

Kristian Mathis

List of Publications by Year in descending order

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papers

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115
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#	ARTICLE	IF	CITATIONS
1	Shear banding-induced ϵ -c+a ϵ % slip enables unprecedented strength-ductility combination of laminated metallic composites. <i>Journal of Materials Science and Technology</i> , 2022, 110, 260-268.	5.6	9
2	Dislocation avalanches are like earthquakes on the micron scale. <i>Nature Communications</i> , 2022, 13, 1975.	5.8	34
3	Line profile analysis and rocking curve evaluation of 3D diffraction data reveal a strain softening mechanism. <i>Acta Materialia</i> , 2022, 233, 117993.	3.8	1
4	Influence of high-pressure torsion on microstructure, hardness and shear strength of AM60 magnesium alloy. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2021, 799, 140158.	2.6	18
5	Interaction of Migrating Twin Boundaries with Obstacles in Magnesium. <i>Metals</i> , 2021, 11, 154.	1.0	3
6	On the dynamics of twinning in magnesium micropillars. <i>Materials and Design</i> , 2021, 203, 109563.	3.3	10
7	Influence of high pressure torsion on microstructure evolution and mechanical properties of AZ80/SiC magnesium matrix composites. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2021, 826, 141916.	2.6	22
8	Unraveling the effect of deformation-induced phase transformation on microstructure and micro-texture evolution of a multi-axially forged Mg-Gd-Y-Zn-Zr alloy containing the LPSO phase. <i>Journal of Materials Research and Technology</i> , 2021, 15, 2088-2101.	2.6	16
9	The temperature effect on the plastic deformation of the Mg88Zn7Y5 alloy with LPSO phase studied by in-situ synchrotron radiation diffraction. <i>Intermetallics</i> , 2021, 138, 107321.	1.8	10
10	Influence of Volume Fraction of Long-Period Stacking Ordered Structure Phase on the Deformation Processes during Cyclic Deformation of Mg-Y-Zn Alloys. <i>Crystals</i> , 2021, 11, 11.	1.0	9
11	Study of twinning in texture-free cast magnesium using acoustic emission technique. <i>Metallic Materials</i> , 2021, 51, 269-273.	0.2	1
12	Revealing the Microstructural Aspects of the Corrosion Dynamics in Rapidly Solidified Mg-Zn-Y Alloys Using the Acoustic Emission Technique. <i>Materials</i> , 2021, 14, 7828.	1.3	3
13	Influence of temperature of ECAP processing on the microstructure and microhardness of as-cast AX41 alloy. <i>Journal of Materials Science</i> , 2020, 55, 3118-3129.	1.7	11
14	A new insight into LPSO transformation during multi-axial forging in Mg-Gd-Y-Zn-Zr alloy. <i>Materials Letters</i> , 2020, 269, 127625.	1.3	16
15	A phenomenological model of twinning-mediated strain hardening. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2020, 780, 139194.	2.6	9
16	Optimization of the Mechanical Performance of Titanium for Biomedical Applications by Advanced, High-Gain SPD Technology. <i>Crystals</i> , 2020, 10, 422.	1.0	6
17	Hot deformation of Mg-Y-Zn alloy with a low content of the LPSO phase studied by in-situ synchrotron radiation diffraction. <i>Journal of Magnesium and Alloys</i> , 2020, 8, 199-209.	5.5	24
18	The Deformation of Expanded Clay Syntactic Foams During Compression Characterized by Acoustic Emission. <i>Minerals, Metals and Materials Series</i> , 2020, , 107-114.	0.3	4

