

# Petr Sedlak

## List of Publications by Year in descending order

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107  
papers

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236925

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docs citations

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times ranked

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#	ARTICLE	IF	CITATIONS
1	Experimental Observations versus First-Principles Calculations for Ni-Mn-Ga Ferromagnetic Shape Memory Alloys: A Review. <i>Physica Status Solidi - Rapid Research Letters</i> , 2022, 16, .	2.4	5
2	An experimentally-fitted thermodynamical constitutive model for polycrystalline shape memory alloys. <i>Discrete and Continuous Dynamical Systems - Series S</i> , 2021, 14, 3925.	1.1	3
3	Laser-Ultrasonic Characterization of Strongly Anisotropic Materials by Transient Grating Spectroscopy. <i>Experimental Mechanics</i> , 2021, 61, 663-676.	2.0	18
4	Ultrasonic Characterization of Nanoparticle-Based Ceramics Fabricated by Spark-Plasma Sintering. <i>Ceramics</i> , 2021, 4, 135-147.	2.6	0
5	Unravelling the multi-scale structure-property relationship of laser powder bed fusion processed and heat-treated AlSi10Mg. <i>Scientific Reports</i> , 2021, 11, 6423.	3.3	95
6	Evolution of elastic constants of the NiTi shape memory alloy during a stress-induced martensitic transformation. <i>Acta Materialia</i> , 2021, 208, 116718.	7.9	18
7	Experimentally validated constitutive model for NiTi-based shape memory alloys featuring intermediate R-phase transformation: A case study of Ni <sub>48</sub> Ti <sub>49</sub> Fe <sub>3</sub> . <i>Materials and Design</i> , 2021, 203, 109593.	7.0	14
8	Thermomechanical model for NiTi-based shape memory alloys covering macroscopic localization of martensitic transformation. <i>International Journal of Solids and Structures</i> , 2021, 221, 117-129.	2.7	36
9	Effect of electron localization in theoretical design of Ni-Mn-Ga based magnetic shape memory alloys. <i>Materials and Design</i> , 2021, 209, 109917.	7.0	12
10	Transient Grating Spectroscopy for Complete Elastic Anisotropy: Beyond the Measurement of Surface Acoustic Waves. , 2021, , .		3
11	Non-linear elastic behavior of Ni-Fe-Ga(Co) shape memory alloy and Landau-energy landscape reconstruction. <i>Acta Materialia</i> , 2021, 224, 117530.	7.9	5
12	Frequency-dependent acoustic energy focusing in hexagonal ceramic micro-scaffolds. <i>Wave Motion</i> , 2020, 92, 102417.	2.0	7
13	Softening of Shear Elastic Coefficients in Shape Memory Alloys Near the Martensitic Transition: A Study by Laser-Based Resonant Ultrasound Spectroscopy. <i>Metals</i> , 2020, 10, 1383.	2.3	10
14	Characterization of bonding quality of a cold-sprayed deposit by laser resonant ultrasound spectroscopy. <i>Ultrasonics</i> , 2020, 106, 106140.	3.9	10
15	Residual stress analysis of additive manufacturing of metallic parts using ultrasonic waves: State of the art review. <i>Journal of Materials Research and Technology</i> , 2020, 9, 9457-9477.	5.8	85
16	Reconstruction of phase distributions in NiTi helical spring: comparison of diffraction/scattering computed tomography and computational modeling. <i>Smart Materials and Structures</i> , 2020, 29, 075036.	3.5	7
17	Large Non-ergodic Magnetoelastic Damping in Ni-Mn-Ga Austenite. <i>Shape Memory and Superelasticity</i> , 2020, 6, 89-96.	2.2	4
18	Application of the Ritz-Rayleigh method for Lamb waves in extremely anisotropic media. <i>Wave Motion</i> , 2020, 96, 102567.	2.0	10

