Wolfgang Blum

List of Publications by Year
in descending order

116 papers	3,865 citations	109264 35 h-index	143943 57 g-index
119 all docs	119 docs citations	119 times ranked	1790 citing authors

#	Article	IF	Citations
1	Dynamic recovery: sufficient mechanism in the hot deformation of Al (<99.99). Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2000, 290, 95-107.	2.6	165
2	Transition from strengthening to softening by grain boundaries in ultrafine-grained Cu. Acta Materialia, 2004, 52, 5009-5018.	3.8	161
3	Geometric dynamic recrystallization in hot torsion of Alî—¸5Mgî—¸0.6Mn (AA5083). Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1996, 205, 23-30.	2.6	159
4	A simple dislocation model of deformation resistance of ultrafine-grained materials explaining Hallâ€"Petch strengthening and enhanced strain rate sensitivity. Acta Materialia, 2009, 57, 1966-1974.	3.8	134
5	Temperature dependence of the strength of fine- and ultrafine-grained materials. Acta Materialia, 2011, 59, 1300-1308.	3.8	123
6	Understanding creepâ€"a review. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2002, 33, 291-303.	1.1	122
7	Evolution of microstructure and deformation resistance in creep of tempered martensitic 9â€"12%Crâ€"2%Wâ€"5%Co steels. Acta Materialia, 2006, 54, 3003-3014.	3.8	119
8	Dynamic recovery during and after steady state deformation of Al-11wt%Zn. Acta Metallurgica, 1976, 24, 1027-1039.	2.1	95
9	Ãœber das Kriechverhalten von NaClâ€Einkristallen. Physica Status Solidi (B): Basic Research, 1967, 20, 629-642.	0.7	89
10	Dislocation mechanics of creep. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 510-511, 7-13.	2.6	89
11	Role of Dislocation Annihilation during Steadyâ€State Deformation. Physica Status Solidi (B): Basic Research, 1971, 45, 561-571.	0.7	75
12	New technique for evaluating long range internal back stresses. Acta Metallurgica, 1982, 30, 1705-1715.	2.1	75
13	Deformation kinetics of nanocrystalline nickel. Acta Materialia, 2007, 55, 5708-5717.	3.8	75
14	Two mechanisms of dislocation motion during creep. Acta Metallurgica, 1989, 37, 2439-2453.	2.1	71
15	Creep deformation mechanisms in high-pressure die-cast magnesium-aluminum-base alloys. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2005, 36, 1721-1728.	1.1	71
16	Subgrain formation during deformation: Physical origin and consequences. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2002, 33, 319-327.	1.1	67
17	On the stress dependence of the stationary deformation rate. Acta Metallurgica, 1969, 17, 959-966.	2.1	65
18	Long-range internal stresses in cell and subgrain structures of copper during deformation at constant stress. Acta Materialia, 1996, 44, 4337-4350.	3.8	63

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19	Harperâ€“Dorn creep. International Journal of Plasticity, 2007, 23, 980-1000.	4.1	62
20	Transmission Electron Microscopy Study of Strain-Induced Low- and High-Angle Boundary Development in Equal-Channel Angular-Pressed Commercially Pure Aluminum. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2008, 39, 181-189.	1.1	60
21	Creep of Die-Cast Light-Weight Mg-Al-base Alloy AZ91hp. Advanced Engineering Materials, 2000, 2, 349-355.	1.6	59
22	Transient creep and recovery after stress reduction during steady state creep of AlZn. Acta Metallurgica, 1976, 24, 293-297.	2.1	58
23	Does the â€œnaturalâ€•third power law of steady state creep hold for pure aluminium?. Scripta Metallurgica Et Materialia, 1990, 24, 1837-1842.	1.0	57
24	Effects of cyclic deformation on subgrain evolution and creep in 9â€“12% Cr-steels. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 406, 152-159.	2.6	57
25	Stability of ultrafine-grained Cu to subgrain coarsening and recrystallization in annealing and deformation at elevated temperatures. Acta Materialia, 2009, 57, 5207-5217.	3.8	55
26	Martensitic/Ferritic Super Heat-resistant 650.DEG.C. Steels. Design and Testing of Model Alloys.. ISIJ International, 2002, 42, 1505-1514.	0.6	54
27	Dynamic recovery in nanocrystalline Ni. Acta Materialia, 2015, 91, 91-100.	3.8	49
28	Harper-Dorn Creep â€” a Myth?. Physica Status Solidi A, 1999, 171, 467-474.	1.7	48
29	Coarsening of precipitates and degradation of creep resistance in tempered martensite steels. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 510-511, 81-87.	2.6	48
30	Development of new 11%Cr heat resistant ferritic steels with enhanced creep resistance for steam power plants with operating steam temperatures up to 650Â°C. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 510-511, 180-184.	2.6	44
31	Deformation resistance in the transition from coarse-grained to ultrafine-grained Cu by severe plastic deformation up to 24 passes of ECAP. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 8621-8627.	2.6	41
32	Stress dependence of the creep rate at constant dislocation structure. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1989, 112, 93-106.	2.6	38
33	Dynamics of Recovery and Recrystallization. Materials Science Forum, 1996, 217-222, 31-42.	0.3	38
34	Does nanocrystalline Cu deform by Coble creep near room temperature?. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 387-389, 585-589.	2.6	38
35	Comparison between the cell structures produced in aluminium by cycling and by monotonic creep. Acta Metallurgica, 1980, 28, 519-537.	2.1	36
36	Coarsening of the dislocation structure after stress reduction during creep of NaCl single crystals. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1981, 44, 1065-1084.	0.7	36

