

Mark A Tschopp

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

98
papers

4,056
citations

35
h-index

62
g-index

102
ext. papers

4,654
ext. citations

4
avg. IF

5.75
L-index

#	Paper	IF	Citations
98	A Review on Capturing Twin Nucleation in Crystal Plasticity for Hexagonal Metals. <i>Metals</i> , 2021 , 11, 1373-1383	2.3	4
97	Machine learning to predict aluminum segregation to magnesium grain boundaries. <i>Scripta Materialia</i> , 2021 , 204, 114150	5.6	2
96	Enhancing Mechanical Properties of Hot Wrought Steel by Microalloying and Optimizing Heat Treatments. <i>Journal of Materials Engineering and Performance</i> , 2020 , 29, 5374-5387	1.6	
95	Transition of deformation mechanisms in nanotwinned single crystalline SiC. <i>Philosophical Magazine</i> , 2019 , 99, 2636-2660	1.6	1
94	In-situ monitoring of melt pool images for porosity prediction in directed energy deposition processes. <i>IISE Transactions</i> , 2019 , 51, 437-455	3.3	74
93	Unraveling Recrystallization Mechanisms Governing Texture Development from Rare-Earth Element Additions to Magnesium. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2018 , 49, 1809-1829	2.3	34
92	Porosity prediction: Supervised-learning of thermal history for direct laser deposition. <i>Journal of Manufacturing Systems</i> , 2018 , 47, 69-82	9.1	110
91	Role of nanoscale Cu/Ta interfaces on the shock compression and spall failure of nanocrystalline Cu/Ta systems at the atomic scales. <i>Journal of Materials Science</i> , 2018 , 53, 5745-5765	4.3	16
90	Solid State Porous Metal Production: A Review of the Capabilities, Characteristics, and Challenges. <i>Advanced Engineering Materials</i> , 2018 , 20, 1700766	3.5	38
89	Effect of magnetic fields on microstructure evolution. <i>Computational Materials Science</i> , 2018 , 150, 464-474	4.4	5
88	Quantifying Parameter Sensitivity and Uncertainty for Interatomic Potential Design: Application to Saturated Hydrocarbons. <i>ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering</i> , 2018 , 4,	1.4	3
87	Dual process monitoring of metal-based additive manufacturing using tensor decomposition of thermal image streams. <i>Additive Manufacturing</i> , 2018 , 23, 443-456	6.1	40
86	Correlating deformation mechanisms with X-ray diffraction phenomena in nanocrystalline metals using atomistic simulations. <i>Computational Materials Science</i> , 2018 , 154, 178-186	3.2	2
85	Integrating exploratory data analytics into ReaxFF parameterization. <i>MRS Communications</i> , 2018 , 8, 1300-1310	2.7	10
84	An efficient Monte Carlo algorithm for determining the minimum energy structures of metallic grain boundaries. <i>Computational Materials Science</i> , 2018 , 155, 466-475	3.2	14
83	A thermodynamic and kinetic-based grain growth model for nanocrystalline materials: Parameter sensitivity analysis and model extension. <i>Computational Materials Science</i> , 2017 , 131, 250-265	3.2	1
82	Effect of grain boundaries on texture formation during dynamic recrystallization of magnesium alloys. <i>Acta Materialia</i> , 2017 , 128, 270-283	8.4	111

