Jan Frenzel

List of Publications by Year
in descending order

116 papers	5,781 citations	94381 37 h-index	79644 73 g-index
116 all docs	116 docs citations	116 times ranked	3819 citing authors

#	Article	IF	Citations
1	Influence of Ni on martensitic phase transformations in NiTi shape memory alloys. Acta Materialia, 2010, 58, 3444-3458.	3.8	696
2	Generalized Fabrication of Nanoporous Metals (Au, Pd, Pt, Ag, and Cu) through Chemical Dealloying. Journal of Physical Chemistry C, 2009, 113, 12629-12636.	1.5	413
3	On the effect of alloy composition on martensite start temperatures and latent heats in Niâ€“Ti-based shape memory alloys. Acta Materialia, 2015, 90, 213-231.	3.8	320
4	Identification of Quaternary Shape Memory Alloys with Nearâ€Zero Thermal Hysteresis and Unprecedented Functional Stability. Advanced Functional Materials, 2010, 20, 1917-1923.	7.8	304
5	On the development of high quality NiTi shape memory and pseudoelastic parts by additive manufacturing. Smart Materials and Structures, 2014, 23, 104002.	1.8	238
6	High quality vacuum induction melting of small quantities of NiTi shape memory alloys in graphite crucibles. Journal of Alloys and Compounds, 2004, 385, 214-223.	2.8	177
7	The biocompatibility of dense and porous Nickelâ€“Titanium produced by selective laser melting. Materials Science and Engineering C, 2013, 33, 419-426.	3.8	159
8	Fracture mechanics and microstructure in NiTi shape memory alloys. Acta Materialia, 2009, 57, 1015-1025.	3.8	145
9	Phase volume fractions and strain measurements in an ultrafine-grained NiTi shape-memory alloy during tensile loading. Acta Materialia, 2010, 58, 2344-2354.	3.8	145
10	Impurity levels and fatigue lives of pseudoelastic NiTi shape memory alloys. Acta Materialia, 2013, 61, 3667-3686.	3.8	145
11	Influence of carbon on martensitic phase transformations in NiTi shape memory alloys. Acta Materialia, 2007, 55, 1331-1341.	3.8	132
12	Effect of temperature and texture on the reorientation of martensite variants in NiTi shape memory alloys. Acta Materialia, 2017, 127, 143-152.	3.8	122
13	High-temperature and low-stress creep anisotropy of single-crystal superalloys. Acta Materialia, 2013, 61, 2926-2943.	3.8	119
14	Composition-dependent crystal structure and martensitic transformation in Heusler Niâ€“Mnâ€“Sn alloys. Acta Materialia, 2013, 61, 4648-4656.	3.8	102
15	Elementary Transformation and Deformation Processes and the Cyclic Stability of NiTi and NiTiCu Shape Memory Spring Actuators. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2009, 40, 2530-2544.	1.1	97
16	NiTiâ€Based Elastocaloric Cooling on the Macroscale: From Basic Concepts to Realization. Energy Technology, 2018, 6, 1567-1587.	1.8	97
17	Powder metallurgical processing of NiTi shape memory alloys with elevated transformation temperatures. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 491, 270-278.	2.6	90
18	On the reaction between NiTi melts and crucible graphite during vacuum induction melting of NiTi shape memory alloys. Acta Materialia, 2005, 53, 3971-3985.	3.8	78

