

Matthew Barnett

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119
papers

9,111
citations

42
h-index

95
g-index

119
ext. papers

10,145
ext. citations

5.4
avg, IF

6.82
L-index

#	Paper	IF	Citations
119	Influence of grain size on the compressive deformation of wrought Mg ₉₀ Al ₁₀ Zn. <i>Acta Materialia</i> , 2004 , 52, 5093-5103	8.4	1042
118	Twinning and the ductility of magnesium alloys. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2007 , 464, 1-7	5.3	914
117	Twinning and the ductility of magnesium alloys. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2007 , 464, 8-16	5.3	846
116	The origin of rare earth texture development in extruded Mg-based alloys and its effect on tensile ductility. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2008 , 496, 399-408	5.3	576
115	Non-Schmid behaviour during secondary twinning in a polycrystalline magnesium alloy. <i>Acta Materialia</i> , 2008 , 56, 5-15	8.4	307
114	Effect of precipitate shape on slip and twinning in magnesium alloys. <i>Acta Materialia</i> , 2011 , 59, 1945-1956	8.4	292
113	Sensitivity of deformation twinning to grain size in titanium and magnesium. <i>Acta Materialia</i> , 2011 , 59, 7824-7839	8.4	262
112	The effect of Gd on the recrystallisation, texture and deformation behaviour of magnesium-based alloys. <i>Acta Materialia</i> , 2010 , 58, 6773-6783	8.4	239
111	Yield point elongation due to twinning in a magnesium alloy. <i>Acta Materialia</i> , 2012 , 60, 1433-1443	8.4	218
110	Magnesium alloy applications in automotive structures. <i>Jom</i> , 2008 , 60, 57-62	2.1	210
109	Influence of deformation conditions and texture on the high temperature flow stress of magnesium AZ31. <i>Journal of Light Metals</i> , 2001 , 1, 167-177		201
108	Recrystallization in AISI 304 austenitic stainless steel during and after hot deformation. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2008 , 485, 664-672	5.3	189
107	Effect of particles on the formation of deformation twins in a magnesium-based alloy. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2009 , 516, 226-234	5.3	187
106	Effect of plate-shaped particle distributions on the deformation behaviour of magnesium alloy AZ91 in tension and compression. <i>Acta Materialia</i> , 2012 , 60, 218-228	8.4	161
105	Solute strengthening of prismatic slip, basal slip and {101 $\bar{1}$ 2} twinning in Mg and Mg ₉₀ Zn binary alloys. <i>International Journal of Plasticity</i> , 2013 , 47, 165-181	7.6	157
104	Investigation of deformation twinning in a fine-grained and coarse-grained ZM20 Mg alloy: Combined in situ neutron diffraction and acoustic emission. <i>Acta Materialia</i> , 2010 , 58, 1503-1517	8.4	150
103	The sliding wear behaviour of CoCrFeMnNi and AlxCoCrFeNi high entropy alloys at elevated temperatures. <i>Wear</i> , 2019 , 428-429, 32-44	3.5	144