81	Beyond initial twin nucleation in hcp metals: Micromechanical formulation for determining twin spacing during deformation. <i>Acta Materialia</i> , 2017 , 133, 134-146	8.4	11
80	HeV cluster nucleation and growth in Fe grain boundaries. <i>Acta Materialia</i> , 2017 , 124, 544-555	8.4	22
79	Using Similarity Metrics to Quantify Differences in High-Throughput Data Sets: Application to X-ray Diffraction Patterns. <i>ACS Combinatorial Science</i> , 2017 , 19, 25-36	3.9	10
78	Shock wave propagation and spall failure of nanocrystalline Cu/Ta alloys: Effect of Ta in solid-solution. <i>Journal of Applied Physics</i> , 2017 , 122, 225901	2.5	19
77	Property mapping of friction stir welded Al-2139 T8 plate using site specific shear punch testing. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2017 , 682, 192-201	5.3	8
76	The role of Ta on twinnability in nanocrystalline Cu-Ta alloys. <i>Materials Research Letters</i> , 2017 , 5, 48-54	7.4	26
75	Bridging atomistic simulations and experiments via virtual diffraction: understanding homophase grain boundary and heterophase interface structures. <i>Journal of Materials Science</i> , 2016 , 51, 1251-1260	4.3	4
74	Synthesis, characterization and quantitative analysis of porous metal microstructures: Application to microporous copper produced by solid state foaming. <i>AIMS Materials Science</i> , 2016 , 3, 573-590	1.9	8
73	Challenges of Engineering Grain Boundaries in Boron-Based Armor Ceramics. <i>Jom</i> , 2016 , 68, 1605-1615	2.1	10
72	Solid-State Foaming by Oxide Reduction and Expansion: Tailoring the Foamed Metal Microstructure in the Cu-CuO System with Oxide Content and Annealing Conditions. <i>Advanced Engineering Materials</i> , 2016 , 18, 83-95	3.5	9
71	Simulations of tensile bond rupture in single alkane molecules using reactive interatomic potentials. <i>Chemical Physics Letters</i> , 2015 , 635, 278-284	2.5	12
70	Rebuttal comments on Mitigating grain growth in binary nanocrystalline alloys through solute selection based on thermodynamic stability maps. <i>Computational Materials Science</i> , 2015 , 107, 238-242	3.2	1
69	Structure and mechanical properties of Fe-Ni-Ti oxide-dispersion-strengthened (ODS) alloys. <i>Journal of Nuclear Materials</i> , 2015 , 467, 205-213	3.3	26
68	A multiscale model of grain boundary structure and energy: From atomistics to a continuum description. <i>Acta Materialia</i> , 2015 , 82, 513-529	8.4	50
67	Structure and thermal decomposition of a nanocrystalline mechanically alloyed supersaturated Cu-Ta solid solution. <i>MRS Communications</i> , 2015 , 5, 333-339	2.7	17
66	Symmetric and asymmetric tilt grain boundary structure and energy in Cu and Al (and transferability to other fcc metals). <i>Integrating Materials and Manufacturing Innovation</i> , 2015 , 4, 176-189	2.9	76
65	Effect of Processing Parameters on the Microstructure of Mechanically Alloyed Nanostructured Al-Mn Alloys 2015 , 1-11		
64	Evaluating Local Primary Dendrite Arm Spacing Characterization Techniques Using Synthetic Directionally Solidified Dendritic Microstructures. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2015 , 46, 4610-4628	2.3	7

63	Effect of Processing Parameters on the Microstructure of Mechanically Alloyed Nanostructured Al-Mn Alloys 2015 , 3-11		1
62	Grain Boundary Segregation of Interstitial and Substitutional Impurity Atoms in Alpha-Iron. <i>Jom</i> , 2014 , 66, 129-138	2.1	62
61	Influence of Mn solute content on grain size reduction and improved strength in mechanically alloyed AlMn alloys. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2014 , 589, 57-65	5.3	30
60	Mitigating grain growth in binary nanocrystalline alloys through solute selection based on thermodynamic stability maps. <i>Computational Materials Science</i> , 2014 , 84, 255-266	3.2	94
59	Effect of resistance spot welding parameters on weld pool properties in a DP600 dual-phase steel: A parametric study using thermomechanically-coupled finite element analysis. <i>Materials & Design</i> , 2014 , 56, 387-397		45
58	Structural, elastic, and thermal properties of cementite (Fe ₃ C) calculated using a modified embedded atom method. <i>Physical Review B</i> , 2014 , 89,	3.3	66
57	Atomic-scale analysis of liquid-gallium embrittlement of aluminum grain boundaries. <i>Acta Materialia</i> , 2014 , 73, 312-325	8.4	75
56	Integrating computational modeling and first-principles calculations to predict stacking fault energy of dilute multicomponent Ni-base alloys. <i>Computational Materials Science</i> , 2014 , 91, 50-55	3.2	13
55	Algorithm Development in Computational Materials Science. <i>Jom</i> , 2014 , 66, 397-398	2.1	1
54	Binding of HeV clusters to α -Fe grain boundaries. <i>Journal of Applied Physics</i> , 2014 , 115, 233501	2.5	15
53	Binding energetics of substitutional and interstitial helium and di-helium defects with grain boundary structure in α -Fe. <i>Journal of Applied Physics</i> , 2014 , 115, 033503	2.5	26
52	An interatomic potential for saturated hydrocarbons based on the modified embedded-atom method. <i>Physical Chemistry Chemical Physics</i> , 2014 , 16, 6233-49	3.6	35
51	Towards Reaching the Theoretical Limit of Porosity in Solid State Metal Foams: Intraparticle Expansion as A Primary and Additive Means to Create Porosity. <i>Advanced Engineering Materials</i> , 2014 , 16, 190-195	3.5	12
50	The role of grain boundary structure and crystal orientation on crack growth asymmetry in aluminum. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2014 , 618, 345-354	5.3	20
49	Microstructure and mechanical properties of bulk nanostructured CuAla alloys consolidated by equal channel angular extrusion. <i>Acta Materialia</i> , 2014 , 76, 168-185	8.4	79
48	Effect of vacancy defects on generalized stacking fault energy of fcc metals. <i>Journal of Physics Condensed Matter</i> , 2014 , 26, 115404	1.8	17
47	Atomic scale investigation of grain boundary structure role on intergranular deformation in aluminium. <i>Philosophical Magazine</i> , 2014 , 94, 3445-3466	1.6	19
46	Characterizing the Local Primary Dendrite Arm Spacing in Directionally Solidified Dendritic Microstructures. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2014 , 45, 426-437	2.3	29

