Peter Gumbsch

List of Publications by Year in Descending Order

218 papers	11,076 citations	55 h-index	98 g-index
222 ext. papers	12,303 ext. citations	6.5 avg, IF	6.42 L-index

#	Paper	IF	Citations
218	Height-Averaged Navier-Stokes Solver for Hydrodynamic Lubrication. *Tribology Letters*, **2022**, 70, 1	2.8	1
217	Micromechanical fatigue experiments for validation of microstructure-sensitive fatigue simulation models. *International Journal of Fatigue*, **2022**, 160, 106824	5	0
216	In situ Micro-pyrolysis of 3D Nano-printed Electron Beam Sensitive Metamaterials. *Microscopy and Microanalysis*, **2021**, 27, 83-84	0.5	0
215	A deep learning approach for complex microstructure inference. *Nature Communications*, **2021**, 12, 6272	17.4	6
214	Large characteristic lengths in 3D chiral elastic metamaterials. *Communications Materials*, **2021**, 2,	6	8
213	Variations in strain affect friction and microstructure evolution in copper under a reciprocating tribological load. *Journal of Materials Research*, **2021**, 36, 970-981	2.5	0
212	Architecturing materials at mesoscale: some current trends. *Materials Research Letters*, **2021**, 9, 399-421	7.4	11
211	High diffusivity pathways govern massively enhanced oxidation during tribological sliding. *Acta Materialia*, **2021**, 221, 117353	8.4	1
210	Architectured Lattice Materials with Tunable Anisotropy: Design and Analysis of the Material Property Space with the Aid of Machine Learning. *Advanced Engineering Materials*, **2020**, 22, 2001069	3.5	12
209	Discrete and continuum modelling of size effects in architectured unstable metamaterials. *Continuum Mechanics and Thermodynamics*, **2020**, 32, 1629-1645	3.5	0
208	Pattern formation during deformation of metallic nanolaminates. *Physical Review Materials*, **2020**, 4,	3.2	4
207	Model-free Adaptive Optimal Control of Episodic Fixed-horizon Manufacturing Processes Using Reinforcement Learning. *International Journal of Control, Automation and Systems*, **2020**, 18, 1593-1604	2.9	9
206	Towards programmable friction: control of lubrication with ionic liquid mixtures by automated electrical regulation. *Scientific Reports*, **2020**, 10, 17634	4.9	5
205	Influence of Interstitial Oxygen on the Tribology of Ti6Al4V. *Tribology Letters*, **2020**, 68, 1	2.8	4
204	Post-buckling and dynamic response of angled struts in elastic lattices. *Journal of the Mechanics and Physics of Solids*, **2019**, 133, 103693	5	5
203	Tailoring the characteristic length scale of 3D chiral mechanical metamaterials. *Extreme Mechanics Letters*, **2019**, 32, 100553	3.9	17
202	Solids Under Extreme Shear: Friction-Mediated Subsurface Structural Transformations. *Advanced Materials*, **2019**, 31, e1806705	24	32

