Kristian Mathis

List of Publications by Year
in descending order

111	2,123	257101 24	276539 41
papers	citations	h-index	g-index

115	115	115	1476
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	The evolution of non-basal dislocations as a function of deformation temperature in pure magnesium determined by X-ray diffraction. Acta Materialia, 2004, 52, 2889-2894.	3.8	202
2	Microstructure and mechanical behavior of AZ91 Mg alloy processed by equal channel angular pressing. Journal of Alloys and Compounds, 2005, 394, 194-199.	2.8	187
3	Effect of the loading mode on the evolution of the deformation mechanisms in randomly textured magnesium polycrystals â€“ Comparison of experimental and modeling results. International Journal of Plasticity, 2015, 72, 127-150.	4.1	86
4	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
5	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
6	Investigating deformation processes in AM60 magnesium alloy using the acoustic emission technique. Acta Materialia, 2006, 54, 5361-5366.	3.8	64
7	Influence of equal channel angular pressing routes on texture, microstructure and mechanical properties of extruded AX41 magnesium alloy. Materials Characterization, 2017, 123, 282-293.	1.9	63
8	Investigation of tensionâ€“compression asymmetry of magnesium by use of the acoustic emission technique. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 5904-5907.	2.6	51
9	Dependence of twinned volume fraction on loading mode and Schmid factor in randomly textured magnesium. Acta Materialia, 2017, 130, 319-328.	3.8	50
10	Hardening and softening in deformed magnesium alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2002, 324, 141-144.	2.6	48
11	Influence of equal channel angular pressing temperature on texture, microstructure and mechanical properties of extruded AX41 magnesium. Journal of Alloys and Compounds, 2017, 705, 273-282.	2.8	48
12	Role of superposition of dislocation avalanches in the statistics of acoustic emission during plastic deformation. Physical Review E, 2013, 88, 042402.	0.8	47
13	On the limits of acoustic emission detectability for twinning. Materials Letters, 2016, 183, 417-419.	1.3	45
14	Modeling of hardening and softening processes in Mg alloys. Journal of Alloys and Compounds, 2004, 378, 176-179.	2.8	41
15	Structure and mechanical behaviour of interstitial-free steel processed by equal-channel angular pressing. Journal of Alloys and Compounds, 2011, 509, 3522-3525.	2.8	39
16	In vitro degradation of ZM21 magnesium alloy in simulated body fluids. Materials Science and Engineering C, 2016, 65, 59-69.	3.8	39
17	Dislocation avalanches are like earthquakes on the micron scale. Nature Communications, 2022, 13, 1975.	5.8	34
18	Internal stress and thermally activated dislocation motion in an AZ63 magnesium alloy. Materials Chemistry and Physics, 2011, 130, 1146-1150.	2.0	33

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19	Influence of quasicrystal I-phase on twinning of extruded Mg-Zn-Y alloys under compression. Acta Materialia, 2018, 151, 271-281.	3.8	32
20	Acoustic emission monitoring of slow strain rate tensile tests of 304L stainless steel in supercritical water environment. Corrosion Science, 2011, 53, 59-63.	3.0	30
21	Monitoring the failure mechanisms in metal matrix syntactic foams during compression by acoustic emission. Materials Letters, 2016, 173, 31-34.	1.3	30
22	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
23	Optimization of mechanical properties of dilute Mg-Zn-Y alloys prepared by rapid solidification. Materials and Design, 2019, 181, 107984.	3.3	28
24	Inhomogeneous evolution of microstructure in AZ91 Mg-alloy during high temperature equal-channel angular pressing. Journal of Alloys and Compounds, 2010, 492, 166-172.	2.8	26
25	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
26	Thermally activated processes in microcrystalline Mg. Scripta Materialia, 2000, 42, 1095-1100.	2.6	24
27	Investigation of the dependence of deformation mechanisms on solute content in polycrystalline Mgâ€“Al magnesium alloys by neutron diffraction and acoustic emission. Journal of Alloys and Compounds, 2015, 642, 185-191.	2.8	24
28	Hot deformation of Mg-Y-Zn alloy with a low content of the LPSO phase studied by in-situ synchrotron radiation diffraction. Journal of Magnesium and Alloys, 2020, 8, 199-209.	5.5	24
29	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
30	Influence of high pressure torsion on microstructure evolution and mechanical properties of AZ80/SiC magnesium matrix composites. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 826, 141916.	2.6	22
31	Investigation of some magnesium alloys by use of the acoustic emission technique. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 387-389, 331-335.	2.6	21
32	The Effect of Matrix Composition on the Deformation and Failure Mechanisms in Metal Matrix Syntactic Foams during Compression. Materials, 2017, 10, 196.	1.3	21
33	Micro-Tensile Behavior of Mg-Al-Zn Alloy Processed by Equal Channel Angular Pressing (ECAP). Materials, 2018, 11, 1644.	1.3	19
34	Mechanical properties of ultrafine-grained AX41 magnesium alloy at room and elevated temperatures. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 731, 438-445.	2.6	18
35	Influence of high-pressure torsion on microstructure, hardness and shear strength of AM60 magnesium alloy. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 799, 140158.	2.6	18
36	Acoustic Emission as a Tool for Exploring Deformation Mechanisms in Magnesium and Its Alloys In Situ. Jom, 2016, 68, 3057-3062.	0.9	17