45	Enhancing grain refinement in polycrystalline materials using surface mechanical attrition treatment at cryogenic temperatures. <i>Scripta Materialia</i> , 2013 , 69, 461-464	5.6	44
44	Mechanical properties of amorphous cellulose using molecular dynamics simulations with a reactive force field. <i>International Journal of Modelling, Identification and Control</i> , 2013 , 18, 211	0.6	18
43	Investigating Damage Evolution at the Nanoscale: Molecular Dynamics Simulations of Nanovoid Growth in Single-Crystal Aluminum. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2013 , 44, 617-626	2.3	29
42	An internal state variable material model for predicting the time, thermomechanical, and stress state dependence of amorphous glassy polymers under large deformation. <i>International Journal of Plasticity</i> , 2013 , 42, 168-193	7.6	80
41	Quantifying the energetics and length scales of carbon segregation to Fe symmetric tilt grain boundaries using atomistic simulations. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2013 , 21, 035009	2	42
40	Finite element analysis of occupant head injuries: parametric effects of the side curtain airbag deployment interaction with a dummy head in a side impact crash. <i>Accident Analysis and Prevention</i> , 2013 , 55, 232-41	6.1	25
39	The candidacy of shuffle and shear during compound twinning in hexagonal close-packed structures. <i>Acta Materialia</i> , 2013 , 61, 7646-7659	8.4	36
38	Atomistic Investigation of the Role of Grain Boundary Structure on Hydrogen Segregation and Embrittlement in Fe. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2013 , 44, 1365-1375	2.3	70
37	Automated analysis of twins in hexagonal close-packed metals using molecular dynamics. <i>Scripta Materialia</i> , 2012 , 66, 666-669	5.6	25
36	Generalized framework for interatomic potential design: Application to Fe/He system. <i>Journal of Nuclear Materials</i> , 2012 , 425, 22-32	3.3	19
35	Comparison of reconstructed spatial microstructure images using different statistical descriptors. <i>Computational Materials Science</i> , 2012 , 51, 437-444	3.2	20
34	Investigating occupant safety through simulating the interaction between side curtain airbag deployment and an out-of-position occupant. <i>Accident Analysis and Prevention</i> , 2012 , 49, 392-403	6.1	16
33	Breakdown of the Schmid law in homogeneous and heterogeneous nucleation events of slip and twinning in magnesium. <i>Journal of the Mechanics and Physics of Solids</i> , 2012 , 60, 2084-2099	5	98
32	Probing grain boundary sink strength at the nanoscale: Energetics and length scales of vacancy and interstitial absorption by grain boundaries in Fe. <i>Physical Review B</i> , 2012 , 85,	3.3	226
31	Molecular Dynamics Simulations of the Glass Transition Temperature of Amorphous Cellulose. <i>Applied Mechanics and Materials</i> , 2012 , 214, 7-11	0.3	5
30	Microstructure and damage evolution during tensile loading in a wrought magnesium alloy. <i>Scripta Materialia</i> , 2011 , 64, 912-915	5.6	26
29	Energetic driving force for preferential binding of self-interstitial atoms to Fe grain boundaries over vacancies. <i>Scripta Materialia</i> , 2011 , 64, 908-911	5.6	58
28	Quantification of damage evolution in a 7075 aluminum alloy using an acoustic emission technique. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2011 , 528, 6708-6714	5.3	30