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19	Switching the soft shearing mode orientation in Ni-Mn-Ga non-modulated martensite by Co and Cu doping. <i>Smart Materials and Structures</i> , 2020, 29, 045022.	3.5	12
20	Beyond the strain recoverability of martensitic transformation in NiTi. <i>International Journal of Plasticity</i> , 2019, 116, 232-264.	8.8	89
21	Elastic constants of $\beta$ -Ti <sub>15</sub> Mo. <i>Journal of Alloys and Compounds</i> , 2019, 792, 960-967.	5.5	20
22	B2-B19' B2 Martensitic Transformation as a Mechanism of Plastic Deformation of NiTi, Shape Memory and Superelasticity, 2019, 5, 383-396.	2.2	14
23	Effect of the High-Pressure Torsion (HPT) and Subsequent Isothermal Annealing on the Phase Transformation in Biomedical Ti <sub>15</sub> Mo Alloy. <i>Metals</i> , 2019, 9, 1194.	2.3	14
24	Elasticity and internal friction of magnesium alloys at room and elevated temperatures. <i>Journal of Materials Science</i> , 2018, 53, 8545-8553.	3.7	9
25	Influence of grain morphology on ultrasonic wave attenuation in polycrystalline media with statistically equiaxed grains. <i>Journal of the Acoustical Society of America</i> , 2018, 143, 219-229.	1.1	48
26	Temperature dependence of elastic properties in austenite and martensite of Ni-Mn-Ga epitaxial films. <i>Acta Materialia</i> , 2018, 145, 298-305.	7.9	37
27	Ultrasonic bandgaps in 3D-printed periodic ceramic microlattices. <i>Ultrasonics</i> , 2018, 82, 91-100.	3.9	27
28	SMA Constitutive Modeling Backed Up by 3D-XRD Experiments: Transformation Front in Stretched NiTi Wire. <i>Shape Memory and Superelasticity</i> , 2018, 4, 411-416.	2.2	9
29	On the complementarity between resistivity measurement and ultrasonic measurement for in-situ characterization of phase transitions in Ti-alloys. <i>Journal of Alloys and Compounds</i> , 2018, 762, 868-872.	5.5	12
30	On the coupling between martensitic transformation and plasticity in NiTi: Experiments and continuum based modelling. <i>Progress in Materials Science</i> , 2018, 98, 249-298.	32.8	125
31	On the plastic deformation accompanying cyclic martensitic transformation in thermomechanically loaded NiTi. <i>International Journal of Plasticity</i> , 2018, 111, 53-71.	8.8	75
32	Experimental and computational study on phase transformations in superelastic NiTi snake-like spring. <i>Smart Materials and Structures</i> , 2018, 27, 095005.	3.5	9
33	Evolution of Elastic Properties of Cold Sprayed Metal Coatings at Elevated Temperatures. <i>Acta Physica Polonica A</i> , 2018, 134, 794-798.	0.5	6
34	Anisotropic Elasticity of Ceramic Micro-Scaffolds Fabricated by Robocasting. <i>Acta Physica Polonica A</i> , 2018, 134, 799-803.	0.5	2
35	<em></em> Ab Initio</em> Study of Martensitic Transition in Ni <sub>2</sub> MnGa. <i>Acta Physica Polonica A</i> , 2018, 134, 804-806.	0.5	9
36	Non-Contact Characterization of Acoustoelastic Parameters of Advanced Materials by Laser-Ultrasound. <i>Acta Physica Polonica A</i> , 2018, 134, 807-810.	0.5	1