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37	Characterization of Deformation Mechanisms in Mg Alloys by Advanced Acoustic Emission Methods. Metals, 2018, 8, 644.	1.0	16
38	A new insight into LPSO transformation during multi-axial forging in Mg-Gd-Y-Zn-Zr alloy. Materials Letters, 2020, 269, 127625.	1.3	16
39	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. Journal of Materials Research and Technology, 2021, 15, 2088-2101.	2.6	16
40	Micron-Scale Deformation: A Coupled In Situ Study of Strain Bursts and Acoustic Emission. Microscopy and Microanalysis, 2017, 23, 1076-1081.	0.2	15
41	Characterization of Microstructure and Mechanical Properties of Mgâ€“Yâ€“Zn Alloys with Respect to Different Content of LPSO Phase. Advanced Engineering Materials, 2018, 20, 1700396.	1.6	15
42	Comprehensive Evaluation of the Properties of Ultrafine to Nanocrystalline Grade 2 Titanium Wires. Materials, 2018, 11, 2522.	1.3	15
43	Effect of reinforcing shape on twinning in extruded magnesium matrix composites. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2016, 666, 48-53.	2.6	14
44	Statistical analysis of acoustic emission events in torsional deformation of a Vitreloy bulk metallic glass. Acta Materialia, 2014, 70, 113-122.	3.8	13
45	Deformation behavior and acoustic emission response on uniaxial compression of extruded rectangular profile of Mg Zn Zr alloy. Journal of Alloys and Compounds, 2016, 680, 623-632.	2.8	13
46	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
47	Microstructural characterization of a fine-grained ultra low carbon steel. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 462, 248-252.	2.6	12
48	Evolution of dislocation density during compression of a Mg-Zn-Y alloy with long period stacking ordered structure. Materials Letters, 2017, 190, 86-89.	1.3	12
49	Evolution of twinning in extruded AZ31 alloy with bimodal grain structure. Materials Characterization, 2017, 126, 116-124.	1.9	12
50	Stages in room temperature torsional deformation of a Vitreloy bulk metallic glass. Journal of Alloys and Compounds, 2013, 577, 25-29.	2.8	11
51	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
52	Influence of temperature of ECAP processing on the microstructure and microhardness of as-cast AX41 alloy. Journal of Materials Science, 2020, 55, 3118-3129.	1.7	11
53	Deformation behavior of Mg-alloy-based composites at different temperatures studied by neutron diffraction. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 685, 284-293.	2.6	10
54	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