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19	Evaluation of X-ray Bragg peak profiles with the variance method obtained by <i>in situ</i> measurement on Mg-Al alloys. Journal of Applied Crystallography, 2020, 53, 360-368.	1.9	2
20	Mechanical and biocorrosive properties of magnesium-aluminum alloy scaffold for biomedical applications. Journal of the Mechanical Behavior of Biomedical Materials, 2019, 98, 213-224.	1.5	30
21	Optimization of mechanical properties of dilute Mg-Zn-Y alloys prepared by rapid solidification. Materials and Design, 2019, 181, 107984.	3.3	28
22	Effect of precipitation in the compressive behavior of high strength Mg-Gd-Y-Zn extruded alloy. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 768, 138452.	2.6	13
23	In-situ Investigation of the Microstructure Evolution in Long-Period-Stacking-Ordered (LPSO) Magnesium Alloys as a Function of the Temperature. Frontiers in Materials, 2019, 6, .	1.2	6
24	Influence of the solute concentration on the anelasticity in Mg-Al alloys: A multiple-approach study. Journal of Alloys and Compounds, 2019, 786, 779-790.	2.8	25
25	Influence of the solute concentration on twinning-detwinning process in Mg-Al alloys. Procedia Structural Integrity, 2019, 23, 51-56.	0.3	0
26	Damage Characterization during Compression in a Perlite-Aluminum Syntactic Foam. Materials, 2019, 12, 3342.	1.3	7
27	In Situ Synchrotron Diffraction Analysis of Zn Additions on the Compression Properties of NK30. Materials, 2019, 12, 3935.	1.3	2
28	Type and density of dislocations in a plastically deformed long-period stacking ordered magnesium alloy. Journal of Alloys and Compounds, 2019, 771, 629-635.	2.8	8
29	Acoustic emission analysis of the compressive deformation of iron foams and their biocompatibility study. Materials Science and Engineering C, 2019, 97, 367-376.	3.8	10
30	Influence of the initial state on the microstructure and mechanical properties of AX41 alloy processed by ECAP. Journal of Materials Science, 2019, 54, 3469-3484.	1.7	23
31	Investigation of the Evolution of the Microstructure in the Directionally Solidified Long-Period Stacking-Ordered (LPSO) Magnesium Alloy as a Function of the Temperature. Minerals, Metals and Materials Series, 2019, , 33-36.	0.3	1
32	Thermo-mechanical Processing of EZK Alloys in a Synchrotron Radiation Beam. Minerals, Metals and Materials Series, 2019, , 297-303.	0.3	0
33	Acoustic Emission Study of High Temperature Deformation of Mg-Zn-Y Alloys with LPSO Phase. Minerals, Metals and Materials Series, 2018, , 203-208.	0.3	0
34	Evolution of the Dislocation Structure During Compression in a Mg-Zn-Y Alloy with Long Period Stacking Ordered Structure. Minerals, Metals and Materials Series, 2018, , 385-389.	0.3	0
35	Influence of quasicrystal I-phase on twinning of extruded Mg-Zn-Y alloys under compression. Acta Materialia, 2018, 151, 271-281.	3.8	32
36	Combination of in-situ diffraction experiments and acoustic emission testing to understand the compression behavior of Mg-Y-Zn alloys containing LPSO phase under different loading conditions. International Journal of Plasticity, 2018, 106, 107-128.	4.1	76