201	Probabilistic Fracture Mechanics Framework Including Crack Nucleation of Rotor Forging Flaws **2019**,		4
200	Glass formation by severe plastic deformation of crystalline Cu|Zr nano-layers. *Acta Materialia*, **2019**, 165, 577-586	8.4	11
199	A mechanism-based homogenization of a dislocation source model for bending. *Acta Materialia*, **2019**, 164, 663-672	8.4	4
198	Atomic-scale simulation of structure and mechanical properties of Cu1−xAgx|Ni multilayer systems. *Acta Materialia*, **2018**, 150, 236-247	8.4	13
197	Microstructure evolution and deformation mechanisms during high rate and cryogenic sliding of copper. *Acta Materialia*, **2018**, 161, 138-149	8.4	42
196	The origin of surface microstructure evolution in sliding friction. *Scripta Materialia*, **2018**, 153, 63-67	5.6	44
195	Stages in the tribologically-induced oxidation of high-purity copper. *Scripta Materialia*, **2018**, 153, 114-117	5.6	28
194	Characteristics of mechanical metamaterials based on buckling elements. *Journal of the Mechanics and Physics of Solids*, **2017**, 102, 151-164	5	70
193	Irreversibility of dislocation motion under cyclic loading due to strain gradients. *Scripta Materialia*, **2017**, 129, 69-73	5.6	12
192	Materials response to glancing incidence femtosecond laser ablation. *Acta Materialia*, **2017**, 124, 37-46	8.4	34
191	The evolving quality of frictional contact with graphene. *Nature*, **2016**, 539, 541-545	50.4	278
190	Sequence of Stages in the Microstructure Evolution in Copper under Mild Reciprocating Tribological Loading. *ACS Applied Materials & Interfaces*, **2016**, 8, 15809-19	9.5	58
189	Molecular Dynamic Simulation of Collision-Induced Third-Body Formation in Hydrogen-Free Diamond-Like Carbon Asperities. *Tribology Letters*, **2016**, 63, 26	2.8	11
188	Hydrogenated vacancies lock dislocations in aluminium. *Nature Communications*, **2016**, 7, 13341	17.4	88
187	Tailored Buckling Microlattices as Reusable Light-Weight Shock Absorbers. *Advanced Materials*, **2016**, 28, 5865-70	24	186
186	Boundary lubrication of heterogeneous surfaces and the onset of cavitation in frictional contacts. *Science Advances*, **2016**, 2, e1501585	14.3	16
185	Flexoelectricity and the polarity of complex ferroelastic twin patterns. *Physical Review B*, **2016**, 94,	3.3	52
184	Interstitial iron impurities at grain boundaries in silicon: A first-principles study. *Physical Review B*, **2015**, 91,	3.3	28

183	Multiscale Simulation of Plasticity in bcc Metals. *Annual Review of Materials Research*, **2015**, 45, 369-390	12.8	15
182	The interaction of dislocations and hydrogen-vacancy complexes and its importance for deformation-induced proto nano-voids formation in α-Fe. *International Journal of Plasticity*, **2015**, 74, 175-191	7.6	104
181	Atomistic aspects of fracture. *International Journal of Fracture*, **2015**, 191, 13-30	2.3	98
180	Polar twin boundaries and nonconventional ferroelectric switching. *Applied Physics Letters*, **2015**, 106, 212907	3.4	18
179	Interstitial iron impurities at cores of dissociated dislocations in silicon. *Physical Review B*, **2015**, 92,	3.3	7
178	Influence of dislocation strain fields on the diffusion of interstitial iron impurities in silicon. *Physical Review B*, **2015**, 92,	3.3	8
177	Dislocation injection in strontium titanate by femtosecond laser pulses. *Journal of Applied Physics*, **2015**, 118, 075901	2.5	13
176	Internal stresses in a homogenized representation of dislocation microstructures. *Journal of the Mechanics and Physics of Solids*, **2015**, 84, 528-544	5	14
175	Quantitative voxel-to-voxel comparison of TriBeam and DCT strontium titanate three-dimensional data sets. *Journal of Applied Crystallography*, **2015**, 48, 1034-1046	3.8	26
174	Atomistically enabled nonsingular anisotropic elastic representation of near-core dislocation stress fields in α-Iron. *Physical Review B*, **2015**, 91,	3.3	17
173	Continuum dislocation dynamics: Towards a physical theory of crystal plasticity. *Journal of the Mechanics and Physics of Solids*, **2014**, 63, 167-178	5	110
172	Contact splitting and the effect of dimple depth on static friction of textured surfaces. *ACS Applied Materials & Interfaces*, **2014**, 6, 7986-90	9.5	48
171	Pentamode Metamaterials with Independently Tailored Bulk Modulus and Mass Density. *Physical Review Applied*, **2014**, 2,	4.3	84
170	Electron microscopic evidence for a tribologically induced phase transformation as the origin of wear in diamond. *Journal of Applied Physics*, **2014**, 115, 063508	2.5	23
169	Potential-induced degradation in solar cells: Electronic structure and diffusion mechanism of sodium in stacking faults of silicon. *Journal of Applied Physics*, **2014**, 116, 093510	2.5	35
168	Efficiency of laser surface texturing in the reduction of friction under mixed lubrication. *Tribology International*, **2014**, 77, 142-147	4.9	195
167	Mechanisms of dislocation multiplication at crack tips. *Acta Materialia*, **2013**, 61, 1394-1403	8.4	48
166	Screened empirical bond-order potentials for Si-C. *Physical Review B*, **2013**, 87,	3.3	91