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55	On the dynamics of twinning in magnesium micropillars. Materials and Design, 2021, 203, 109563.	3.3	10
56	The temperature effect on the plastic deformation of the Mg88Zn7Y5 alloy with LPSO phase studied by in-situ synchrotron radiation diffraction. Intermetallics, 2021, 138, 107321.	1.8	10
57	Acoustic-Emission Study of Intermittency of Plastic Flow during Twinning and Dislocation Glide. Acta Physica Polonica A, 2012, 122, 430-434.	0.2	10
58	In-situneutron diffraction and acoustic emission investigation of twinning activity in magnesium. Journal of Physics: Conference Series, 2012, 340, 012096.	0.3	9
59	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
60	A phenomenological model of twinning-mediated strain hardening. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2020, 780, 139194.	2.6	9
61	Twinning Evolution as a Function of Loading Direction in Magnesium. Acta Physica Polonica A, 2015, 128, 762-765.	0.2	9
62	Influence of Volume Fraction of Long-Period Stacking Ordered Structure Phase on the Deformation Processes during Cyclic Deformation of Mg-Y-Zn Alloys. Crystals, 2021, 11, 11.	1.0	9
63	Shear banding-induced â€ˆc+aâ€‰ slip enables unprecedented strength-ductility combination of laminated metallic composites. Journal of Materials Science and Technology, 2022, 110, 260-268.	5.6	9
64	Acoustic emission study of Mgâ€“Alâ€“Sr alloy reinforced with short SaffilÂ® fibers deformed in compression. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 575, 1-5.	2.6	8
65	Hydrogen Softening in the Thin Plate of Microcrystalline 316L Stainless Steel. Steel Research International, 2013, 84, 812-817.	1.0	8
66	Investigation of the Microstructure Evolution and Deformation Mechanisms of a Mg-Zn-Zr-RE Twin-Roll-Cast Magnesium Sheet by In-Situ Experimental Techniques. Materials, 2018, 11, 200.	1.3	8
67	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
68	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
69	Characterization of the Microstructure, Local Macro-Texture and Residual Stress Field of Commercially Pure Titanium Grade 2 Prepared by CONFORM ECAP. Metals, 2018, 8, 1000.	1.0	7
70	Damage Characterization during Compression in a Perlite-Aluminum Syntactic Foam. Materials, 2019, 12, 3342.	1.3	7
71	In situ investigation of deformation mechanisms in magnesium-based metal matrix composites. Metals and Materials International, 2015, 21, 652-658.	1.8	6
72	Temperature dependence of twinning activity in random textured cast magnesium. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 627, 333-335.	2.6	6

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73	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
74	Optimization of the Mechanical Performance of Titanium for Biomedical Applications by Advanced, High-Gain SPD Technology. Crystals, 2020, 10, 422.	1.0	6
75	Elastic and Plastic Behavior of an Ultrafine-Grained Mg Reinforced with BN Nanoparticles. Journal of Materials Engineering and Performance, 2018, 27, 3112-3121.	1.2	5
76	Effect of Extrusion Ratio on Microstructure and Resulting Mechanical Properties of Mg Alloys with LPSO Phase. Minerals, Metals and Materials Series, 2017, , 29-34.	0.3	5
77	Microstructural evolution of equal-channel angular pressed interstitial-free steel. International Journal of Materials Research, 2009, 100, 834-837.	0.1	5
78	Characterization of the Acoustic Emission Response and Mechanical Properties of Mg Alloy with LPSO Phase. Materials Science Forum, 2016, 879, 762-766.	0.3	4
79	The Deformation of Expanded Clay Syntactic Foams During Compression Characterized by Acoustic Emission. Minerals, Metals and Materials Series, 2020, , 107-114.	0.3	4
80	Effect of Loading Mode on the Evolution of the Dislocation Structure in Magnesium. Acta Physica Polonica A, 2015, 128, 700-704.	0.2	4
81	Evolution of the statistical properties of dislocation ensembles. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 400-401, 206-209.	2.6	3
82	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
83	Interaction of Migrating Twin Boundaries with Obstacles in Magnesium. Metals, 2021, 11, 154.	1.0	3
84	Characterization of Active Deformation Mechanisms in Mg Alloys with LPSO Phase. Acta Physica Polonica A, 2018, 134, 815-819.	0.2	3
85	Revealing the Microstructural Aspects of the Corrosion Dynamics in Rapidly Solidified Mg-Zn-Y Alloys Using the Acoustic Emission Technique. Materials, 2021, 14, 7828.	1.3	3
86	Investigation of Twinning Activity in Magnesium Using Advanced In Situ Methods. Materials Science Forum, 2013, 765, 532-536.	0.3	2
87	Neutron Diffraction and Acoustic Emission Study of Mg-Al-Sr Alloy Reinforced with Short Saffil^{Â®} Fibers Deformed in Compression. Materials Science Forum, 2014, 777, 92-98.	0.3	2
88	In Situ Synchrotron Diffraction Analysis of Zn Additions on the Compression Properties of NK30. Materials, 2019, 12, 3935.	1.3	2
89	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
90	Microstructure and Mechanical Properties of Severely Deformed AX41 Magnesium Alloy. Acta Physica Polonica A, 2015, 128, 768-771.	0.2	2