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37	Mechanical properties of ultrafine-grained AX41 magnesium alloy at room and elevated temperatures. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2018, 731, 438-445.	2.6	18
38	Characterization of Microstructure and Mechanical Properties of Mg-Y-Zn Alloys with Respect to Different Content of LPSO Phase. <i>Advanced Engineering Materials</i> , 2018, 20, 1700396.	1.6	15
39	Comprehensive Evaluation of the Properties of Ultrafine to Nanocrystalline Grade 2 Titanium Wires. <i>Materials</i> , 2018, 11, 2522.	1.3	15
40	Characterization of the Microstructure, Local Macro-Texture and Residual Stress Field of Commercially Pure Titanium Grade 2 Prepared by CONFORM ECAP. <i>Metals</i> , 2018, 8, 1000.	1.0	7
41	Micro-Tensile Behavior of Mg-Al-Zn Alloy Processed by Equal Channel Angular Pressing (ECAP). <i>Materials</i> , 2018, 11, 1644.	1.3	19
42	Investigation of the Microstructure Evolution and Deformation Mechanisms of a Mg-Zn-Zr-RE Twin-Roll-Cast Magnesium Sheet by In-Situ Experimental Techniques. <i>Materials</i> , 2018, 11, 200.	1.3	8
43	Elastic and Plastic Behavior of an Ultrafine-Grained Mg Reinforced with BN Nanoparticles. <i>Journal of Materials Engineering and Performance</i> , 2018, 27, 3112-3121.	1.2	5
44	Characterization of Deformation Mechanisms in Mg Alloys by Advanced Acoustic Emission Methods. <i>Metals</i> , 2018, 8, 644.	1.0	16
45	Characterization of Active Deformation Mechanisms in Mg Alloys with LPSO Phase. <i>Acta Physica Polonica A</i> , 2018, 134, 815-819.	0.2	3
46	Deformation Behavior of Mg-alloy-based Composites at Different Temperatures Studied by Neutron Diffraction. <i>Acta Physica Polonica A</i> , 2018, 134, 881-886.	0.2	1
47	Twinning Evolution in Magnesium Alloys under Biaxial Loading. <i>Acta Physica Polonica A</i> , 2018, 134, 853-856.	0.2	1
48	Deformation behavior of Mg-alloy-based composites at different temperatures studied by neutron diffraction. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2017, 685, 284-293.	2.6	10
49	Evolution of dislocation density during compression of a Mg-Zn-Y alloy with long period stacking ordered structure. <i>Materials Letters</i> , 2017, 190, 86-89.	1.3	12
50	Occurrence of the Portevin Le-Châtelier effect in open-cell microcellular Al-2wt% Mg. <i>Scripta Materialia</i> , 2017, 132, 13-16.	2.6	1
51	Influence of equal channel angular pressing temperature on texture, microstructure and mechanical properties of extruded AX41 magnesium. <i>Journal of Alloys and Compounds</i> , 2017, 705, 273-282.	2.8	48
52	In Situ Investigation of Deformation Mechanisms in Mg-Zn-Y Magnesium Alloy with LPSO Phase by Diffraction Methods and Acoustic Emission. <i>Minerals, Metals and Materials Series</i> , 2017, , 625-629.	0.3	0
53	Evolution of twinning in extruded AZ31 alloy with bimodal grain structure. <i>Materials Characterization</i> , 2017, 126, 116-124.	1.9	12
54	Influence of equal channel angular pressing routes on texture, microstructure and mechanical properties of extruded AX41 magnesium alloy. <i>Materials Characterization</i> , 2017, 123, 282-293.	1.9	63

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55	Dependence of twinned volume fraction on loading mode and Schmid factor in randomly textured magnesium. <i>Acta Materialia</i> , 2017, 130, 319-328.	3.8	50
56	Micron-Scale Deformation: A Coupled <i>in Situ</i> Study of Strain Bursts and Acoustic Emission. <i>Microscopy and Microanalysis</i> , 2017, 23, 1076-1081.	0.2	15
57	The Effect of Matrix Composition on the Deformation and Failure Mechanisms in Metal Matrix Syntactic Foams during Compression. <i>Materials</i> , 2017, 10, 196.	1.3	21
58	Effect of Extrusion Ratio on Microstructure and Resulting Mechanical Properties of Mg Alloys with LPSO Phase. <i>Minerals, Metals and Materials Series</i> , 2017, , 29-34.	0.3	5
59	Neutron Diffraction and Acoustic Emission Measurement During Loading and Unloading of Magnesium Aluminium Binary Alloys. <i>Minerals, Metals and Materials Series</i> , 2017, , 543-546.	0.3	0
60	In vitro degradation of ZM21 magnesium alloy in simulated body fluids. <i>Materials Science and Engineering C</i> , 2016, 65, 59-69.	3.8	39
61	Effect of reinforcing shape on twinning in extruded magnesium matrix composites. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2016, 666, 48-53.	2.6	14
62	Characterization of the Acoustic Emission Response and Mechanical Properties of Mg Alloy with LPSO Phase. <i>Materials Science Forum</i> , 2016, 879, 762-766.	0.3	4
63	Acoustic Emission as a Tool for Exploring Deformation Mechanisms in Magnesium and Its Alloys <i>In Situ</i> . <i>Jom</i> , 2016, 68, 3057-3062.	0.9	17
64	On the limits of acoustic emission detectability for twinning. <i>Materials Letters</i> , 2016, 183, 417-419.	1.3	45
65	Deformation behavior and acoustic emission response on uniaxial compression of extruded rectangular profile of Mg Zn Zr alloy. <i>Journal of Alloys and Compounds</i> , 2016, 680, 623-632.	2.8	13
66	Monitoring the failure mechanisms in metal matrix syntactic foams during compression by acoustic emission. <i>Materials Letters</i> , 2016, 173, 31-34.	1.3	30
67	The Use of Acoustic Emission and Neutron Diffraction to Reveal the Active Deformation Mechanisms in Polycrystalline Magnesium and Comparison to Theoretical Modeling. , 2016, , 213-216.		0
68	Neutron diffraction study of the deformation behavior of Mg-alloy-based composites. <i>Acta Crystallographica Section A: Foundations and Advances</i> , 2016, 72, s302-s302.	0.0	0
69	Effect of the loading mode on the evolution of the deformation mechanisms in randomly textured magnesium polycrystals – Comparison of experimental and modeling results. <i>International Journal of Plasticity</i> , 2015, 72, 127-150.	4.1	86
70	In situ investigation of deformation mechanisms in magnesium-based metal matrix composites. <i>Metals and Materials International</i> , 2015, 21, 652-658.	1.8	6
71	Investigation of the dependence of deformation mechanisms on solute content in polycrystalline Mg–Al magnesium alloys by neutron diffraction and acoustic emission. <i>Journal of Alloys and Compounds</i> , 2015, 642, 185-191.	2.8	24
72	Temperature dependence of twinning activity in random textured cast magnesium. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2015, 627, 333-335.	2.6	6