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37	Dynamic grain growth a restoration mechanism in 99.999 Al. Scripta Metallurgica Et Materialia, 1993, 28, 1299-1304.	1.0	35
38	Subgrain structure during annealing and creep of the cast martensitic Cr-steel G-X12CrMoWVNbN 10-1-1. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2003, 341, 211-215.	2.6	35
39	Effect of grain refinement by ECAP on creep of pure Cu. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 590, 423-432.	2.6	35
40	Deformation kinetics of ultrafine-grained Cu and Ti. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 410-411, 451-456.	2.6	34
41	On the interpretation of the â€œInternal stressâ€•determined from dip tests during creep of Al-5at.%Mg. Materials Science and Engineering, 1987, 86, 145-158.	0.1	33
42	Creep of crystalline materials: experimental basis, mechanisms and models. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 319-321, 8-15.	2.6	33
43	Influence of thermal history on precipitation of hardening phases in tempered martensite 10%Cr-steel X12CrMoWVNbN 10-1-1. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2003, 348, 201-207.	2.6	30
44	On the evolution of the dislocation structure during work hardening and creep. Scripta Metallurgica, 1984, 18, 1383-1388.	1.2	28
45	Subgrain-boundary migration during creep of lif III. Stress reduction experiments. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1992, 66, 717-728.	0.7	27
46	On the relaxation of the long-range internal stresses of deformed copper upon unloading. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2000, 276, 186-194.	2.6	27
47	Subgrain boundary migration during creep of lif: I. Recombination of subgrain boundaries. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1992, 65, 757-770.	0.7	26
48	Stress dependence of the strain rate of Al-11 wt.% Zn at elevated temperature. Acta Metallurgica, 1977, 25, 1531-1538.	2.1	25
49	Strain rate sensitivity of Cu after severe plastic deformation by multiple compression. Physica Status Solidi (A) Applications and Materials Science, 2005, 202, R119-R121.	0.8	25
50	Flow stress and creep rate of nanocrystalline Ni. Scripta Materialia, 2007, 57, 429-431.	2.6	25
51	On the natural law of steady state creep. Scripta Metallurgica, 1989, 23, 1419-1424.	1.2	23
52	Creep transients during stress changes in ultrafine-grained copper. Scripta Materialia, 2006, 54, 1803-1807.	2.6	23
53	Evolution of dislocation structure in martensitic steels: the subgrain size as a sensor for creep strain and residual creep life. Steel Research = Archiv FÃ¼r Das EisenhÃ¼ttenwesen, 1999, 70, 274-278.	0.2	22
54	Influence of grain boundaries on the deformation resistance: insights from an investigation of deformation kinetics and microstructure of copper after predeformation by ECAP. Philosophical Magazine, 2013, 93, 4331-4354.	0.7	22