#	ARTICLE	IF	CITATIONS
19	Effect of low-temperature precipitation on the transformation characteristics of Ni-rich NiTi shape memory alloys during thermal cycling. Intermetallics, 2010, 18, 1172-1179.	1.8	76
20	Thermal Stabilization of NiTiCuV Shape Memory Alloys: Observations During Elastocaloric Training. Shape Memory and Superelasticity, 2015, 1, 132-141.	1.1	68
21	Martensitic transformation in rapidly solidified Heusler Ni49Mn39Sn12 ribbons. Acta Materialia, 2011, 59, 5692-5699.	3.8	63
22	Electrolytic processing of NiTi shape memory alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 378, 191-199.	2.6	62
23	Suppression of Ni₄Ti₃ Precipitation by Grain Size Refinement in Niâ€Rich NiTi Shape Memory Alloys. Advanced Engineering Materials, 2010, 12, 747-753.	1.6	60
24	Atomic ordering effect in Ni50Mn37Sn13 magnetocaloric ribbons. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2012, 534, 568-572.	2.6	59
25	Processing and property assessment of NiTi and NiTiCu shape memory actuator springs. Materialwissenschaft Und Werkstofftechnik, 2008, 39, 499-510.	0.5	57
26	Improvement of NiTi Shape Memory Actuator Performance Through Ultraâ€Fine Grained and Nanocrystalline Microstructures. Advanced Engineering Materials, 2011, 13, 256-268.	1.6	56
27	Length-Scale Modulated and Electrocatalytic Activity Enhanced Nanoporous Gold by Doping. Journal of Physical Chemistry C, 2011, 115, 4456-4465.	1.5	55
28	On the influence of thermomechanical treatments on the microstructure and phase transformation behavior of Niâ€“Tiâ€“Fe shape memory alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 481-482, 635-638.	2.6	50
29	An ultrafine nanoporous bimetallic Agâ€“Pd alloy with superior catalytic activity. CrystEngComm, 2010, 12, 4059.	1.3	46
30	R-phase formation in Ti39Ni45Cu16 shape memory thin films and bulk alloys discovered by combinatorial methods. Acta Materialia, 2009, 57, 4169-4177.	3.8	45
31	Processing of a single-crystalline CrCoNi medium-entropy alloy and evolution of its thermal expansion and elastic stiffness coefficients with temperature. Scripta Materialia, 2020, 177, 44-48.	2.6	44
32	Bioactivity and electrochemical behavior of hydroxyapatite-silicon-multi walled carbon nano-tubes composite coatings synthesized by EPD on NiTi alloys in simulated body fluid. Materials Science and Engineering C, 2017, 71, 473-482.	3.8	43
33	Chemical complexity, microstructure and martensitic transformation in high entropy shape memory alloys. Intermetallics, 2020, 122, 106792.	1.8	43
34	Hard X-ray studies of stress-induced phase transformations of superelastic NiTi shape memory alloys under uniaxial load. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 481-482, 414-419.	2.6	42
35	The effect of cast microstructure and crystallography on rafting, dislocation plasticity and creep anisotropy of single crystal Ni-base superalloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 626, 305-312.	2.6	41
36	Vacuum Induction Melting of Ternary NiTiX (X=Cu, Fe, Hf, Zr) Shape Memory Alloys Using Graphite Crucibles. Materials Transactions, 2006, 47, 661-669.	0.4	40

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37	Direct transmission electron microscopy observations of martensitic transformations in Ni-rich NiTi single crystals during in situ cooling and straining. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 481-482, 452-456.	2.6	38
38	Damage evolution in pseudoelastic polycrystalline Coâ€“Niâ€“Ga high-temperature shape memory alloys. Journal of Alloys and Compounds, 2015, 633, 288-295.	2.8	38
39	On the evolution of cast microstructures during processing of single crystal Ni-base superalloys using a Bridgman seed technique. Materials and Design, 2017, 128, 98-111.	3.3	38
40	Characterization of mechanical properties of hydroxyapatiteâ€“siliconâ€“multi walled carbon nano tubes composite coatings synthesized by EPD on NiTi alloys for biomedical application. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 59, 337-352.	1.5	37
41	High-performance elastocaloric materials for the engineering of bulk- and micro-cooling devices. MRS Bulletin, 2018, 43, 280-284.	1.7	37
42	Site occupation of Nb atoms in ternary Niâ€“Tiâ€“Nb shape memory alloys. Acta Materialia, 2014, 74, 85-95.	3.8	36
43	Functional and structural fatigue of titanium tantalum high temperature shape memory alloys (HT) Tj ETQq1 1 0.784314 rgBT /Overlock Processing, 2015, 620, 359-366.	2.6	36
44	On Crystal Mosaicity in Single Crystal Ni-Based Superalloys. Crystals, 2019, 9, 149.	1.0	36
45	Induction Melting of NiTi Shape Memory Alloysâ€" The Influence of the Commercial Crucible Graphite on Alloy Quality. Materialwissenschaft Und Werkstofftechnik, 2004, 35, 352-358.	0.5	34
46	Nanoindentation of a Pseudoelastic NiTiFe Shape Memory Alloy. Advanced Engineering Materials, 2010, 12, 13-19.	1.6	34
47	Structural and functional properties of NiTi shape memory alloys produced by Selective Laser Melting. , 2011, , 291-296.		31
48	Strain mapping of crack extension in pseudoelastic NiTi shape memory alloys during static loading. Acta Materialia, 2013, 61, 5800-5806.	3.8	31
49	Effect of martensitic transformation on the performance of coated NiTi surfaces. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 486, 461-469.	2.6	30
50	On the Properties of Ni-Rich NiTi Shape Memory Parts Produced by Selective Laser Melting. , 2012, , .		30
51	Twinning-Induced Elasticity in NiTi Shape Memory Alloys. Shape Memory and Superelasticity, 2016, 2, 145-159.	1.1	29
52	On the rhenium segregation at the low angle grain boundary in a single crystal Ni-base superalloy. Scripta Materialia, 2020, 185, 88-93.	2.6	29
53	Dealloying strategy to fabricate ultrafine nanoporous gold-based alloys with high structural stability and tunable magnetic properties. CrystEngComm, 2012, 14, 8292.	1.3	28
54	On the Ni-Ion release rate from surfaces of binary NiTi shape memory alloys. Applied Surface Science, 2018, 427, 434-443.	3.1	26