102	Investigation of deformation mechanisms involved in the plasticity of AZ31 Mg alloy: In situ neutron diffraction and EPSC modelling. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2008 , 496, 14-24	5.3	129
101	Influence of initial microstructure on the hot working flow stress of Mg ₉₇ Al ₃ Zn. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2006 , 423, 292-299	5.3	126
100	On the strength of dislocation interactions and their effect on latent hardening in pure Magnesium. <i>International Journal of Plasticity</i> , 2014 , 62, 72-92	7.6	109
99	Influence of Ferrite Rolling Temperature on Microstructure and Texture in Deformed Low C and IF Steels.. <i>ISIJ International</i> , 1997 , 37, 697-705	1.7	103
98	The effect of high yttrium solute concentration on the twinning behaviour of magnesium alloys. <i>Acta Materialia</i> , 2015 , 82, 447-456	8.4	100
97	Tensile deformation of an ultrafine-grained aluminium alloy: Micro shear banding and grain boundary sliding. <i>Acta Materialia</i> , 2008 , 56, 2223-2230	8.4	95
96	Role of In-grain Shear Bands in the Nucleation of //ND Recrystallization Textures in Warm Rolled Steel.. <i>ISIJ International</i> , 1998 , 38, 78-85	1.7	90
95	The generation of new high-angle boundaries in aluminium during hot torsion. <i>Acta Materialia</i> , 2002 , 50, 2285-2296	8.4	88
94	Precipitate characteristics and their effect on the prismatic-slip-dominated deformation behaviour of an Mg ₉₇ Zn alloy. <i>Acta Materialia</i> , 2013 , 61, 4091-4102	8.4	83
93	Influence of orientation on twin nucleation and growth at low strains in a magnesium alloy. <i>Acta Materialia</i> , 2014 , 80, 380-391	8.4	73
92	Formation of {111} and {111} Textures in Cold Rolled and Annealed IF Sheet Steel.. <i>ISIJ International</i> , 1999 , 39, 923-929	1.7	72
91	Modeling of twin formation, propagation and growth in a Mg single crystal based on crystal plasticity finite element method. <i>International Journal of Plasticity</i> , 2016 , 86, 70-92	7.6	71
90	Distinctive Aspects of the Physical Metallurgy of Warm Rolling.. <i>ISIJ International</i> , 1999 , 39, 856-873	1.7	69
89	On the correlation between deformation twinning and Lüders-like deformation in an extruded Mg alloy: In situ neutron diffraction and EPSC.4 modelling. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2010 , 527, 1383-1394	5.3	68
88	Influence of Ferrite Rolling Temperature on Grain Size and Texture in Annealed Low C and IF Steels.. <i>ISIJ International</i> , 1997 , 37, 706-714	1.7	68
87	Construction of extrusion limit diagram for AZ31 magnesium alloy by FE simulation. <i>Journal of Materials Processing Technology</i> , 2004 , 146, 408-414	5.3	68
86	Plastic relaxation of the internal stress induced by twinning. <i>Acta Materialia</i> , 2013 , 61, 7859-7867	8.4	62
85	In-situ X-ray diffraction studies of slip and twinning in the presence of precipitates in AZ91 alloy. <i>Acta Materialia</i> , 2016 , 119, 145-156	8.4	52

84	Microstructure evolution in hot worked and annealed magnesium alloy AZ31. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2008 , 485, 318-324	5.3	52
83	The role of back stress caused by precipitates on {101 $\bar{2}$ } twinning in a Mg $\bar{3}$ Zn alloy. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2015 , 647, 66-73	5.3	51
82	Dislocation mediated variant selection for secondary twinning in compression of pure titanium. <i>Acta Materialia</i> , 2017 , 124, 59-70	8.4	51
81	Fine grained AZ31 produced by conventional thermo-mechanical processing. <i>Journal of Alloys and Compounds</i> , 2008 , 466, 182-188	5.7	50
80	Grain size effect on the warm deformation behaviour of a Ti-IF steel. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2004 , 367, 282-294	5.3	49
79	The effect of initial grain size and temperature on the tensile properties of magnesium alloy AZ31 sheet. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2012 , 549, 1-6	5.3	47
78	Processing and properties of Mg $\bar{3}$ Gd $\bar{1}$ Zn $\bar{0.6}$ Zr. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2011 , 528, 3659-3665	5.3	43
77	Performance of wrought aluminium and magnesium alloy tubes in three-point bending. <i>Materials & Design</i> , 2009 , 30, 2316-2322		42
76	Microstructural evolution during hot deformation of duplex stainless steel. <i>Materials Science and Technology</i> , 2007 , 23, 1478-1484	1.5	42
75	Yielding Behaviour of Martensite in Steel. <i>ISIJ International</i> , 2015 , 55, 1114-1122	1.7	41
74	Forward extrusion through steadily rotating conical dies. Part I: experiments. <i>International Journal of Mechanical Sciences</i> , 2004 , 46, 449-464	5.5	41
73	Insight from in situ microscopy into which precipitate morphology can enable high strength in magnesium alloys. <i>Journal of Materials Science and Technology</i> , 2018 , 34, 1061-1066	9.1	40
72	Expanding the extrusion limits of wrought magnesium alloys. <i>Jom</i> , 2004 , 56, 22-24	2.1	38
71	Processing and properties of Mg $\bar{3}$ Gd $\bar{1}$ Zn $\bar{0.6}$ Zr: Part 1 Recrystallisation and texture development. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2011 , 528, 3653-3658	5.3	37
70	Dependence of twinned volume fraction on loading mode and Schmid factor in randomly textured magnesium. <i>Acta Materialia</i> , 2017 , 130, 319-328	8.4	32
69	An Orowan precipitate strengthening equation for mechanical twinning in Mg. <i>International Journal of Plasticity</i> , 2019 , 112, 108-122	7.6	31
68	Numerical analysis of twin thickening process in magnesium alloys. <i>Acta Materialia</i> , 2017 , 124, 9-16	8.4	31
67	Time and spatial resolution of slip and twinning in a grain embedded within a magnesium polycrystal. <i>Acta Materialia</i> , 2014 , 78, 203-212	8.4	31