165	Ab initioscreening methodology applied to the search for new permanent magnetic materials. *New Journal of Physics*, **2013**, 15, 125023	2.9	44
164	Validation of three-dimensional diffraction contrast tomography reconstructions by means of electron backscatter diffraction characterization. *Journal of Applied Crystallography*, **2013**, 46, 1145-1150	3.8	14
163	Linking Micro- and Macroscopic Aspects of a Dislocation Based Continuum Model by Investigating the Dislocation Double Pileup. *Proceedings in Applied Mathematics and Mechanics*, **2013**, 13, 273-274	0.2	2
162	Optimal Process Control Through Feature-Based State Tracking Along Process Chains **2013**, 69-74		1
161	Three-dimensional grain structure of sintered bulk strontium titanate from X-ray diffraction contrast tomography. *Scripta Materialia*, **2012**, 66, 1-4	5.6	37
160	Anticrack-type fracture in brittle foam under compressive stress. *Scripta Materialia*, **2012**, 67, 96-99	5.6	6
159	Influence of the Real Geometry of the Protrusions in Micro Textured Surfaces on Frictional Behaviour. *Tribology Letters*, **2012**, 47, 447-453	2.8	18
158	In situ observation of cavitation in crossed microchannels. *Tribology International*, **2012**, 55, 81-86	4.9	17
157	Bond order potentials for fracture, wear, and plasticity. *MRS Bulletin*, **2012**, 37, 493-503	3.2	42
156	Ab initio investigation of surface stress response to charging of transition and noble metals. *Physical Review B*, **2012**, 85,	3.3	32
155	Elastic and plastic anisotropy after straining of nanocrystalline palladium. *Physical Review B*, **2012**, 85,	3.3	9
154	Analysis of electronic subgap states in amorphous semiconductor oxides based on the example of Zn-Sn-O systems. *Physical Review B*, **2012**, 86,	3.3	31
153	Mechanical assessment of ultrafine-grained nickel by microcompression experiment and finite element simulation. *Journal of Materials Research*, **2012**, 27, 266-277	2.5	25
152	Dislocation microstructure evolution in cyclically twisted microsamples: a discrete dislocation dynamics simulation. *Modelling and Simulation in Materials Science and Engineering*, **2011**, 19, 074004	2	31
151	Anticrack model for skier triggering of slab avalanches. *Cold Regions Science and Technology*, **2011**, 65, 372-381	3.8	13
150	Microstructure-based Description of the Deformation of Metals: Theory and Application **2011**, 87-98		
149	Anisotropic mechanical amorphization drives wear in diamond. *Nature Materials*, **2011**, 10, 34-8	27	241
148	A universal scaling of planar fault energy barriers in face-centered cubic metals. *Scripta Materialia*, **2011**, 64, 605-608	5.6	95

