> , 2019, 5, 100227.	2.7	21

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19	Potentially More Ecofriendly Chemical Pathway for Production of High-Purity TiO ₂ from Titanium Slag. ACS Sustainable Chemistry and Engineering, 2019, 7, 4821-4830.	6.7	23
20	Capturing low-pressure hydrogen using V Ti Cr catalyzed magnesium hydride. Journal of Power Sources, 2019, 413, 139-147.	7.8	21
21	An investigation of the reduction of TiO ₂ by Mg in H ₂ atmosphere. Chemical Engineering Science, 2019, 195, 484-493.	3.8	12
22	An investigation of the microstructure and ductility of annealed cold-rolled tungsten. Acta Materialia, 2019, 162, 202-213.	7.9	69
23	Novel Method for Making Biomedical Segregation-Free Ti-30Ta Alloy Spherical Powder for Additive Manufacturing. Jom, 2018, 70, 364-369.	1.9	10
24	Gaseous isostatic forging: Design and application to powder metallurgy Ti-6Al-4V. Journal of Materials Processing Technology, 2018, 259, 292-304.	6.3	4
25	Powder metallurgy of titanium – past, present, and future. International Materials Reviews, 2018, 63, 407-459.	19.3	339
26	The Effects of Molybdenum Additions on the Sintering and Mechanical Behavior of Ultrafine-Grained Tungsten. Jom, 2018, 70, 2567-2573.	1.9	13
27	Mitigation of the Surface Oxidation of Titanium by Hydrogen. Journal of Physical Chemistry C, 2018, 122, 20691-20700.	3.1	15
28	Mechanisms of Hydrogen-Assisted Magnesiothermic Reduction of TiO ₂ . Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2018, 49, 2998-3006.	2.1	14
29	Hydrogen enhanced thermodynamic properties and kinetics of calciothermic deoxygenation of titanium-oxygen solid solutions. International Journal of Hydrogen Energy, 2018, 43, 11939-11951.	7.1	30
30	The effects of microstructure and porosity on the competing fatigue failure mechanisms in powder metallurgy Ti-6Al-4V. International Journal of Fatigue, 2018, 116, 584-591.	5.7	39
31	The effect of molten salt on oxygen removal from titanium and its alloys using calcium. Journal of Materials Science, 2017, 52, 4120-4128.	3.7	47
32	Kinetically enhanced metallothermic redox of TiO ₂ by Mg in molten salt. Chemical Engineering Journal, 2017, 327, 169-182.	12.7	22
33	Hydrogen-enabled microstructure and fatigue strength engineering of titanium alloys. Scientific Reports, 2017, 7, 41444.	3.3	48
34	A study on the sintering of ultrafine grained tungsten with Ti-based additives. International Journal of Refractory Metals and Hard Materials, 2017, 65, 2-8.	3.8	22
35	Review of the Methods for Production of Spherical Ti and Ti Alloy Powder. Jom, 2017, 69, 1853-1860.	1.9	169
36	Microstructure and Mechanical Properties of Ti-6Al-4V Fabricated by Selective Laser Melting of Powder Produced by Granulation-Sintering-Deoxygenation Method. Jom, 2017, 69, 2731-2737.	1.9	9

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37	Removal of silicon from highly acidic HCl medium to produce purified TiO ₂ . Hydrometallurgy, 2017, 173, 218-223.	4.3	10
38	A Perspective on Thermochemical and Electrochemical Processes for Titanium Metal Production. Jom, 2017, 69, 1861-1868.	1.9	27
39	Hydrogen assisted magnesiothermic reduction of TiO ₂ . Chemical Engineering Journal, 2017, 308, 299-310.	12.7	84
40	Coarsening, densification, and grain growth during sintering of nano-sized powders—A perspective. International Journal of Refractory Metals and Hard Materials, 2017, 62, 110-117.	3.8	95
41	Hydrogen Assisted Magnesiothermic Reduction (HAMR) of Commercial TiO ₂ to Produce Titanium Powder with Controlled Morphology and Particle Size. Materials Transactions, 2017, 58, 355-360.	1.2	42
42	Automated 3D EDS Acquisition for Spatially Resolved Elemental Characterization of Catalyzed MgH ₂ Nanostructures. Microscopy and Microanalysis, 2016, 22, 276-277.	0.4	2
43	Thermodynamic Destabilization of Ti-O Solid Solution by H ₂ and Deoxygenation of Ti Using Mg. Journal of the American Chemical Society, 2016, 138, 6916-6919.	13.7	65
44	The study on low temperature sintering of nano-tungsten powders. International Journal of Refractory Metals and Hard Materials, 2016, 61, 273-278.	3.8	59
45	The Effects of Atmosphere on the Sintering of Ultrafine-Grained Tungsten with Ti. Jom, 2016, 68, 2864-2868.	1.9	6