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55	Modelling high temperature creep of academic and industrial materials using the composite model. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1993, 164, 290-294.	2.6	21
56	Discussion: Activation volumes of plastic deformation of crystals. Scripta Materialia, 2018, 146, 27-30.	2.6	21
57	Creep behavior of an AlTiVNbZr0.25 high entropy alloy at 1073ÂK. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2020, 783, 139291.	2.6	21
58	The influence of friction on plastic deformation in compression tests. Physica Status Solidi A, 1996, 156, 305-315.	1.7	20
59	Microstructure-based constitutive law of plastic deformation. Computational Materials Science, 2002, 25, 200-206.	1.4	20
60	Deformation kinetics of coarse-grained and ultrafine-grained commercially pure Ti. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 462, 275-278.	2.6	20
61	Effects of Grain Refinement by ECAP on the Deformation Resistance of Al Interpreted in Terms of Boundary-Mediated Processes. Journal of Materials Science and Technology, 2016, 32, 1309-1320.	5.6	20
62	Subgrain growth during creep of a tempered martensitic 12% Crâ€steel. Steel Research = Archiv FÃ¼r Das EisenhÃ¼ttenwesen, 1991, 62, 72-74.	0.2	19
63	Subgrain boundary migration during creep of lif II. Constant-stress experiments. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1992, 66, 27-40.	0.7	19
64	Creep study of mechanisms involved in low-temperature superplasticity of UFG Ti-6Al-4V processed by SPD. Materials Characterization, 2016, 116, 84-90.	1.9	19
65	Deformation Induced Misorientations: Initial Stage of Subgrain Formation as a Plastic Instability. Physica Status Solidi A, 2001, 186, 1-16.	1.7	16
66	On the Hallâ€"Petch relation between flow stress and grain size. International Journal of Materials Research, 2006, 97, 1661-1666.	0.1	16
67	Dislocation Structure in Polycrystalline AlZn During Transient and Steady State Creep. , 1979, , 265-270.		16
68	On modelling steady state and transient deformation at elevated temperature. Scripta Metallurgica, 1982, 16, 1353-1357.	1.2	15
69	Harper-dorn creep and specimen size. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2002, 33, 305-310.	1.1	15
70	Structural stability of ultrafine-grained copper. Scripta Materialia, 2008, 58, 53-56.	2.6	15
71	Mechanisms of creep deformation in steel. , 2008, , 365-402.		15
72	Influence of grain boundaries on steady-state deformation resistance of ultrafine-grained Cu. Physica Status Solidi A, 2004, 201, 2915-2921.	1.7	14

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73	On Coble creep in ultrafine-grained Cu. Physica Status Solidi A, 2004, 201, R114-R117.	1.7	14
74	New observations on high-temperature creep at very low stresses. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 510-511, 20-24.	2.6	14
75	In situstudy of microstructure and strength of severely predeformed pure Cu in deformation at 573ÂK. Philosophical Magazine, 2015, 95, 3696-3711.	0.7	14
76	Long-range internal stresses in steady-state subgrain structures. Scripta Metallurgica Et Materialia, 1993, 29, 7-12.	1.0	13
77	Evolution of dislocation structure and deformation resistance in creep exemplified on single crystals of CaF2. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 510-511, 46-50.	2.6	13
78	Activation analysis of the steady-state deformation of single- and polycrystalline sodium chloride. Philosophical Magazine and Journal, 1973, 28, 245-259.	1.8	12
79	Bridging steady-state deformation behavior at low and high temperature by considering dislocation dipole annihilation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 400-401, 175-181.	2.6	12
80	What is â€œstationaryâ€•deformation of pure Cu?. Journal of Materials Science, 2014, 49, 2987-2997.	1.7	12
81	Grain size and alloying effects on dynamic recovery in nanocrystalline metals. Acta Materialia, 2016, 119, 104-114.	3.8	12
82	Internal stresses in dislocation subgrain structures. Computational Materials Science, 1998, 13, 148-153.	1.4	11
83	The influence of long-term annealing at room temperature on creep behaviour of ECAP-processed copper. Materials Letters, 2017, 188, 235-238.	1.3	11
84	Microstructure and deformation rate during long-term cyclic creep of the martensitic steel X22CrMoV12-1. Steel Research = Archiv FÃ¼r Das EisenhÃ¼ttenwesen, 1995, 66, 394-401.	0.2	10
85	Long-Range Internal Stresses in the Transition from Cell to Subgrain Structures. Key Engineering Materials, 1994, 97-98, 461-466.	0.4	9
86	Dislocation glide velocity in creep of Mg alloys derived from dip tests. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 510-511, 393-397.	2.6	9
87	Double etching â€" a simple method of investigating subboundary migration during creep. Materials Science and Engineering, 1984, 67, L9-L14.	0.1	8
88	Comparison of Substructures in High Temperature Deformed Aluminium Alloys by Polarised Optical, Scanning and Transmission Electron Microscopes. High Temperature Materials and Processes, 1998, 17, .	0.6	8
89	Spontaneous Dislocation Annihilation Explains the Breakdown of the Power Law of Steady State Deformation. Physica Status Solidi A, 2001, 184, 257-261.	1.7	8
90	Transient Creep of an Al-5at%Mg Solid Solution. , 1985, , 773-778.		8