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37	Numerical Simulations of NiTi Shape Memory Alloy Wire Behaviors in Tension, Compression, and Torsion. Acta Physica Polonica A, 2018, 134, 842-846.	0.5	4
38	Experimental Observations and Modeling of Localization in Superelastic NiTi Polycrystalline Alloys: State of the Art. Acta Physica Polonica A, 2018, 134, 847-852.	0.5	4
39	&lt;em>In Situ</em> Characterization of the Elasticity and Stress-Induced Phase Transformation of NiTi Shape-Memory Alloy. Acta Physica Polonica A, 2018, 134, 811-814.	0.5	0
40	Elastic constants of non-modulated Ni-Mn-Ga martensite. Scripta Materialia, 2017, 136, 20-23.	5.2	18
41	Evolution of macroscopic elastic moduli of martensitic polycrystalline NiTi and NiTiCu shape memory alloys with pseudoplastic straining. Acta Materialia, 2017, 123, 146-156.	7.9	46
42	Ceramic phononic crystals with MHz-range frequency band gaps. Proceedings of Meetings on Acoustics, 2017, , .	0.3	2
43	A microscopically motivated constitutive model for shape memory alloys: Formulation, analysis and computations. Mathematics and Mechanics of Solids, 2016, 21, 358-382.	2.4	28
44	Application of Laser-Ultrasound for Characterization of Plasma-Sprayed Ceramics. Defect and Diffusion Forum, 2016, 368, 69-72.	0.4	0
45	<i>In situ</i> characterization of local elastic properties of thin shape memory films by surface acoustic waves. Smart Materials and Structures, 2016, 25, 127002.	3.5	17
46	Elastic moduli and elastic anisotropy of cold sprayed metallic coatings. Surface and Coatings Technology, 2016, 291, 342-347.	4.8	30
47	The effect of athermal and isothermal $\beta'$ phase particles on elasticity of $\beta_2$ -Ti single crystals. Acta Materialia, 2016, 110, 185-191.	7.9	46
48	Grain-resolved analysis of localized deformation in nickel-titanium wire under tensile load. Science, 2016, 353, 559-562.	12.6	154
49	Modeling of mechanical response of NiTi shape memory alloy subjected to combined thermal and non-proportional mechanical loading: a case study on helical spring actuator. Journal of Intelligent Material Systems and Structures, 2016, 27, 1927-1938.	2.5	20
50	Evolution of soft-phonon modes in Fe-Pd shape memory alloy under large elastic-like strains. Acta Materialia, 2016, 105, 182-188.	7.9	19
51	Electrochemistry of NiTi Wires/Springs Subjected to Static/Cyclic Loadings. Materials Today: Proceedings, 2015, 2, S965-S969.	1.8	6
52	Incommensurateness in nanotwinning models of modulated martensites. Physical Review B, 2015, 92, .	3.2	9
53	Elastic constants of nanoporous III-V semiconductors. Journal Physics D: Applied Physics, 2015, 48, 245102.	2.8	5
54	Young's moduli of sputter-deposited NiTi films determined by resonant ultrasound spectroscopy: Austenite, R-phase, and martensite. Scripta Materialia, 2015, 101, 24-27.	5.2	41