147	Formation and Oxidation of Linear Carbon Chains and Their Role in the Wear of Carbon Materials. *Tribology Letters*, **2011**, 44, 355-365	2.8	37
146	Microstructure-based description of the deformation of metals: Theory and application. *Jom*, **2011**, 63, 26-33	2.1	34
145	A Three-dimensional Continuum Theory of Dislocation Plasticity - Modelling and Application to a Composite. *Proceedings in Applied Mathematics and Mechanics*, **2011**, 11, 437-438	0.2	1
144	Progressive Shortening of sp-Hybridized Carbon Chains through Oxygen-Induced Cleavage. *Journal of Physical Chemistry C*, **2011**, 115, 24653-24661	3.8	34
143	Aspect ratio and stochastic effects in the plasticity of uniformly loaded micrometer-sized specimens. *Acta Materialia*, **2011**, 59, 2937-2947	8.4	36
142	Magnetic bond-order potential for iron. *Physical Review Letters*, **2011**, 106, 246402	7.4	74
141	Phonon emission induced dynamic fracture phenomena. *Physical Review Letters*, **2011**, 106, 085502	7.4	21
140	Continuum modeling of dislocation plasticity: Theory, numerical implementation, and validation by discrete dislocation simulations. *Journal of Materials Research*, **2011**, 26, 623-632	2.5	79
139	Dislocation–vacancy interactions in tungsten. *Modelling and Simulation in Materials Science and Engineering*, **2011**, 19, 074002	2	11
138	Atomistic simulation of dislocation–void interactions under cyclic loading. *Modelling and Simulation in Materials Science and Engineering*, **2010**, 18, 025006	2	12
137	Microstrain in nanocrystalline solids under load by virtual diffraction. *Europhysics Letters*, **2010**, 89, 66002	2.6	15
136	Atomically smooth stress-corrosion cleavage of a hydrogen-implanted crystal. *Physical Review Letters*, **2010**, 105, 075502	7.4	28
135	Evolution of mechanical response and dislocation microstructures in small-scale specimens under slightly different loading conditions. *Philosophical Magazine*, **2010**, 90, 617-628	1.6	16
134	Numerical implementation of a 3D continuum theory of dislocation dynamics and application to micro-bending. *Philosophical Magazine*, **2010**, 90, 3697-3728	1.6	48
133	Molecular dynamics simulation of gold solid film lubrication. *International Journal of Materials Research*, **2010**, 101, 981-988	0.5	2
132	Dislocation–grain boundary interaction in <1 1 1> textured thin metal films. *Acta Materialia*, **2010**, 58, 5232-5241	8.4	78
131	Atomistic simulations of lattice defects in tungsten. *International Journal of Refractory Metals and Hard Materials*, **2010**, 28, 698-702	4.1	4
130	On the potential of tungsten–vanadium composites for high temperature application with wide-range thermal operation window. *Journal of Nuclear Materials*, **2010**, 400, 218-231	3.3	39

129	Accommodation processes during deformation of nanocrystalline palladium. *Acta Materialia*, **2010**, 58, 5491-5501	8.4	36
128	Atomistic Simulation Methods and their Application on Fracture. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2010**, 1-57	0.6	3
127	Dislocation Transport and Line Length Increase in Averaged Descriptions of Dislocations **2009**,		9
126	Grain growth anomaly in strontium titanate. *Scripta Materialia*, **2009**, 61, 584-587	5.6	37
125	The influence of Helium bubbles on the critical resolved shear stress of dispersion strengthened alloys. *Journal of Nuclear Materials*, **2009**, 386-388, 112-114	3.3	10
124	Initial dislocation structures in 3-D discrete dislocation dynamics and their influence on microscale plasticity. *Acta Materialia*, **2009**, 57, 1744-1754	8.4	132
123	Atomistic study of structure and stability of thin Ni films on Fe surfaces. *Philosophical Magazine*, **2009**, 89, 3413-3433	1.6	10
122	Simulation of small-angle tilt grain boundaries and their response to stress. *Computational Materials Science*, **2009**, 45, 783-787	3.2	11
121	Comparison of mechanical behaviour of thin film simulated by discrete dislocation dynamics and continuum crystal plasticity. *Computational Materials Science*, **2009**, 45, 793-799	3.2	19
120	Atomistic Simulations of Dislocations in Confined Volumes. *MRS Bulletin*, **2009**, 34, 184-189	3.2	48
119	Interactions between lattice dislocations and twin boundaries in tungsten: A comparative atomistic simulation study. *Philosophical Magazine*, **2009**, 89, 3179-3194	1.6	31
118	Low-speed fracture instabilities in a brittle crystal. *Nature*, **2008**, 455, 1224-1227	50.4	170
117	Discrete dislocation simulations of the plasticity of micro-pillars under uniaxial loading. *Scripta Materialia*, **2008**, 58, 587-590	5.6	99
116	High-cycle fatigue and strengthening in polycrystalline silicon. *Scripta Materialia*, **2008**, 59, 936-940	5.6	23
115	The running-in of amorphous hydrocarbon tribocoatings: a comparison between experiment and molecular dynamics simulations. *International Journal of Materials Research*, **2008**, 99, 1136-1143	0.5	27
114	Atomistic simulations of interactions between the 1 / 2<111> edge dislocation and symmetric tilt grain boundaries in tungsten. *Philosophical Magazine*, **2008**, 88, 547-560	1.6	56
113	Stress-Driven Oxidation Chemistry of Wet Silicon Surfaces. *Journal of Physical Chemistry C*, **2008**, 112, 12077-12080	3.8	27
112	INFLUENCE OF FRICTION AND PROCESS PARAMETERS ON THE SPECIFIC CUTTING FORCE AND SURFACE CHARACTERISTICS IN MICRO CUTTING. *Machining Science and Technology*, **2008**, 12, 474-497	2	24