46	The Nature of Tensile Ductility as Controlled by Extreme-Sized Pores in Powder Metallurgy Ti-6Al-4V Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 2150-2161.	2.2	27
47	A novel method for production of spherical Ti-6Al-4V powder for additive manufacturing. Powder Technology, 2016, 301, 331-335.	4.2	99
48	New Powder Metallurgical Approach to Achieve High Fatigue Strength in Ti-6Al-4V Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 2335-2345.	2.2	37
49	A lithium—oxygen battery based on lithium superoxide. Nature, 2016, 529, 377-382.	27.8	633
50	A novel chemical pathway for energy efficient production of Ti metal from upgraded titanium slag. Chemical Engineering Journal, 2016, 286, 517-527.	12.7	77
51	Metal Hydrides for High-Temperature Power Generation. Energies, 2015, 8, 8406-8430.	3.1	65
52	Hydrogen sintering of titanium and its alloys. , 2015, , 163-182.		11
53	Phase Transformations and Formation of Ultra-Fine Microstructure During Hydrogen Sintering and Phase Transformation (HSPT) Processing of Ti-6Al-4V. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2015, 46, 5546-5560.	2.2	34
54	Understanding competing fatigue mechanisms in powder metallurgy Ti—6Al—4V alloy: Role of crack initiation and duality of fatigue response. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 630, 139-145.	5.6	42

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55	A powder metallurgy method for manufacturing Ti-6Al-4V with wrought-like microstructures and mechanical properties via hydrogen sintering and phase transformation (HSPT). <i>Scripta Materialia</i> , 2015, 107, 103-106.	5.2	82
56	The relationship between the green density and as-sintered density of nano-tungsten compacts. <i>International Journal of Refractory Metals and Hard Materials</i> , 2015, 53, 134-138.	3.8	24
57	Detection of Fluorite-Structured MgD ₂ /TiD ₂ : Deuterium NMR. <i>Journal of Physical Chemistry C</i> , 2015, 119, 7656-7661.	3.1	3
58	Metal hydrides based high energy density thermal battery. <i>Journal of Alloys and Compounds</i> , 2015, 645, S184-S189.	5.5	44
59	Stability of Catalyzed Magnesium Hydride Nanocrystalline During Hydrogen Cycling. Part I: Kinetic Analysis. <i>Journal of Physical Chemistry C</i> , 2015, 119, 22261-22271.	3.1	42
60	Stability of Catalyzed Magnesium Hydride Nanocrystalline During Hydrogen Cycling. Part II: Microstructure Evolution. <i>Journal of Physical Chemistry C</i> , 2015, 119, 22272-22280.	3.1	25
61	Optimization of electrocatalytic properties of NiMoCo foam electrode for water electrolysis by post-treatment processing. <i>Rare Metals</i> , 2015, 34, 802-807.	7.1	11
62	Life cycle assessment comparison of emerging and traditional Titanium dioxide manufacturing processes. <i>Journal of Cleaner Production</i> , 2015, 89, 137-147.	9.3	84
63	An experimental survey of additives for improving dehydrogenation properties of magnesium hydride. <i>Journal of Power Sources</i> , 2015, 278, 38-42.	7.8	42
64	An experimental study of the (Ti-6Al-xH) phase diagram using in situ synchrotron XRD and TGA/DSC techniques. <i>Acta Materialia</i> , 2015, 84, 29-41.	7.9	78
65	Cemented Tungsten Carbide Hardmetal-An Introduction. , 2014, , 123-137.		19
66	Hydrogen Storage Properties of Magnesium Hydride with V-Based Additives. <i>Journal of Physical Chemistry C</i> , 2014, 118, 21778-21784.	3.1	34
67	Kinetics of isothermal hydrogenation of magnesium with TiH ₂ additive. <i>International Journal of Hydrogen Energy</i> , 2014, 39, 7373-7381.	7.1	31
68	Thermodynamic Destabilization of Magnesium Hydride Using Mg-Based Solid Solution Alloys. <i>Journal of Physical Chemistry C</i> , 2014, 118, 11526-11535.	3.1	55
69	A Comparison of Hydrogen Sintering and Phase Transformation (HSPT) Processing with Vacuum Sintering of CP-Ti. <i>Advanced Engineering Materials</i> , 2013, 15, 1007-1013.	3.5	15
70	The Formation of Twins in Al-10Zn-3Mg-1.8Cu Alloy by Cryomilling. <i>Jom</i> , 2013, 65, 967-972.	1.9	0
71	A New, Energy-Efficient Chemical Pathway for Extracting Ti Metal from Ti Minerals. <i>Journal of the American Chemical Society</i> , 2013, 135, 18248-18251.	13.7	51