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55	On the effect of grain boundary segregation on creep and creep rupture. Acta Materialia, 2012, 60, 2982-2998.	3.8	25
56	Ingot metallurgy and microstructural characterization of Tiâ€"Ta alloys. International Journal of Materials Research, 2014, 105, 156-167.	0.1	25
57	Martensitic Transformations and Functional Stability in Ultra-Fine Grained NiTi Shape Memory Alloys. Materials Science Forum, 0, 584-586, 852-857.	0.3	24
58	On the Importance of Structural and Functional Fatigue in Shape Memory Technology. Shape Memory and Superelasticity, 2020, 6, 213-222.	1.1	24
59	Design of a Medical Non-Linear Drilling Device: The Influence of Twist and Wear on the Fatigue Behaviour of NiTi Wires Subjected to Bending Rotation. Materialwissenschaft Und Werkstofftechnik, 2004, 35, 320-325.	0.5	22
60	TEM observation of stress-induced martensite after nanoindentation of pseudoelastic Ti50Ni48Fe2. Scripta Materialia, 2008, 58, 743-746.	2.6	22
61	Orientation relationship between TiC carbides and B2 phase in as-cast and heat-treated NiTi shape memory alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2006, 438-440, 879-882.	2.6	21
62	Additive Manufacturing of Shape Memory Devices and Pseudoelastic Components. , 2013, , .		20
63	The influence of Si as reactive bonding agent in the electrophoretic coatings of HAâ€"Siâ€"MWCNTs on NiTi alloys. Journal of Materials Engineering and Performance, 2016, 25, 390-400.	1.2	20
64	On the competition between the stress-induced formation of martensite and dislocation plasticity during crack propagation in pseudoelastic NiTi shape memory alloys. Journal of Materials Research, 2017, 32, 4433-4442.	1.2	19
65	On the widths of the hysteresis of mechanically and thermally induced martensitic transformations in Niâ€"Ti-based shape memory alloys. International Journal of Materials Research, 2015, 106, 1029-1039.	0.1	18
66	Optimizing Niâ€"Ti-based shape memory alloys for ferroic cooling. Functional Materials Letters, 2017, 10, 1740001.	0.7	18
67	Development of Single-Crystal Ni-Base Superalloys Based on Multi-criteria Numerical Optimization and Efficient Use of Refractory Elements. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2018, 49, 4134-4145.	1.1	18
68	Elektrolytisches Bearbeiten von NiTi-FormgedÃchtnislegierungen. Materials and Corrosion - Werkstoffe Und Korrosion, 2002, 53, 673-679.	0.8	17
69	Surface of Tiâ€"Ni alloys after their preparation. Journal of Alloys and Compounds, 2009, 470, 568-573.	2.8	17
70	Athermal nature of the martensitic transformation in Heusler alloy Niâ€"Mnâ€"Sn. Intermetallics, 2013, 36, 90-95.	1.8	17
71	On the functional degradation of binary titaniumâ€"tantalum high-temperature shape memory alloys â€" A new concept for fatigue life extension. Functional Materials Letters, 2014, 07, 1450042.	0.7	16
72	Cast-Replicated NiTiCu Foams with Superelastic Properties. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 2939-2944.	1.1	15