66	Plastic yielding in lath martensites – An alternative viewpoint. <i>Acta Materialia</i> , 2018 , 152, 239-247	8.4	30
65	The Influence of Solute Carbon in Cold-rolled Steels on Shear Band Formation and Recrystallization Texture. <i>ISIJ International</i> , 2004 , 44, 1072-1078	1.7	30
64	Thermomechanical properties of Ni-Ti shape memory wires containing nanoscale precipitates induced by stress-assisted ageing. <i>Acta Biomaterialia</i> , 2014 , 10, 5178-5192	10.8	28
63	EBSD analysis of a Ti-IF steel subjected to hot torsion in the ferritic region. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2008 , 486, 72-79	5.3	28
62	Effect of alloying and extrusion temperature on the microstructure and mechanical properties of Mg ₉₂ Zn and Mg ₉₂ ZnRE alloys. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2014 , 619, 238-246	5.3	26
61	A double inclusion homogenization scheme for polycrystals with hierarchal topologies: application to twinning in Mg alloys. <i>International Journal of Plasticity</i> , 2014 , 60, 182-196	7.6	25
60	Electron back scattered diffraction (EBSD) characterization of warm rolled and accumulative roll bonding (ARB) processed ferrite. <i>Journal of Materials Processing Technology</i> , 2009 , 209, 1436-1444	5.3	25
59	The Effect of Precipitates on Twinning in Magnesium Alloys. <i>Advanced Engineering Materials</i> , 2019 , 21, 1800460	3.5	25
58	Estimating Critical Stresses Required for Twin Growth in a Magnesium Alloy. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2013 , 44, 2962-2969	2.3	24
57	A minimum parameter approach to crystal plasticity modelling. <i>Acta Materialia</i> , 2012 , 60, 5391-5398	8.4	24
56	Effect of heat treatment variables on the formation of precipitate free zones (PFZs) in Mg-8Al-0.5Zn alloy. <i>Materials Characterization</i> , 2018 , 136, 175-182	3.9	23
55	Warm deformation and annealing behaviour of iron-silicon (carbon) steel sheets. <i>Acta Materialia</i> , 2015 , 96, 410-419	8.4	21
54	Investigation of stress relaxation mechanisms for ductility improvement in SS316L. <i>Philosophical Magazine</i> , 2018 , 98, 165-181	1.6	19
53	Synthesis of Mg ₂ Si for thermoelectric applications using magnesium alloy and spark plasma sintering. <i>Journal of Alloys and Compounds</i> , 2014 , 589, 485-490	5.7	19
52	Forward extrusion through steadily rotating conical dies. Part II: theoretical analysis. <i>International Journal of Mechanical Sciences</i> , 2004 , 46, 465-489	5.5	19
51	Texture and mechanical anisotropy in three extruded magnesium alloys. <i>Materials Science and Technology</i> , 2008 , 24, 1283-1292	1.5	18
50	Mechanical Properties of Atomically Thin Tungsten Dichalcogenides: WS ₂ , WSe ₂ , and WTe ₂ . <i>ACS Nano</i> , 2021 , 15, 2600-2610	16.7	18
49	Initiation of basal slip and tensile twinning in magnesium alloys during nanoindentation. <i>Journal of Alloys and Compounds</i> , 2018 , 731, 620-630	5.7	17