72	A review of liquid phase migration and methods for fabrication of functionally graded cemented tungsten carbide. <i>International Journal of Refractory Metals and Hard Materials</i> , 2013, 36, 2-9.	3.8	82

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73	Mechanical properties and wear resistance of functionally graded WCâ€‘Co. International Journal of Refractory Metals and Hard Materials, 2013, 36, 46-51.	3.8	61
74	FE-EPMA measurements of compositional gradients in cemented tungsten carbides. International Journal of Refractory Metals and Hard Materials, 2013, 36, 265-270.	3.8	13
75	Effect of Ti Intermetallic Catalysts on Hydrogen Storage Properties of Magnesium Hydride. Journal of Physical Chemistry C, 2013, 117, 12973-12980.	3.1	132
76	A new method for production of titanium dioxide pigment. Hydrometallurgy, 2013, 131-132, 107-113.	4.3	120
77	Mechanically alloyed composite anode materials based on SiOâ€‘SnxFeyCz for Li-ion batteries. Journal of Materials Chemistry A, 2013, 1, 4376.	10.3	24
78	Thermodynamic and Kinetic Destabilization of Magnesium Hydride Using Mgâ€‘In Solid Solution Alloys. Journal of the American Chemical Society, 2013, 135, 10982-10985.	13.7	103
79	Effects of Li doping on H-diffusion in MgH ₂ : A first-principles study. Journal of Applied Physics, 2013, 114, .	2.5	12
80	An investigation on thermal residual stresses in a cylindrical functionally graded WCâ€‘Co component. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2012, 557, 106-112.	5.6	9
81	Hydrogen Sintering of Titanium to Produce High Density Fine Grain Titanium Alloys. Advanced Engineering Materials, 2012, 14, 383-387.	3.5	58
82	Titanium for Automotive Applications: Challenges and Opportunities in Materials and Processing. Jom, 2012, 64, 553-565.	1.9	80
83	Kinetic Analysis of Densification Behavior of Nanoâ€‘sized Tungsten Powder. Journal of the American Ceramic Society, 2012, 95, 2458-2464.	3.8	34
84	Reaction Mechanisms in the Li ₃ AlH ₆ /LiBH ₄ and Al/LiBH ₄ Systems for Reversible Hydrogen Storage. Part 2: Solid-State NMR Studies. Journal of Physical Chemistry C, 2011, 115, 6048-6056.	3.1	36
85	Reaction Mechanisms in the Li ₃ AlH ₆ /LiBH ₄ and Al/LiBH ₄ Systems for Reversible Hydrogen Storage. Part 1: H Capacity and Role of Al. Journal of Physical Chemistry C, 2011, 115, 6040-6047.	3.1	21
86	Kinetics of Initial Coarsening During Sintering of Nanosized Powders. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2011, 42, 3534-3542.	2.2	31
87	Kinetics of the formation of metal binder gradient in WCâ€‘Co by carbon diffusion induced liquid migration. Acta Materialia, 2011, 59, 4719-4731.	7.9	49
88	Sinter-ability of nanocrystalline tungsten powder. International Journal of Refractory Metals and Hard Materials, 2010, 28, 312-316.	3.8	77
89	Formation of Co-capping during sintering of straight WCâ€‘10wt% Co. International Journal of Refractory Metals and Hard Materials, 2010, 28, 317-323.	3.8	24
90	Dependence of microcrack number density on microstructural parameters during plastic deformation of WCâ€‘Co composite. International Journal of Refractory Metals and Hard Materials, 2010, 28, 434-440.	3.8	13

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91	Low-Temperature Synthesis of Superconducting Nanocrystalline MgB_2 . Journal of Nanomaterials, 2010, 2010, 1-5.	2.7	6
92	Hydrogenation of Nanocrystalline Mg at Room Temperature in the Presence of TiH_2 . Journal of the American Chemical Society, 2010, 132, 6616-6617.	13.7	121
93	Numerical simulation of kinetics of the cobalt gradient change in WC-Co during liquid phase sintering. International Journal of Refractory Metals and Hard Materials, 2009, 27, 37-42.	3.8	8
94	Synthesis, sintering, and mechanical properties of nanocrystalline cemented tungsten carbide - A review. International Journal of Refractory Metals and Hard Materials, 2009, 27, 288-299.	3.8	586
95	Characterization of a bilayer WC-Co hardmetal using Hertzian indentation technique. International Journal of Refractory Metals and Hard Materials, 2009, 27, 317-322.	3.8	12