111	Anticrack nucleation as triggering mechanism for snow slab avalanches. *Science*, **2008**, 321, 240-3	33.3	90
110	Energy radiation and limiting speeds of fast moving edge dislocations in tungsten. *Physical Review B*, **2008**, 77,	3.3	39
109	Describing bond-breaking processes by reactive potentials: Importance of an environment-dependent interaction range. *Physical Review B*, **2008**, 78,	3.3	122
108	Interatomic potential for the Cu-Ta system and its application to surface wetting and dewetting. *Physical Review B*, **2008**, 77,	3.3	40
107	Atomistic Simulations of Dislocation - Crack Interaction. *Journal of Solid Mechanics and Materials Engineering*, **2008**, 2, 1348-1359		7
106	Reversible relaxation at charged metal surfaces: An ab initio study. *Europhysics Letters*, **2008**, 84, 13002	1.6	22
105	Interactions between non-screw lattice dislocations and coherent twin boundaries in face-centered cubic metals. *Acta Materialia*, **2008**, 56, 1126-1135	8.4	381
104	Micro-bending tests: A comparison between three-dimensional discrete dislocation dynamics simulations and experiments. *Acta Materialia*, **2008**, 56, 1942-1955	8.4	112
103	Three-dimensional dislocation dynamics simulation of the influence of sample size on the stress□train behavior of fcc single-crystalline pillars. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2008**, 483-484, 188-190	5.3	50
102	Crack nucleation at the symmetrical tilt grain boundary in tungsten. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2008**, 483-484, 329-332	5.3	15
101	Atomistic modeling of hydrocarbon systems using analytic bond-order potentials. *Progress in Materials Science*, **2007**, 52, 230-254	42.2	23
100	Discrete dislocation dynamics simulations of dislocation interactions with Y 2 O 3 particles in PM2000 single crystals. *Philosophical Magazine*, **2007**, 87, 3645-3656	1.6	22
99	Ab initio study of surface stress response to charging. *Europhysics Letters*, **2007**, 78, 13001	1.6	68
98	First-principles study of thermodynamical and mechanical stabilities of thin copper film on tantalum. *Physical Review B*, **2007**, 76,	3.3	43
97	Finite element simulations of the cyclic elastoplastic behaviour of copper thin films. *Modelling and Simulation in Materials Science and Engineering*, **2007**, 15, S217-S238	2	20
96	INVESTIGATION OF SIZE-EFFECTS IN MACHINING WITH GEOMETRICALLY DEFINED CUTTING EDGES. *Machining Science and Technology*, **2007**, 11, 447-473	2	31
95	Simulations of stress□train heterogeneities in copper thin films: Texture and substrate effects. *Computational Materials Science*, **2007**, 39, 137-141	3.2	16
94	A three-dimensional continuum theory of dislocation systems: kinematics and mean-field formulation. *Philosophical Magazine*, **2007**, 87, 1261-1282	1.6	122