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55	An ultrasonic internal friction study of ultrafine-grained AZ31 magnesium alloy. <i>Journal of Materials Science</i> , 2015, 50, 808-818.	3.7	13
56	Elastic properties of silicon nitride ceramics reinforced with graphene nanofillers. <i>Materials and Design</i> , 2015, 87, 675-680.	7.0	37
57	Forward and inverse problems for surface acoustic waves in anisotropic media: A Ritz-Rayleigh method based approach. <i>Ultrasonics</i> , 2015, 56, 381-389.	3.9	21
58	Characterization of Superelastic NiTi Alloys by Nanoindentation: Experiments and Simulations. <i>Acta Physica Polonica A</i> , 2015, 128, 664-669.	0.5	12
59	Molecular Dynamics Simulations of Poly(dimethylsiloxane) Properties. <i>Acta Physica Polonica A</i> , 2015, 128, 637-640.	0.5	2
60	Simulation of Mechanical Behavior of NiTi Shape Memory Alloys Under Complex Loading: Model Formulation and its Performance in Applications. , 2014, , .		1
61	Acoustic metamaterial behavior of three-dimensional periodic architectures assembled by robocasting. <i>Applied Physics Letters</i> , 2014, 105, 211904.	3.3	14
62	Simulations of Self-Expanding Braided Stent Using Macroscopic Model of NiTi Shape Memory Alloys Covering R-Phase. <i>Journal of Materials Engineering and Performance</i> , 2014, 23, 2584-2590.	2.5	17
63	Corrosion of NiTi Wires with Cracked Oxide Layer. <i>Journal of Materials Engineering and Performance</i> , 2014, 23, 2659-2668.	2.5	12
64	Physical Simulation of the Random Failure of Implanted Braided NiTi Stents. <i>Journal of Materials Engineering and Performance</i> , 2014, 23, 2650-2658.	2.5	9
65	Simulations of Mechanical Response of Superelastic NiTi Helical Spring and its Relation to Fatigue Resistance. <i>Journal of Materials Engineering and Performance</i> , 2014, 23, 2591-2598.	2.5	27
66	Determination of All 21 Independent Elastic Coefficients of Generally Anisotropic Solids by Resonant Ultrasound Spectroscopy: Benchmark Examples. <i>Experimental Mechanics</i> , 2014, 54, 1073-1085.	2.0	90
67	Editorial: SMST 2013. <i>Journal of Materials Engineering and Performance</i> , 2014, 23, 2301-2302.	2.5	0
68	Xenon Focused Ion Beam in the Shape Memory Alloys Investigation - The Case of NiTi and CoNiAl. <i>Microscopy and Microanalysis</i> , 2014, 20, 334-335.	0.4	0
69	Anisotropic elastic moduli and internal friction of graphene nanoplatelets/silicon nitride composites. <i>Composites Science and Technology</i> , 2013, 75, 93-97.	7.8	40
70	Microstructure, martensitic transformation and anomalies in $\sigma^2$ -softening in Co-Ni-Al ferromagnetic shape memory alloys. <i>Acta Materialia</i> , 2013, 61, 5869-5876.	7.9	26
71	Application of resonant ultrasound spectroscopy to determine elastic constants of plasma-sprayed coatings with high internal friction. <i>Surface and Coatings Technology</i> , 2013, 232, 747-757.	4.8	18
72	Resonant ultrasound spectroscopy - a tool to probe magneto-elastic properties of ferromagnetic shape memory alloys. <i>European Physical Journal B</i> , 2013, 86, 1.	1.5	13

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73	Combined effect of structural softening and magneto-elastic coupling on elastic coefficients of Ni Mn Ga austenite. Journal of Alloys and Compounds, 2013, 577, S131-S135.	5.5	30
74	The effect of antiphase boundaries on the elastic properties of Ni-Mn-Ga austenite and premartensite. Journal of Physics Condensed Matter, 2013, 25, 425402.	1.8	25
75	Sensitivity of the resonant ultrasound spectroscopy to weak gradients of elastic properties. Journal of the Acoustical Society of America, 2012, 131, 3775-3785.	1.1	16
76	Anomalous lattice softening of Ni <sub>2</sub> MnGa austenite due to magnetoelastic coupling. Journal of Applied Physics, 2012, 111, .	2.5	20
77	Thermomechanical model for NiTi-based shape memory alloys including R-phase and material anisotropy under multi-axial loadings. International Journal of Plasticity, 2012, 39, 132-151.	8.8	153
78	Anisotropic elasticity of DyScO <sub>3</sub> substrates. Journal of Physics Condensed Matter, 2012, 24, 385404.	1.8	16
79	Internal stresses in steel plate generated by shape memory alloy inserts. Acta Materialia, 2012, 60, 1378-1394.	7.9	1
80	Determination of elastic properties of surface layers and coatings by resonant ultrasound spectroscopy. Journal of Physics: Conference Series, 2011, 278, 012004.	0.4	0
81	Thermomechanical properties of single crystals evaluated by impulsive stimulated thermal scattering technique. Journal of Physics: Conference Series, 2011, 278, 012023.	0.4	2
82	Velcro-like fasteners based on NiTi micro-hook arrays. Smart Materials and Structures, 2011, 20, 085027.	3.5	16
83	Novel approach to material evaluation of thin surface layers by resonant ultrasound spectroscopy. Journal of Physics: Conference Series, 2010, 214, 012045.	0.4	0
84	Thermomechanical Models for NiTi Shape Memory Alloys and Their Applications. , 2010, , .		0
85	Application of ultrasonic methods to determine elastic anisotropy of polycrystalline copper processed by equal-channel angular pressing. Acta Materialia, 2010, 58, 235-247.	7.9	44
86	Linearized forward and inverse problems of the resonant ultrasound spectroscopy for the evaluation of thin surface layers. Journal of the Acoustical Society of America, 2010, 128, 3426-3437.	1.1	16
87	Thermomechanical model for NiTi shape memory wires. Smart Materials and Structures, 2010, 19, 094010.	3.5	16
88	Shape Memory Hooks Employed in Fasteners. Journal of Materials Engineering and Performance, 2009, 18, 706-710.	2.5	6
89	Modal resonant ultrasound spectroscopy for ferroelastics. Applied Physics A: Materials Science and Processing, 2009, 96, 557-567.	2.3	55
90	Magneto-elastic attenuation in austenitic phase of Ni-Mn-Ga alloy investigated by ultrasonic methods. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 521-522, 205-208.	5.6	15