27	Automated detection and characterization of microstructural features: application to eutectic particles in single crystal Ni-based superalloys. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2010 , 18, 025014	2	6
26	Automated identification and characterisation of secondary and tertiary γ precipitates in nickel-based superalloys. <i>Materials Science and Technology</i> , 2010 , 26, 1414-1422	1.5	4
25	Multi-scale characterization of inhomogeneous morphologically textured microstructures. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2010 , 527, 883-889	5.3	7
24	Automated extraction of symmetric microstructure features in serial sectioning images. <i>Materials Characterization</i> , 2010 , 61, 1406-1417	3.9	4
23	Symmetry-based automated extraction of microstructural features: Application to dendritic cores in single-crystal Ni-based superalloys. <i>Scripta Materialia</i> , 2010 , 62, 357-360	5.6	11
22	Molecular dynamics simulations of deformation mechanisms of amorphous polyethylene. <i>Polymer</i> , 2010 , 51, 6071-6083	3.9	263
21	Measurement of gamma' precipitates in a nickel-based superalloy using energy-filtered transmission electron microscopy coupled with automated segmenting techniques. <i>Micron</i> , 2010 , 41, 641-7	2.3	6
20	Evolution of structure and free volume in symmetric tilt grain boundaries during dislocation nucleation. <i>Acta Materialia</i> , 2010 , 58, 6464-6473	8.4	63
19	Orientation and rate dependence of dislocation nucleation stress computed using molecular dynamics. <i>Scripta Materialia</i> , 2009 , 60, 675-678	5.6	26
18	Microstructure-Dependent Local Strain Behavior in Polycrystals through In-Situ Scanning Electron Microscope Tensile Experiments. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2009 , 40, 2363-2368	2.3	68
17	Grain boundary dislocation sources in nanocrystalline copper. <i>Scripta Materialia</i> , 2008 , 58, 299-302	5.6	75
16	Atomistic simulations of tension-compression asymmetry in dislocation nucleation for copper grain boundaries. <i>Computational Materials Science</i> , 2008 , 44, 351-362	3.2	79
15	Influence of Grain Boundary Structure on Dislocation Nucleation in FCC Metals. <i>Dislocations in Solids</i> , 2008 , 14, 43-139		46
14	Multi-scale characterization of orthotropic microstructures. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2008 , 16, 065009	2	23
13	Influence of single crystal orientation on homogeneous dislocation nucleation under uniaxial loading. <i>Journal of the Mechanics and Physics of Solids</i> , 2008 , 56, 1806-1830	5	142
12	Dislocation nucleation in β asymmetric tilt grain boundaries. <i>International Journal of Plasticity</i> , 2008 , 24, 191-217	7.6	100
11	Asymmetric tilt grain boundary structure and energy in copper and aluminium. <i>Philosophical Magazine</i> , 2007 , 87, 3871-3892	1.6	188
10	Tensile strength of $\langle 1\ 0\ 0 \rangle$ and $\langle 1\ 1\ 0 \rangle$ tilt bicrystal copper interfaces. <i>Acta Materialia</i> , 2007 , 55, 705-714	8.4	192

9	Structure and free volume of $\langle 110 \rangle$ symmetric tilt grain boundaries with the E structural unit. <i>Acta Materialia</i> , 2007 , 55, 3959-3969	8.4	91
8	Structural unit and faceting description of Σ asymmetric tilt grain boundaries. <i>Journal of Materials Science</i> , 2007 , 42, 7806-7811	4.3	31
7	Structures and energies of Σ asymmetric tilt grain boundaries in copper and aluminium. <i>Philosophical Magazine</i> , 2007 , 87, 3147-3173	1.6	185
6	Tension-compression asymmetry in homogeneous dislocation nucleation in single crystal copper. <i>Applied Physics Letters</i> , 2007 , 90, 121916	3.4	56
5	Atomistic simulations of homogeneous dislocation nucleation in single crystal copper. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2007 , 15, 693-709	2	104
4	From Electrons to Atoms: Designing an Interatomic Potential for Fe-Al Alloys	21-48	
3	The Effect of Crystallographic Orientation on Void Growth: A Molecular Dynamics Study	577-584	2
2	Atomic Scale Deformation Mechanisms of Amorphous Polyethylene under Tensile Loading	789-794	4
1	Characterizing Primary Dendritic Microstructures to Quantify the Processing-Structure-Property Relationship in Single Crystal Nickel-Based Superalloys	299-310	1