93	Atomistic Simulations of Dislocation Crack Interaction **2007**, 127-135		1
92	The interaction mechanism of screw dislocations with coherent twin boundaries in different face-centred cubic metals. *Scripta Materialia*, **2006**, 54, 1163-1168	5.6	313
91	Atomistic simulations of the formation and destruction of nanoindentation contacts in tungsten. *Physical Review B*, **2006**, 73,	3.3	41
90	Fracture of complex metallic alloys: an atomistic study of model systems. *Philosophical Magazine*, **2006**, 86, 1015-1020	1.6	12
89	Structural relaxation made simple. *Physical Review Letters*, **2006**, 97, 170201	7.4	907
88	Ab initio study of the critical thickness for ferroelectricity in ultrathin PtPbTiO3Pt films. *Physical Review B*, **2006**, 74,	3.3	61
87	Strengthening of silicon nitride ceramics by shot peening. *International Journal of Materials Research*, **2006**, 97, 1673-1678	0.5	2
86	Finite-Element Implementation of a Self-consistent Texture Model with a Hardening Law Based on Dislocation Densities. *Steel Research International*, **2006**, 77, 741-746	1.6	2
85	Interatomic potentials and the simulation of fracture: C15 NbCr2. *International Journal of Fracture*, **2006**, 139, 517-526	2.3	10
84	Similarity considerations on the simulation of turning processes of steels. *International Journal of Materials Research*, **2005**, 96, 761-769		10
83	Ab initio study of the surface properties and ideal strength of (100) silicon thin films. *Physical Review B*, **2005**, 72,	3.3	50
82	An Application Oriented View on Materials Modeling **2005**, 2713-2718		2
81	Discrete Dislocation Dynamics Simulation of Crack-Tip Plasticity **2005**, 413-427		1
80	New directions in mechanics. *Mechanics of Materials*, **2005**, 37, 231-259	3.3	104
79	Dynamic aspects of dislocation motion: atomistic simulations. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 400-401, 40-44	5.3	65
78	Study of dislocation reactions and rearrangements under different loading conditions. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 400-401, 158-161	5.3	44
77	Discrete Dislocation Dynamics Simulation of Thin Film Plasticity **2005**, 397-412		1
76	Temperature dependence of crack propagation in a two-dimensional model quasicrystal. *Philosophical Magazine*, **2005**, 85, 3259-3272	1.6	

75	Understanding of the phase transformation from fullerite to amorphous carbon at the microscopic level. *Physical Review Letters*, **2005**, 94, 165503	7.4	19
74	Dynamic fracture of icosahedral model quasicrystals: A molecular dynamics study. *Physical Review B* , **2005**, 72,	3.3	23
73	Thermal activation of crack-tip plasticity: The brittle or ductile response of a stationary crack loaded to failure. *Physical Review B*, **2005**, 71,	3.3	36
72	The ultrasmoothness of diamond-like carbon surfaces. *Science*, **2005**, 309, 1545-8	33.3	262
71	An Application Oriented View on Materials Modeling **2005**, 2713-2718		
70	Atomistic study of drag, surface and inertial effects on edge dislocations in face-centered cubic metals. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2004**, 387-389, 11-15	5.3	54
69	Discrete dislocation simulation of plastic deformation in metal thin films. *Acta Materialia*, **2004**, 52, 773-784	3.4	79
68	Crack propagation in perfectly ordered and random tiling quasicrystals. *Journal of Non-Crystalline Solids*, **2004**, 334-335, 453-456	3.9	2
67	Atomistic Study of Edge Dislocations in FCC Metals: Drag and Inertial Effects. *Solid Mechanics and Its Applications*, **2004**, 45-57	0.4	5
66	Materials science. Modeling strain hardening the hard way. *Science*, **2003**, 301, 1857-8	33.3	6
65	Brittle fracture and the brittle-to-ductile transition of tungsten. *Journal of Nuclear Materials*, **2003**, 323, 304-312	3.3	133
64	Atomistic modeling of mechanical behavior. *Acta Materialia*, **2003**, 51, 5711-5742	8.4	99
63	Dislocation sources and the flow stress of polycrystalline thin metal films. *Philosophical Magazine Letters*, **2003**, 83, 1-8	1	99
62	Cleavage Planes of Icosahedral Quasicrystals: A Molecular Dynamics Study. *Materials Research Society Symposia Proceedings*, **2003**, 805, 318		4
61	Impulsive fracture of fused quartz and silicon crystals by nonlinear surface acoustic waves. *Journal of Applied Physics*, **2003**, 94, 2907-2914	2.5	32
60	Scaling relations for crack-tip plasticity. *Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties*, **2002**, 82, 3187-3200		22
59	Dislocation dynamics in sub-micron confinement: recent progress in Cu thin film plasticity. *International Journal of Materials Research*, **2002**, 93, 383-391		30
58	Dislocation Modelling of Fatigue Cracks: An Overview. *Materials Transactions*, **2001**, 42, 2-13	1.3	53