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91	Two-Dimensional Thermomechanical Model for Combined Loading of NiTi Wire Structures. , 2009, , .		1
92	Resonant ultrasound spectroscopy for investigation of thin surface coatings. WIT Transactions on Engineering Sciences, 2009, , .	0.0	2
93	Fastening of shape memory hook arrays. , 2009, , .		0
94	On the evaluation of temperature dependence of elastic constants of martensitic phases in shape memory alloys from resonant ultrasound spectroscopy studies. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 481-482, 567-573.	5.6	9
95	Quasistatic and dynamic functional properties of thin superelastic NiTi wires. European Physical Journal: Special Topics, 2008, 158, 7-14.	2.6	9
96	Shape recovery mechanism observed in single crystals of CuAlNi shape memory alloy. Phase Transitions, 2008, 81, 537-551.	1.3	24
97	Temperature dependence of elastic properties of cubic and orthorhombic phases in CuAlNi shape memory alloy near their stability limits. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 462, 320-324.	5.6	19
98	In situ experimental evidence on R-phase related deformation processes in activated NiTi wires. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2006, 438-440, 579-584.	5.6	30
99	PS-17 Improvement of the Inversion Procedure in Resonant Ultrasound Spectroscopy for Generally Oriented, High Anisotropic Crystals. , 2006, , .		0
100	Elastic constants of bcc austenite and 2H orthorhombic martensite in CuAlNi shape memory alloy. Acta Materialia, 2005, 53, 3643-3661.	7.9	108
101	Elastic Properties of Structural Phases in Shape Memory Alloys Investigated by Resonant Ultrasound Spectroscopy. Materials Science Forum, 2005, 482, 351-354.	0.3	1
102	Ultrasonic characterization of CuAlNi single crystals lattice stability in the vicinity of the phase transition. Ultrasonics, 2004, 42, 519-526.	3.9	17
103	Acoustic characterization of the elastic properties of austenite phase and martensitic transformations in CuAlNi shape memory alloy. Journal of Alloys and Compounds, 2004, 378, 140-144.	5.5	19
104	<i>In Situ</i> Detection of Surface Micro-Cracking in Ultrafine-Grained AZ31 Magnesium Alloy by Resonant Ultrasound Spectroscopy. Key Engineering Materials, 0, 606, 87-90.	0.4	1
105	Numerical Study on Localization of Phase Transformation in NiTi Shape Memory Wires. Solid State Phenomena, 0, 258, 141-144.	0.3	2
106	Finite Elements Modeling of Mechanical and Acoustic Properties of a Ceramic Metamaterial Assembled by Robocasting. Applied Mechanics and Materials, 0, 821, 364-371.	0.2	4
107	Elastic Properties of Structural Phases in Shape Memory Alloys Investigated by Resonant Ultrasound Spectroscopy. Materials Science Forum, 0, , 351-354.	0.3	1