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73	Effect of the fiber orientation on the deformation mechanisms of magnesium-alloy based composite. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 643, 25-31.	2.6	9
74	Effect of Loading Mode on the Evolution of the Dislocation Structure in Magnesium. Acta Physica Polonica A, 2015, 128, 700-704.	0.2	4
75	Neutron Diffraction Study and Deformation Behavior of a Composite Based Mg Alloy Reinforced by Short Saffil Fibers. Acta Physica Polonica A, 2015, 128, 758-761.	0.2	2
76	Twinning Evolution as a Function of Loading Direction in Magnesium. Acta Physica Polonica A, 2015, 128, 762-765.	0.2	9
77	Microstructure and Mechanical Properties of Severely Deformed AX41 Magnesium Alloy. Acta Physica Polonica A, 2015, 128, 768-771.	0.2	2
78	Comparison of the microstructure and the mechanical properties of AX41 magnesium alloy processed by EX-ECAP via three different routes A, Bc and C. IOP Conference Series: Materials Science and Engineering, 2014, 63, 012058.	0.3	3
79	Neutron Diffraction and Acoustic Emission Study of Mg-Al-Sr Alloy Reinforced with Short Saffil [®] Fibers Deformed in Compression. Materials Science Forum, 2014, 777, 92-98.	0.3	2
80	Study of the loading mode dependence of the twinning in random textured cast magnesium by acoustic emission and neutron diffraction methods. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 602, 25-32.	2.6	77
81	Plastic Properties of a Mg-Al-Ca Alloy Reinforced with Short Saffil Fibers. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 29-35.	1.1	7
82	Tensile behavior of hydrogen-charged 316L stainless steel at elevated temperatures. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 595, 165-172.	2.6	11
83	Statistical analysis of acoustic emission events in torsional deformation of a Vitreloy bulk metallic glass. Acta Materialia, 2014, 70, 113-122.	3.8	13
84	Hardening and Softening Processes in an AJ51 Magnesium Alloy Reinforced with Short Saffil Fibres. , 2014, , 435-440.		2
85	Acoustic emission study of Mg-Al-Sr alloy reinforced with short Saffil [®] fibers deformed in compression. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 575, 1-5.	2.6	8
86	Stages in room temperature torsional deformation of a Vitreloy bulk metallic glass. Journal of Alloys and Compounds, 2013, 577, 25-29.	2.8	11
87	Hydrogen Softening in the Thin Plate of Microcrystalline 316L Stainless Steel. Steel Research International, 2013, 84, 812-817.	1.0	8
88	Investigation of Twinning Activity in Magnesium Using Advanced <i>In Situ</i> Methods. Materials Science Forum, 2013, 765, 532-536.	0.3	2
89	Role of superposition of dislocation avalanches in the statistics of acoustic emission during plastic deformation. Physical Review E, 2013, 88, 042402.	0.8	47
90	<i>In-situ</i> neutron diffraction and acoustic emission investigation of twinning activity in magnesium. Journal of Physics: Conference Series, 2012, 340, 012096.	0.3	9