96	Design of cobalt gradient via controlling carbon content and WC grain size in liquid-phase-sintered WC-Co composite. International Journal of Refractory Metals and Hard Materials, 2009, 27, 256-260.	3.8	39
97	Effects of Liquid-Phase Composition on Its Migration during Liquid-Phase Sintering of Cemented Carbide. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2009, 40, 1995-2006.	2.2	22
98	Chemical vapor synthesis of Mg-Ti nanopowder mixture as a hydrogen storage material. International Journal of Hydrogen Energy, 2009, 34, 7700-7706.	7.1	33
99	Hydrogen Storage Properties of Nanosized $MgH_2 \sim 0.1TiH_2$ Prepared by Ultrahigh-Energy High-Pressure Milling. Journal of the American Chemical Society, 2009, 131, 15843-15852.	13.7	245
100	The effect of heating rate on the reversible hydrogen storage based on reactions of Li_3AlH_6 with $LiNH_2$. Journal of Power Sources, 2008, 185, 1354-1358.	7.8	8
101	Characterization of quasi-plastic deformation of WC-Co composite using Hertzian indentation technique. International Journal of Refractory Metals and Hard Materials, 2008, 26, 106-114.	3.8	34
102	Effect of WC particle size on Co distribution in liquid-phase-sintered functionally graded WC-Co composite. International Journal of Refractory Metals and Hard Materials, 2008, 26, 98-105.	3.8	49
103	A kinetic model for cobalt gradient formation during liquid phase sintering of functionally graded WC-Co. International Journal of Refractory Metals and Hard Materials, 2008, 26, 91-97.	3.8	46
104	Grain growth during the early stage of sintering of nanosized WC-Co powder. International Journal of Refractory Metals and Hard Materials, 2008, 26, 232-241.	3.8	158
105	Chemical Vapor Synthesis and Characterization of Nanosized WC-Co Composite Powder and Post-treatment. Industrial & Engineering Chemistry Research, 2008, 47, 9384-9388.	3.7	12
106	The Potential of Binary Lithium Magnesium Nitride - $LiMgN$ for Hydrogen Storage Application. Materials Research Society Symposia Proceedings, 2007, 1042, 1.	0.1	0
107	Potential of Binary Lithium Magnesium Nitride for Hydrogen Storage Applications. Journal of Physical Chemistry C, 2007, 111, 12129-12134.	3.1	59
108	Mathematical modeling of liquid phase migration in solid-liquid mixtures: Application to the sintering of functionally graded WC-Co composites. Acta Materialia, 2007, 55, 3111-3119.	7.9	36

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109	Kinetics of cobalt gradient formation during the liquid phase sintering of functionally graded WC-Co. International Journal of Refractory Metals and Hard Materials, 2007, 25, 286-292.	3.8	66
110	The chemical vapor synthesis of inorganic nanopowders. Jom, 2007, 59, 44-49.	1.9	72
111	Quasi-Plastic Deformation of WC-Co Composites Loaded with a Spherical Indenter. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2007, 38, 552-561.	2.2	26
112	Synthesis and Characterization of Nanoscaled Cerium (IV) Oxide via a Solid-State Mechanochemical Method. Journal of the American Ceramic Society, 2006, 89, 842-847.	3.8	23
113	An analysis of grain boundaries and grain growth in cemented tungsten carbide using orientation imaging microscopy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2006, 37, 599-607.	2.2	48
114	Microstructural analysis of lead-free solder alloys. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2006, 37, 2505-2514.	2.2	13
115	Correlation of transverse rupture strength of WC-Co with hardness. International Journal of Refractory Metals and Hard Materials, 2005, 23, 119-127.	3.8	132
116	Liquid phase sintering of functionally graded WC-Co composites. Scripta Materialia, 2005, 52, 785-791.	5.2	62
117	Quantitative characterization of microstructures of liquid-phase-sintered two-phase materials. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2004, 35, 1881-1888.	2.2	2
118	Titanium and Titanium Alloy via Sintering of TiH ₂ . Key Engineering Materials, 0, 436, 157-163.	0.4	58
119	Pathways to Optimize Performance/Cost Ratio of Powder Metallurgy Titanium - A Perspective. Key Engineering Materials, 0, 520, 15-23.	0.4	35
120	Powder Metallurgy Ti-6Al-4V Alloy with Wrought-Like Microstructure and Mechanical Properties by Hydrogen Sintering. Key Engineering Materials, 0, 704, 3-14.	0.4	3