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91	Quantifying the distributions of dislocation spacings and cell sizes. Journal of Materials Science, 2008, 43, 2700-2707.	1.7	7
92	Quantification of dislocation structures at high resolution by atomic force microscopy of dislocation etch pits. Philosophical Magazine Letters, 2009, 89, 391-398.	0.5	7
93	Control of dynamic recovery and strength by subgrain boundaries â€“ insights from stress-change tests on CaF2single crystals. Philosophical Magazine, 2011, 91, 908-931.	0.7	7
94	Correct Interpretation of Creep Rates: A Case Study of Cu. Journal of Materials Science and Technology, 2015, 31, 1065-1068.	5.6	7
95	Dynamic grain coarsening in creep of pure Cu at<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si0038.gif" overflow="scroll"><mml:mrow><mml:mn>0.42</mml:mn><mml:mspace width="0.25em" /><mml:msub><mml:mrow><mml:mi>T</mml:mi></mml:mrow><mml:mrow><mml:mi mathvariant="normal">m</mml:mi></mml:mrow></mml:msub></mml:mrow></mml:math>after predeformation by ECAP. Materials Science & Engineering A: Structural Materials: Properties, Micr	2.6	7
96	Creep of Pure Materials and Alloys. High Temperature Materials and Processes, 1993, 12, 31-48.	0.6	6
97	Composite modeling of stress change response in steady-state creep. Physica Status Solidi A, 1994, 144, 343-352.	1.7	6
98	Deformation kinetics at constant structure during work hardening and steady state deformation of pure aluminium. Physica Status Solidi A, 1996, 157, 329-337.	1.7	6
99	A simple dislocation model of the influence of high-angle boundaries on the deformation behavior of ultrafine-grained materials. Journal of Physics: Conference Series, 2010, 240, 012136.	0.3	6
100	Strain Rate Contribution due to Dynamic Recovery of Ultrafine-Grained Cuâ€“Zr as Evidenced by Load Reductions during Quasi-Stationary Deformation at 0.5 Tm. Metals, 2019, 9, 1150.	1.0	6
101	The Effect of Predeformation on Creep Strength of 9% Cr Steel. Materials, 2020, 13, 5330.	1.3	6
102	Structure Evolution and Deformation Resistance in Production and Application of Ultrafine-Grained Materials â€“ the Concept of Steady-State Grains. Materials Science Forum, 0, 683, 163-181.	0.3	5
103	Deformation Strength of Nanocrystalline Thin Films. Journal of Materials Science and Technology, 2017, 33, 718-722.	5.6	5
104	Dynamic restoration of severely predeformed, ultrafine-grained pure Cu at 373 K observed in situ. Materials Characterization, 2017, 134, 329-334.	1.9	5
105	On the Constitutive Laws of Plastic Deformation of InP Single Crystals at High Temperatures. Physica Status Solidi A, 1993, 137, 363-379.	1.7	4
106	Modelling the transition from strengthening to softening due to grain boundaries. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 483-484, 95-98.	2.6	4
107	Interpretation of unloading tests on nanocrystalline Cu in terms of two mechanisms of deformation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2016, 665, 171-174.	2.6	4
108	Migration of subgrain boundaries under stress in bi- and multi-granular structures. Physica Status Solidi A, 2003, 200, 339-345.	1.7	3

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109	Thermally activated flow in soft and hard regions: Getting information on work hardening strain and recovery strain from rate change tests. Metallic Materials, 2016, 53, 199-205.	0.2	2
110	Quasi-Stationary Strength of ECAP-Processed Cu-Zr at 0.5Tm. Metals, 2019, 9, 1149.	1.0	2
111	On the validity of the natural creep law at low stresses. Materialia, 2021, 15, 100958.	1.3	2
112	Subgrain Boundary Migration During Creep of LiF. , 1989, , 875-880.		2
113	New method of determining stress relaxation behavior in creep machines by controlled unloading. International Journal of Materials Research, 2002, 93, 649-653.	0.8	1
114	On the elevated-temperature deformation behavior of polycrystalline Cu subjected to predeformation by multiple compression. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 483-484, 547-550.	2.6	1
115	Creep Simulation. , 2005, , 607-620.		0
116	In situ study of thermally activated flow and dynamic restoration of ultrafine-grained pure Cu at 373 K. Journal of Materials Research, 2017, 32, 4514-4521.	1.2	0