48	An Analysis of the Transition between Strain Dependent and Independent Softening in Austenite. <i>ISIJ International</i> , 2005 , 45, 1903-1908	1.7	17
47	A microstructure based analytical model for tensile twinning in a rod textured Mg alloy. <i>International Journal of Plasticity</i> , 2015 , 72, 151-167	7.6	16
46	A critical test of twin-induced softening in a magnesium alloy extruded to a strain of 0.7 at room temperature. <i>Scripta Materialia</i> , 2012 , 67, 1015-1018	5.6	16
45	Towards the large-scale production and strength prediction of near-eutectic Al _x CoCrFeNi _{2.1} alloys by additive manufacturing. <i>Manufacturing Letters</i> , 2020 , 25, 16-20	4.5	15
44	A practical condition for migration dynamic recrystallization. <i>Acta Materialia</i> , 2007 , 55, 3271-3278	8.4	14
43	Development of a laboratory-based transmission diffraction technique for in situ deformation studies of Mg alloys. <i>Journal of Applied Crystallography</i> , 2015 , 48, 365-376	3.8	13
42	The correlation between the recrystallization texture and subsequent isothermal grain growth in a friction stir processed rare earth containing magnesium alloy. <i>Materials Characterization</i> , 2020 , 163, 110236	3.9	13
41	The interaction of deformation twins with long-period stacking ordered precipitates in a magnesium alloy subjected to shock loading. <i>Acta Materialia</i> , 2020 , 188, 203-214	8.4	13
40	Electron backscattering diffraction analysis of an ancient wootz steel blade from central India. <i>Materials Characterization</i> , 2009 , 60, 252-260	3.9	13
39	Synthesis of Al-doped Mg ₂ Si _{1-x} Sn _x compound using magnesium alloy for thermoelectric application. <i>Journal of Alloys and Compounds</i> , 2015 , 649, 1060-1065	5.7	12
38	Correlation between the Deformation and Post-deformation Softening Behaviours in Hot Worked Austenite. <i>ISIJ International</i> , 2008 , 48, 208-211	1.7	10
37	Fragmentation of Orientation within Grains of a Cold-rolled Interstitial-free Steel. <i>ISIJ International</i> , 2004 , 44, 187-196	1.7	10
36	The Application of Magnesium Alloys to the Lightweighting of Automotive Structures 2012 , 17-23		9
35	Microstructure and Texture Development in Ti-5Al-5Mo-5V-3Cr Alloy during Cold Rolling and Annealing. <i>Key Engineering Materials</i> , 2013 , 551, 210-216	0.4	9
34	Grain size and void formation in Mg alloy AZ31. <i>Journal of Alloys and Compounds</i> , 2020 , 816, 152618	5.7	9
33	Discontinuous yielding in wrought magnesium. <i>Computational Materials Science</i> , 2017 , 132, 81-91	3.2	8
32	A high-resolution synchrotron-based diffraction technique for in situ characterization of deformation behaviour in magnesium alloys. <i>Journal of Applied Crystallography</i> , 2018 , 51, 1082-1093	3.8	8
31	Experimental and theoretical investigation of compression of a cylinder using a rotating platen. <i>International Journal of Mechanical Sciences</i> , 2003 , 45, 1717-1737	5.5	8