57	The flow stress of NiAl single crystals below room temperature. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2001**, 319-321, 337-341	5.3	7
56	Modelling brittle and semi-brittle fracture processes. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2001**, 319-321, 1-7	5.3	30
55	Interface controlled plasticity in metals: dispersion hardening and thin film deformation. *Progress in Materials Science*, **2001**, 46, 283-307	42.2	106
54	Alloying effects on electromigration mass transport. *Physical Review Letters*, **2001**, 87, 035901	7.4	16
53	Plasticity and an inverse brittle-to-ductile transition in strontium titanate. *Physical Review Letters*, **2001**, 87, 085505	7.4	111
52	Melting mechanisms at the limit of superheating. *Physical Review Letters*, **2001**, 87, 055703	7.4	325
51	An ab initio study of the cleavage anisotropy in silicon. *Acta Materialia*, **2000**, 48, 4517-4530	8.4	156
50	Atomistic Aspects of Brittle Fracture. *MRS Bulletin*, **2000**, 25, 15-20	3.2	73
49	A kinetic model for electromigration in face-centred cubic alloys. *Journal of Physics Condensed Matter*, **2000**, 12, 3281-3292	1.8	2
48	Directional anisotropy in the cleavage fracture of silicon. *Physical Review Letters*, **2000**, 84, 5347-50	7.4	221
47	Energy dissipation and path instabilities in dynamic fracture of silicon single crystals. *Physical Review Letters*, **2000**, 85, 788-91	7.4	149
46	Plastic deformation at short edge cracks under fatigue loading. *Engineering Fracture Mechanics*, **2000**, 66, 357-374	4.2	20
45	Image stresses in a free-standing thin film. *Modelling and Simulation in Materials Science and Engineering*, **1999**, 7, 781-793	2	32
44	Calculation of the electromigration wind force in Al alloys. *Physical Review B*, **1999**, 59, 7451-7457	3.3	21
43	On radiation-free transonic motion of cracks and dislocations. *Journal of the Mechanics and Physics of Solids*, **1999**, 47, 1941-1961	5	53
42	Atomistic modelling of diffusion-controlled interfacial decohesion. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1999**, 260, 72-79	5.3	11
41	Fracture toughness of polycrystalline tungsten under mode I and mixed mode I/II loading. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1999**, 270, 197-209	5.3	65
40	Molecular dynamics simulations of crack propagation in quasicrystals. *Computer Physics Communications*, **1999**, 121-122, 536-539	4.2	5

39	In-situ observation of damage evolution and fracture in AlSi7Mg0.3 cast alloys. *Engineering Fracture Mechanics*, **1999**, 63, 395-411	4.2	28
38	The brittle-to-ductile transition and dislocation activity at crack tips **1999**, 6, 145-155		21
37	Driving force and nucleation of supersonic dislocations **1999**, 6, 137-144		26
36	Dislocations faster than the speed of sound. *Science*, **1999**, 283, 965-8	33.3	224
35	Atomistic aspects of the deformation of NiAl. *Intermetallics*, **1999**, 7, 447-454	3.5	27
34	Cleavage fracture and crack tip dislocation emission in B2 NiAl: An atomistic study. *Acta Materialia*, **1998**, 46, 3135-3143	8.4	23
33	Atomistic Study of the Interaction between Dislocations and Structural Point Defects in NiAl. *Physica Status Solidi A*, **1998**, 166, 475-488		15
32	Energies of defects in ordered alloys: dislocation core energies in NiAl. *Acta Materialia*, **1998**, 46, 919-926	8.4	12
31	Core properties and motion of dislocations in NiAl. *Acta Materialia*, **1998**, 46, 903-918	8.4	61
30	Crack Propagation in Quasicrystals. *Physical Review Letters*, **1998**, 81, 3163-3166	7.4	66
29	Dislocations in quasicrystals and their interaction with cluster-like obstacles. *Philosophical Magazine Letters*, **1998**, 78, 369-376	1	27
28	MATERIALS SCIENCE: Enhanced: A Dislocation Crash Test. *Science*, **1998**, 279, 1489-1490	33.3	10
27	Controlling factors for the brittle-to-ductile transition in tungsten single crystals. *Science*, **1998**, 282, 1293-5	33.3	274
26	Representations of the local atomic density. *Journal of Physics Condensed Matter*, **1998**, 10, 7983-7993	1.8	4
25	An Einstein Model of Brittle Crack Propagation. *Physical Review Letters*, **1997**, 78, 78-81	7.4	24
24	Molecular dynamics investigation of dynamic crack stability. *Physical Review B*, **1997**, 55, 3445-3455	3.3	103
23	3D-finite-element-modelling of microstructures with the method of multiphase elements. *Computational Materials Science*, **1997**, 9, 28-35	3.2	50
22	The accommodation of lattice mismatch in Ag/Ni heterophase boundaries. *Journal of Phase Equilibria and Diffusion*, **1997**, 18, 556-561		5