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73	Microstructure, Shape Memory Effect and Functional Stability of Ti₆₇Ta₃₃ Thin Films. Advanced Engineering Materials, 2015, 17, 1425-1433.	1.6	15
74	On the influence of small quantities of Bi and Sb on the evolution of microstructure during swaging and heat treatments in copper. Journal of Alloys and Compounds, 2011, 509, 4073-4080.	2.8	14
75	The effectiveness of coincidence site lattice criteria in predicting creep cavitation resistance. Journal of Materials Science, 2012, 47, 2915-2927.	1.7	14
76	Investigation of the Thinâ€‹<scp>F</scp>ilm Phase Diagram of the Crâ€“<scp>N</scp>iâ€“<scp>R</scp>e System by Highâ€‹<scp>T</scp>hroughput Experimentation. Advanced Engineering Materials, 2014, 16, 588-593.	1.6	14
77	Plasticity induced by nanoindentation in a CrCoNi medium-entropy alloy studied by accurate electron channeling contrast imaging revealing dislocation-low angle grain boundary interactions. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 817, 141364.	2.6	14
78	Nanostructured Tiâ€“Ta thin films synthesized by combinatorial glancing angle sputter deposition. Nanotechnology, 2016, 27, 495604.	1.3	13
79	Effect of off-stoichiometric compositions on microstructures and phase transformation behavior in Ni-Cu-Pd-Ti-Zr-Hf high entropy shape memory alloys. Journal of Alloys and Compounds, 2021, 857, 157467.	2.8	13
80	Identification of a ternary Î¼-phase in the Co-Ti-W system â€“ An advanced correlative thin-film and bulk combinatorial materials investigation. Acta Materialia, 2017, 138, 100-110.	3.8	12
81	Bending rotation HCF testing of pseudoelastic Niâ€Ti shape memory alloys. Materialwissenschaft Und Werkstofftechnik, 2013, 44, 633-640.	0.5	11
82	Microstructural evolution and functional fatigue of a Tiâ€“25Ta high-temperature shape memory alloy. Journal of Materials Research, 2017, 32, 4287-4295.	1.2	11
83	Ni-base superalloy single crystal (SX) mosaicity characterized by the Rotation Vector Base Line Electron Back Scatter Diffraction (RVB-EBSD) method. Ultramicroscopy, 2019, 206, 112817.	0.8	11
84	Unusual composition dependence of transformation temperatures in Ti-Ta-X shape memory alloys. Physical Review Materials, 2018, 2, .	0.9	11
85	Cyclic degradation of titaniumâ€“tantalum high-temperature shape memory alloys â€” the role of dislocation activity and chemical decomposition. Functional Materials Letters, 2015, 08, 1550062.	0.7	10
86	Grain Nucleation and Growth in Deformed NiTi Shape Memory Alloys: An In Situ TEM Study. Shape Memory and Superelasticity, 2017, 3, 347-360.	1.1	10
87	Ancient technology/novel nanomaterials: casting titanium carbide nanowires. CrystEngComm, 2010, 12, 2835.	1.3	9
88	Microstructural evolution in a Ti â€“ Ta high-temperature shape memory alloy during creep. International Journal of Materials Research, 2015, 106, 331-341.	0.1	8
89	Orientation-Dependent Deformation Behavior of 316L Steel Manufactured by Laser Metal Deposition and Casting under Local Scratch and Indentation Load. Materials, 2020, 13, 1765.	1.3	8
90	Burst-like reverse martensitic transformation during heating, cooling and under isothermal conditions in stabilized Ni-Ti-Nb. Scripta Materialia, 2020, 180, 23-28.	2.6	8