30	A rationale for the influence of grain size on failure of magnesium alloy AZ31: An in situ X-ray microtomography study. <i>Acta Materialia</i> , 2020 , 200, 619-631	8.4	8
29	Numerical analysis of twin-precipitate interactions in magnesium alloys. <i>Acta Materialia</i> , 2021 , 202, 80-87	8.4	8
28	Crystal plasticity and in-situ diffraction-based determination of the dislocation strengthening and load-sharing effects of precipitates in Mg alloy, AZ91. <i>Materialia</i> , 2019 , 6, 100308	3.2	7
27	A scrap-tolerant alloying concept based on high entropy alloys. <i>Acta Materialia</i> , 2020 , 200, 735-744	8.4	7
26	Layer-Dependent Mechanical Properties and Enhanced Plasticity in the Van der Waals Chromium Trihalide Magnets. <i>Nano Letters</i> , 2021 , 21, 3379-3385	11.5	7
25	Computational design of thermally stable and precipitation-hardened Al-Co-Cr-Fe-Ni-Ti high entropy alloys. <i>Journal of Alloys and Compounds</i> , 2021 , 888, 161496	5.7	7
24	Numerical study of stress distribution and size effect during AZ31 nanoindentation. <i>Computational Materials Science</i> , 2017 , 126, 393-399	3.2	6
23	Emerging Hot Topics and Research Questions in Wrought Magnesium Alloy Development. <i>Jom</i> , 2020 , 72, 2561-2567	2.1	5
22	Synthesis and Characterization of Silver Nanoparticles and Titanium Oxide Nanofibers: Toward Multifibrous Nanocomposites. <i>Journal of the American Ceramic Society</i> , 2010 , 93, 2637-2643	3.8	5
21	Mapping the Hot Deformation Microstructure of Ni-30Fe Alloy. <i>ISIJ International</i> , 2005 , 45, 1893-1896	1.7	5
20	Development of a novel RE-texture component in a Mg-Y-RE/SiCp magnesium composite through friction stir processing. <i>Materials Letters</i> , 2020 , 260, 126899	3.3	5
19	Analysing single twinning events in Mg-6Zn using nanoindentation. <i>Journal of Alloys and Compounds</i> , 2018 , 768, 510-516	5.7	4
18	Effect of magnesium and silver doping on the thermoelectric performance of cast Mg ₂ Sn alloys. <i>Journal of Alloys and Compounds</i> , 2018 , 757, 142-149	5.7	4
17	Optimising the Al and Ti compositional window for the design of (L12)-strengthened AlCoCrFeNiTi high entropy alloys. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2022 , 835, 142620	5.3	4
16	Stiffness and strength degradation of damaged truss core composites. <i>Composite Structures</i> , 2015 , 125, 287-294	5.3	3
15	The ageing response of direct laser deposited metastable Ti alloy, TiAlMoNbCr. <i>Additive Manufacturing</i> , 2021 , 48, 102384	6.1	3
14	Development of high strength and ductile Zn-Al-Li alloys for potential use in bioresorbable medical devices. <i>Materials Science and Engineering C</i> , 2021 , 122, 111897	8.3	3
13	Stress relaxations during cyclic loading-unloading in precipitation hardened Mg-4.5Zn. <i>Acta Materialia</i> , 2021 , 205, 116531	8.4	3

12	Understanding the Co-precipitation Mechanisms of Al ₃ (Sc, Zr) with Strengthening Phases in Al-Cu-Ni Model Alloys. <i>Minerals, Metals and Materials Series</i> , 2018 , 233-239	0.3	2
11	Characterizing Grain-Oriented Silicon Steel Sheet Using Automated High-Resolution Laue X-ray Diffraction. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2017 , 48, 5206-5210	2.3	2
10	Internal material Architecture For a kink-resistant metal tube. <i>Acta Materialia</i> , 2013 , 61, 331-340	8.4	2
9	Compositional Effects on the Restoration Behaviour in Mg-Zn-RE Alloys. <i>Materials Science Forum</i> , 2013 , 765, 18-22	0.4	2
8	Analysis of fracture in sheet bending and roll forming 2018 ,		2
7	Observations on remarkable texture in cast zinc. <i>Scripta Materialia</i> , 2019 , 166, 78-80	5.6	1
6	Modelling of the stiffness evolution of truss core structures damaged by plastic buckling. <i>Finite Elements in Analysis and Design</i> , 2015 , 100, 1-11	2.2	1
5	Electron Backscattering Diffraction Analysis of a Reconstructed Wootz Damascus Steel Blade. <i>Microscopy and Microanalysis</i> , 2009 , 15, 1496-1497	0.5	1
4	Effect of plastic deformation on microstructure and thermoelectric properties of Mg ₂ Sn alloys. <i>Journal of Magnesium and Alloys</i> , 2021 , 9, 123-129	8.8	1
3	In Situ Synchrotron Analysis of Twinning Stresses in an Aged Mg-4.5Zn Alloy. <i>Materials Science Forum</i> , 2018 , 941, 1579-1584	0.4	1
2	The influence of strain hardening on steel erosion wear studied by analytical modelling of impeller testing. <i>Tribology - Materials, Surfaces and Interfaces</i> , 2019 , 13, 102-111	1.4	0
1	Experimental investigation of the effect of insert spacing on abrasion wear resistance of a composite. <i>Wear</i> , 2022 , 494-495, 204277	3.5	0