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91	Effect of temperature on mechanical properties of continuously cast AZ31 magnesium alloy. <i>Metallic Materials</i> , 2012, 50, 139-146.	0.2	0
92	Acoustic-Emission Study of Intermittency of Plastic Flow during Twinning and Dislocation Glide. <i>Acta Physica Polonica A</i> , 2012, 122, 430-434.	0.2	10
93	Acoustic emission monitoring of slow strain rate tensile tests of 304L stainless steel in supercritical water environment. <i>Corrosion Science</i> , 2011, 53, 59-63.	3.0	30
94	Structure and mechanical behaviour of interstitial-free steel processed by equal-channel angular pressing. <i>Journal of Alloys and Compounds</i> , 2011, 509, 3522-3525.	2.8	39
95	Internal stress and thermally activated dislocation motion in an AZ63 magnesium alloy. <i>Materials Chemistry and Physics</i> , 2011, 130, 1146-1150.	2.0	33
96	Investigation of tensionâ€“compression asymmetry of magnesium by use of the acoustic emission technique. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2011, 528, 5904-5907.	2.6	51
97	Inhomogeneous evolution of microstructure in AZ91 Mg-alloy during high temperature equal-channel angular pressing. <i>Journal of Alloys and Compounds</i> , 2010, 492, 166-172.	2.8	26
98	Microstructural evolution of equal-channel angular pressed interstitial-free steel. <i>International Journal of Materials Research</i> , 2009, 100, 834-837.	0.1	5
99	Microstructural characterization of a fine-grained ultra low carbon steel. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2007, 462, 248-252.	2.6	12
100	Investigating deformation processes in AM60 magnesium alloy using the acoustic emission technique. <i>Acta Materialia</i> , 2006, 54, 5361-5366.	3.8	64
101	Microstructure of severely deformed metals from X-ray line profile analysis. , 2006, , 93-98.		0
102	Mechanical Properties of AZ91 Alloy after Equal Channel Angular Pressing. , 2005, , 190-193.		0
103	Evolution of the statistical properties of dislocation ensembles. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2005, 400-401, 206-209.	2.6	3
104	Microstructure and mechanical behavior of AZ91 Mg alloy processed by equal channel angular pressing. <i>Journal of Alloys and Compounds</i> , 2005, 394, 194-199.	2.8	187
105	Investigation of some magnesium alloys by use of the acoustic emission technique. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2004, 387-389, 331-335.	2.6	21
106	The evolution of non-basal dislocations as a function of deformation temperature in pure magnesium determined by X-ray diffraction. <i>Acta Materialia</i> , 2004, 52, 2889-2894.	3.8	202
107	Modeling of hardening and softening processes in Mg alloys. <i>Journal of Alloys and Compounds</i> , 2004, 378, 176-179.	2.8	41
108	Hardening and softening in deformed magnesium alloys. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2002, 324, 141-144.	2.6	48

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109	Thermally activated processes in microcrystalline Mg. Scripta Materialia, 2000, 42, 1095-1100.	2.6	24
110	Thermally Activated Dislocation Motion in an AS21 Alloy and Alloy Reinforced with Short Ceramic Fibres Studied at Elevated Temperatures. Key Engineering Materials, 0, 592-593, 71-74.	0.4	0
111	Influence of the Loading Path on the Deformation Mechanisms of Magnesium Alloys. Solid State Phenomena, 0, 258, 427-431.	0.3	0