21	On the structure and mobility of dislocations in NiAl. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1997**, 233, 116-120	5.3	15
20	Atomistic simulation study of the effect of martensitic transformation volume change on crack-tip material evolution and fracture toughness. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1997**, 231, 151-162	5.3	12
19	On the Activation Energy for the Brittle/Ductile Transition. *Physica Status Solidi (B): Basic Research*, **1997**, 202, R1-R2	1.3	15
18	Crack Velocities during Dynamic Fracture of Glass and Single Crystalline Silicon. *Physica Status Solidi A*, **1997**, 164, R5-R6		29
17	Atomistic Study of Structure and Mobility of Dislocations in NiAl **1997**, 349-354		1
16	Cleavage anisotropy in tungsten single crystals. *Physical Review Letters*, **1996**, 76, 3594-3597	7.4	102
15	Numerical and Experimental Study of Early Stages of the Failure of AlSi-Cast Alloys. *European Physical Journal Special Topics*, **1996**, 06, C6-123-C6-131		1
14	The temperature dependence of the Debye-Waller factors of B2 NiAl. *Philosophical Magazine Letters*, **1996**, 73, 137-144	1	15
13	Defect modelling: the need for angularly dependent potentials. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1995**, 192-193, 24-30	5.3	36
12	An atomistic study of brittle fracture: Toward explicit failure criteria from atomistic modeling. *Journal of Materials Research*, **1995**, 10, 2897-2907	2.5	104
11	An empirical interatomic potential for B2 NiAl. *Modelling and Simulation in Materials Science and Engineering*, **1995**, 3, 533-542	2	53
10	On the continuum versus atomistic descriptions of dislocation nucleation and cleavage in nickel. *Modelling and Simulation in Materials Science and Engineering*, **1995**, 3, 597-613	2	61
9	Fracture studies of tungsten single crystals. *Materials Letters*, **1994**, 20, 311-317	3.3	20
8	Bond order potentials: a study of s- and sp-valent systems. *Journal of Physics Condensed Matter*, **1993**, 5, 5795-5810	1.8	18
7	Atomic structure of the (310) twin in niobium: Experimental determination and comparison with theoretical predictions. *Physical Review Letters*, **1993**, 70, 449-452	7.4	55
6	Accommodation of the lattice mismatch in a Ag/Ni heterophase boundary. *Physical Review B*, **1991**, 43, 13833-13837	3.3	33
5	A quantum mechanical calculation of the theoretical strength of metals. *Philosophical Magazine Letters*, **1991**, 63, 267-274	1	106
4	Interface stresses and their effects on the elastic moduli of metallic multilayers. *Physical Review B*, **1991**, 44, 3934-3938	3.3	134

3	Scaling relations for crack-tip plasticity		3
2	Combining X-Ray Diffraction Contrast Tomography and Mesoscale Grain Growth Simulations in Strontium Titanate: An Integrated Approach for the Investigation of Microstructure Evolution. *Ceramic Engineering and Science Proceedings*,127-137	0.1	1
1	Optimal Process Control through Feature-Based State Tracking Along Process Chains69-74		2