Jan Frenzel

List of Publications by Year
in descending order

116 papers	5,781 citations	94269 37 h-index	79541 73 g-index
116 all docs	116 docs citations	116 times ranked	3819 citing authors

#	Article	IF	Citations
1	The role of electrons during the martensitic phase transformation in NiTi-based shape memory alloys. Materials Today Physics, 2022, 24, 100671.	2.9	2
2	Path to single-crystalline repair and manufacture of Ni-based superalloy using directional annealing. Surface and Coatings Technology, 2021, 405, 126494.	2.2	4
3	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
4	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
5	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
6	A 3D Analysis of Dendritic Solidification and Mosaicity in Ni-Based Single Crystal Superalloys. Materials, 2021, 14, 4904.	1.3	6
7	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
8	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
9	On the Importance of Structural and Functional Fatigue in Shape Memory Technology. Shape Memory and Superelasticity, 2020, 6, 213-222.	1.1	24
10	Chemical complexity, microstructure and martensitic transformation in high entropy shape memory alloys. Intermetallics, 2020, 122, 106792.	1.8	43
11	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
12	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
13	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
14	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
15	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
16	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
17	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
18	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

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19	On Crystal Mosaicity in Single Crystal Ni-Based Superalloys. Crystals, 2019, 9, 149.	1.0	36
20	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
21	Strength of hydrogen-free and hydrogen-doped Ni50Ti50 shape memory platelets. Scripta Materialia, 2019, 162, 151-155.	2.6	1
22	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
23	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
24	High-performance elastocaloric materials for the engineering of bulk- and micro-cooling devices. MRS Bulletin, 2018, 43, 280-284.	1.7	37
25	On the Ni-Ion release rate from surfaces of binary NiTi shape memory alloys. Applied Surface Science, 2018, 427, 434-443.	3.1	26
26	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
27	NiTiâ€Based Elastocaloric Cooling on the Macroscale: From Basic Concepts to Realization. Energy Technology, 2018, 6, 1567-1587.	1.8	97
28	Unusual composition dependence of transformation temperatures in Ti-Ta-X shape memory alloys. Physical Review Materials, 2018, 2, .	0.9	11
29	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
30	Optimizing Niâ€“Ti-based shape memory alloys for ferroic cooling. Functional Materials Letters, 2017, 10, 1740001.	0.7	18
31	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
32	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
33	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
34	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
35	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
36	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

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37	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
38	Nanostructured Tiâ€“Ta thin films synthesized by combinatorial glancing angle sputter deposition. Nanotechnology, 2016, 27, 495604.	1.3	13
39	Experimental Methods for Investigation of Shape Memory Based Elastocaloric Cooling Processes and Model Validation. Journal of Visualized Experiments, 2016, , .	0.2	2
40	Twinning-Induced Elasticity in NiTi Shape Memory Alloys. Shape Memory and Superelasticity, 2016, 2, 145-159.	1.1	29
41	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
42	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
43	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
44	Microstructure, Shape Memory Effect and Functional Stability of Ti₆₇Ta₃₃ Thin Films. Advanced Engineering Materials, 2015, 17, 1425-1433.	1.6	15
45	Thermal Stabilization of NiTiCuV Shape Memory Alloys: Observations During Elastocaloric Training. Shape Memory and Superelasticity, 2015, 1, 132-141.	1.1	68
46	Elastocaloric Cooling With Ni-Ti Based Alloys: Material Characterization and Process Variation. , 2015, , .		2
47	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
48	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
49	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
50	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
51	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
52	Functional and structural fatigue of titanium tantalum high temperature shape memory alloys (HT) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 Processing, 2015, 620, 359-366.	2.6	36
53	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
54	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

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55	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
56	Ingot metallurgy and microstructural characterization of Tiâ€“Ta alloys. International Journal of Materials Research, 2014, 105, 156-167.	0.1	25
57	Site occupation of Nb atoms in ternary Niâ€“Tiâ€“Nb shape memory alloys. Acta Materialia, 2014, 74, 85-95.	3.8	36
58	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
59	Bending rotation HCF testing of pseudoelastic Niâ€‹Ti shape memory alloys. Materialwissenschaft Und Werkstofftechnik, 2013, 44, 633-640.	0.5	11
60	Athermal nature of the martensitic transformation in Heusler alloy Niâ€“Mnâ€“Sn. Intermetallics, 2013, 36, 90-95.	1.8	17
61	Strain mapping of crack extension in pseudoelastic NiTi shape memory alloys during static loading. Acta Materialia, 2013, 61, 5800-5806.	3.8	31
62	High-temperature and low-stress creep anisotropy of single-crystal superalloys. Acta Materialia, 2013, 61, 2926-2943.	3.8	119
63	Impurity levels and fatigue lives of pseudoelastic NiTi shape memory alloys. Acta Materialia, 2013, 61, 3667-3686.	3.8	145
64	Composition-dependent crystal structure and martensitic transformation in Heusler Niâ€“Mnâ€“Sn alloys. Acta Materialia, 2013, 61, 4648-4656.	3.8	102
65	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
66	Additive Manufacturing of Shape Memory Devices and Pseudoelastic Components. , 2013, , .		20
67	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
68	On the Properties of Ni-Rich NiTi Shape Memory Parts Produced by Selective Laser Melting. , 2012, , .		30
69	Dealloying strategy to fabricate ultrafine nanoporous gold-based alloys with high structural stability and tunable magnetic properties. CrystEngComm, 2012, 14, 8292.	1.3	28
70	Cast-Replicated NiTiCu Foams with Superelastic Properties. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 2939-2944.	1.1	15
71	On the effect of grain boundary segregation on creep and creep rupture. Acta Materialia, 2012, 60, 2982-2998.	3.8	25
72	Atomic ordering effect in Ni50Mn37Sn13 magnetocaloric ribbons. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2012, 534, 568-572.	2.6	59