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91	Hardening and Softening Processes in an AJ51 Magnesium Alloy Reinforced with Short Saffil Fibres. , 2014, , 435-440.		2
92	Evaluation of X-ray Bragg peak profiles with the variance method obtained by in situ measurement on Mgâ€“Al alloys. Journal of Applied Crystallography, 2020, 53, 360-368.	1.9	2
93	Occurrence of the Portevin Le-ChÃ¢telier effect in open-cell microcellular Al-2wt% Mg. Scripta Materialia, 2017, 132, 13-16.	2.6	1
94	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
95	Deformation Behavior of Mg-alloy-based Composites at Different Temperatures Studied by Neutron Diffraction. Acta Physica Polonica A, 2018, 134, 881-886.	0.2	1
96	Twinning Evolution in Magnesium Alloys under Biaxial Loading. Acta Physica Polonica A, 2018, 134, 853-856.	0.2	1
97	Study of twinning in texture-free cast magnesium using acoustic emission technique. Metallic Materials, 2021, 51, 269-273.	0.2	1
98	Line profile analysis and rocking curve evaluation of 3D diffraction data reveal a strain softening mechanism. Acta Materialia, 2022, 233, 117993.	3.8	1
99	Mechanical Properties of AZ91 Alloy after Equal Channel Angular Pressing. , 2005, , 190-193.		0
100	Effect of temperature on mechanical properties of continuously cast AZ31 magnesium alloy. Metallic Materials, 2012, 50, 139-146.	0.2	0
101	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
102	Influence of the Loading Path on the Deformation Mechanisms of Magnesium Alloys. Solid State Phenomena, 0, 258, 427-431.	0.3	0
103	In Situ Investigation of Deformation Mechanisms in Mgâ€“Znâ€“Y Magnesium Alloy with LPSO Phase by Diffraction Methods and Acoustic Emission. Minerals, Metals and Materials Series, 2017, , 625-629.	0.3	0
104	Acoustic Emission Study of High Temperature Deformation of Mgâ€“Znâ€“Y Alloys with LPSO Phase. Minerals, Metals and Materials Series, 2018, , 203-208.	0.3	0
105	Evolution of the Dislocation Structure During Compression in a Mgâ€“Znâ€“Y Alloy with Long Period Stacking Ordered Structure. Minerals, Metals and Materials Series, 2018, , 385-389.	0.3	0
106	Influence of the solute concentration on twinning-detwinning process in Mg-Al alloys. Procedia Structural Integrity, 2019, 23, 51-56.	0.3	0
107	Microstructure of severely deformed metals from X-ray line profile analysis. , 2006, , 93-98.		0
108	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

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109	Neutron diffraction study of the deformation behavior of Mg-alloy-based composites. Acta Crystallographica Section A: Foundations and Advances, 2016, 72, s302-s302.	0.0	0
110	Neutron Diffraction and Acoustic Emission Measurement During Loading and Unloading of Magnesium Aluminium Binary Alloys. Minerals, Metals and Materials Series, 2017, , 543-546.	0.3	0
111	Thermo-mechanical Processing of EZK Alloys in a Synchrotron Radiation Beam. Minerals, Metals and Materials Series, 2019, , 297-303.	0.3	0