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91	Discovery of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>Ï‰</mml:mi></mml:math>-free high-temperature Ti-Ta-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>X</mml:mi></mml:math>shape memory alloys from first-principles calculations. Physical Review Materials, 2019, 3, .	0.9	7
92	On the evolution of microstructure in oxygen-free high conductivity copper during thermo-mechanical processing using rotary swaging. International Journal of Materials Research, 2011, 102, 363-370.	0.1	7
93	A Kinetic Study on the Evolution of Martensitic Transformation Behavior and Microstructures in Tiâ€“Ta High-Temperature Shape-Memory Alloys During Aging. Shape Memory and Superelasticity, 2019, 5, 16-31.	1.1	6
94	A 3D Analysis of Dendritic Solidification and Mosaicity in Ni-Based Single Crystal Superalloys. Materials, 2021, 14, 4904.	1.3	6
95	The Effect of Increasing Chemical Complexity on the Mechanical and Functional Behavior of NiTi-Related Shape Memory Alloys. Shape Memory and Superelasticity, 2020, 6, 181-190.	1.1	6
96	Nanoindentation of Ti50Ni48Fe2 and Ti50Ni40Cu10 shape memory alloys. International Journal of Materials Research, 2009, 100, 594-602.	0.1	5
97	Phase Transformations and Functional Properties of NiTi Alloy with Ultrafine-Grained Structure. Materials Science Forum, 2010, 667-669, 1059-1064.	0.3	5
98	On the Oxidation Behavior and Its Influence on the Martensitic Transformation of Tiâ€“Ta High-Temperature Shape Memory Alloys. Shape Memory and Superelasticity, 2019, 5, 63-72.	1.1	5
99	Reconciling Experimental and Theoretical Data in the Structural Analysis of Tiâ€“Ta Shape-Memory Alloys. Shape Memory and Superelasticity, 2019, 5, 6-15.	1.1	5
100	Superelasticity of free-standing NiTi films depending on the oxygen impurity of the used targets. Materialwissenschaft Und Werkstofftechnik, 2004, 35, 359-364.	0.5	4
101	Path to single-crystalline repair and manufacture of Ni-based superalloy using directional annealing. Surface and Coatings Technology, 2021, 405, 126494.	2.2	4
102	On the influence of crystal defects on the functional stability of NiTi based shape memory alloys. , 2009, , .		4
103	Nano- and Microcrystal Investigations of Precipitates, Interfaces and Strain Fields in Ni-Ti-Nb by Various TEM Techniques. Materials Science Forum, 2013, 738-739, 65-71.	0.3	3
104	Investigation of ternary subsystems of superalloys by thin-film combinatorial synthesis and high-throughput analysis. MATEC Web of Conferences, 2014, 14, 18002.	0.1	3
105	Composition, Constitution and Phase Transformation Behavior in Thin-Film and Bulk Tiâ€“Niâ€“Y. Shape Memory and Superelasticity, 2017, 3, 49-56.	1.1	3
106	Experimental and Theoretical Investigation on Phase Formation and Mechanical Properties in Crâ€“Coâ€“Ni Alloys Processed Using a Novel Thin-Film Quenching Technique. ACS Combinatorial Science, 2020, 22, 232-247.	3.8	3
107	Elastocaloric Cooling With Ni-Ti Based Alloys: Material Characterization and Process Variation. , 2015, , .		2
108	Experimental Methods for Investigation of Shape Memory Based Elastocaloric Cooling Processes and Model Validation. Journal of Visualized Experiments, 2016, , .	0.2	2

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109	Impact of Heatingâ€“Cooling Rates on the Functional Properties of Tiâ€“20Taâ€“5Al High-Temperature Shape Memory Alloys. Shape Memory and Superelasticity, 2019, 5, 95-105.	1.1	2
110	On the Influence of Alloy Composition on Creep Behavior of Ni-Based Single-Crystal Superalloys (SXs). Minerals, Metals and Materials Series, 2020, , 60-70.	0.3	2
111	The role of electrons during the martensitic phase transformation in NiTi-based shape memory alloys. Materials Today Physics, 2022, 24, 100671.	2.9	2
112	EM Characterization of Precipitates in as-Cast and Annealed Ni_{45.5}Ti_{45.5}Nb₉ Shape Memory Alloys. Materials Science Forum, 0, 738-739, 113-117.	0.3	1
113	Strength of hydrogen-free and hydrogen-doped Ni50Ti50 shape memory platelets. Scripta Materialia, 2019, 162, 151-155.	2.6	1
114	Laboratory-Scale Processing and Performance Assessment of Tiâ€“Ta High-Temperature Shape Memory Spring Actuators. Shape Memory and Superelasticity, 2021, 7, 222-234.	1.1	1
115	SEM Micrographs from NiTi-based Shape Memory Alloys after Mechanical Polishing and Electropolishing. Praktische Metallographie/Practical Metallography, 2006, 43, 599-613.	0.1	1
116	Thermomechanical Constraints on Pseudoelasticity During Nanoindentation of Binary and Ternary NiTi(Fe) Alloys. , 0, , 639-644.		0