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73	The effectiveness of coincidence site lattice criteria in predicting creep cavitation resistance. Journal of Materials Science, 2012, 47, 2915-2927.	1.7	14
74	Length-Scale Modulated and Electrocatalytic Activity Enhanced Nanoporous Gold by Doping. Journal of Physical Chemistry C, 2011, 115, 4456-4465.	1.5	55
75	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
76	Structural and functional properties of NiTi shape memory alloys produced by Selective Laser Melting. , 2011, , 291-296.		31
77	Martensitic transformation in rapidly solidified Heusler Ni49Mn39Sn12 ribbons. Acta Materialia, 2011, 59, 5692-5699.	3.8	63
78	Improvement of NiTi Shape Memory Actuator Performance Through Ultraâ€Fine Grained and Nanocrystalline Microstructures. Advanced Engineering Materials, 2011, 13, 256-268.	1.6	56
79	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
80	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
81	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
82	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
83	Nanoindentation of a Pseudoelastic NiTiFe Shape Memory Alloy. Advanced Engineering Materials, 2010, 12, 13-19.	1.6	34
84	Influence of Ni on martensitic phase transformations in NiTi shape memory alloys. Acta Materialia, 2010, 58, 3444-3458.	3.8	696
85	Phase Transformations and Functional Properties of NiTi Alloy with Ultrafine-Grained Structure. Materials Science Forum, 2010, 667-669, 1059-1064.	0.3	5
86	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
87	An ultrafine nanoporous bimetallic Agâ€“Pd alloy with superior catalytic activity. CrystEngComm, 2010, 12, 4059.	1.3	46
88	Ancient technology/novel nanomaterials: casting titanium carbide nanowires. CrystEngComm, 2010, 12, 2835.	1.3	9
89	Nanoindentation of Ti50Ni48Fe2 and Ti50Ni40Cu10 shape memory alloys. International Journal of Materials Research, 2009, 100, 594-602.	0.1	5
90	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

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91	Fracture mechanics and microstructure in NiTi shape memory alloys. Acta Materialia, 2009, 57, 1015-1025.	3.8	145
92	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
93	Surface of Tiâ€“Ni alloys after their preparation. Journal of Alloys and Compounds, 2009, 470, 568-573.	2.8	17
94	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
95	On the influence of crystal defects on the functional stability of NiTi based shape memory alloys. , 2009, , .		4
96	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
97	Processing and property assessment of NiTi and NiTiCu shape memory actuator springs. Materialwissenschaft Und Werkstofftechnik, 2008, 39, 499-510.	0.5	57
98	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
99	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
100	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
101	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
102	TEM observation of stress-induced martensite after nanoindentation of pseudoelastic Ti50Ni48Fe2. Scripta Materialia, 2008, 58, 743-746.	2.6	22
103	Influence of carbon on martensitic phase transformations in NiTi shape memory alloys. Acta Materialia, 2007, 55, 1331-1341.	3.8	132
104	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
105	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
106	SEM Micrographs from NiTi-based Shape Memory Alloys after Mechanical Polishing and Electropolishing. Praktische Metallographie/Practical Metallography, 2006, 43, 599-613.	0.1	1
107	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
108	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

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109	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
110	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
111	Electrolytic processing of NiTi shape memory alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 378, 191-199.	2.6	62
112	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
113	Elektrolytisches Bearbeiten von NiTi-FormgedÃchtnislegierungen. Materials and Corrosion - Werkstoffe Und Korrosion, 2002, 53, 673-679.	0.8	17
114	Martensitic Transformations and Functional Stability in Ultra-Fine Grained NiTi Shape Memory Alloys. Materials Science Forum, 0, 584-586, 852-857.	0.3	24
115	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
116	Thermomechanical Constraints on Pseudoelasticity During Nanoindentation of Binary and Ternary NiTi(Fe) Alloys. , 0, , 639-644.		0