Eric R Homer

List of Publications by Year
in descending order

60 papers	1,557 citations	279701 23 h-index	315616 38 g-index
62 all docs	62 docs citations	62 times ranked	1353 citing authors

#	Article	IF	Citations
1	Mesoscale modeling of amorphous metals by shear transformation zone dynamics. Acta Materialia, 2009, 57, 2823-2833.	3.8	137
2	Shear transformation zone dynamics model for metallic glasses incorporating free volume as a state variable. Acta Materialia, 2013, 61, 3347-3359.	3.8	131
3	Phenomenology of shear-coupled grain boundary motion in symmetric tilt and general grain boundaries. Acta Materialia, 2013, 61, 1048-1060.	3.8	99
4	Discovering the building blocks of atomic systems using machine learning: application to grain boundaries. Npj Computational Materials, 2017, 3, .	3.5	80
5	Grain Boundary Plane Orientation Fundamental Zones and Structure-Property Relationships. Scientific Reports, 2015, 5, 15476.	1.6	73
6	Cyclic hardening of metallic glasses under Hertzian contacts: Experiments and STZ dynamics simulations. Philosophical Magazine, 2010, 90, 1373-1390.	0.7	71
7	Trends in Grain Boundary Mobility: Survey of Motion Mechanisms. Jom, 2014, 66, 114-120.	0.9	68
8	Examining the initial stages of shear localization in amorphous metals. Acta Materialia, 2014, 63, 44-53.	3.8	62
9	Kinetic Monte Carlo study of activated states and correlated shear-transformation-zone activity during the deformation of an amorphous metal. Physical Review B, 2010, 81, .	1.1	61
10	Nanoscale strength distribution in amorphous versus crystalline metals. Journal of Materials Research, 2010, 25, 2251-2263.	1.2	58
11	An RVE procedure for micromechanical prediction of mechanical behavior of dual-phase steel. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 695, 101-111.	2.6	40
12	Three-dimensional shear transformation zone dynamics model for amorphous metals. Modelling and Simulation in Materials Science and Engineering, 2010, 18, 065009.	0.8	33
13	The role of crystallography and the mechanisms associated with migration of incoherent twin grain boundaries. Acta Materialia, 2017, 131, 553-563.	3.8	33
14	New Methods for Developing and Manufacturing Compliant Mechanisms Utilizing Bulk Metallic Glass. Advanced Engineering Materials, 2014, 16, 850-856.	1.6	30
15	An investigation of geometrically necessary dislocations and back stress in large grained tantalum via EBSD and CPFEM. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2020, 772, 138704.	2.6	30
16	Competition between shear band nucleation and propagation across rate-dependent flow transitions in a model metallic glass. Acta Materialia, 2016, 111, 273-282.	3.8	29
17	Hybrid Potts-phase field model for coupled microstructuralâ€“compositional evolution. Computational Materials Science, 2013, 69, 414-423.	1.4	27
18	Analysis of tractionâ€free assumption in highâ€resolution EBSD measurements. Journal of Microscopy, 2015, 260, 73-85.	0.8	27

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19	Microstructural factors of strain delocalization in model metallic glass matrix composites. Acta Materialia, 2015, 83, 203-215.	3.8	27
20	Atomistic survey of grain boundary-dislocation interactions in FCC nickel. Computational Materials Science, 2019, 164, 171-185.	1.4	27
21	Slip band characteristics in the presence of grain boundaries in nickel-based superalloy. Acta Materialia, 2020, 193, 229-238.	3.8	27
22	Quantifying and connecting atomic and crystallographic grain boundary structure using local environment representation and dimensionality reduction techniques. Acta Materialia, 2018, 161, 431-443.	3.8	26
23	Two-dimensional grain boundary percolation in alloy 304 stainless steel. Scripta Materialia, 2005, 53, 959-963.	2.6	25
24	Variability of non-Schmid effects in grain boundary dislocation nucleation criteria. Acta Materialia, 2017, 124, 588-597.	3.8	24
25	Performance of Dynamically Simulated Reference Patterns for Cross-Correlation Electron Backscatter Diffraction. Microscopy and Microanalysis, 2016, 22, 789-802.	0.2	23
26	Machine-Learning Informed Representations for Grain Boundary Structures. Frontiers in Materials, 2019, 6, .	1.2	22
27	Boundary migration in a 3D deformed microstructure inside an opaque sample. Scientific Reports, 2017, 7, 4423.	1.6	19
28	Examination of computed aluminum grain boundary structures and energies that span the 5D space of crystallographic character. Acta Materialia, 2022, 234, 118006.	3.8	19
29	Influence of Noise-Generating Factors on Cross-Correlation Electron Backscatter Diffraction (EBSD) Measurement of Geometrically Necessary Dislocations (GNDs). Microscopy and Microanalysis, 2017, 23, 460-471.	0.2	18
30	Estimation of the full Nyeâ€™s tensor and its gradients by micro-mechanical stereo-inference using EBSD dislocation microscopy. International Journal of Plasticity, 2013, 50, 146-157.	4.1	16
31	Antithermal mobility in Î£7 and Î£9 grain boundaries caused by stick-slip stagnation of ordered atomic motions about Coincidence Site Lattice atoms. Acta Materialia, 2019, 162, 10-18.	3.8	16
32	The grain boundary stiffness and its impact on equilibrium shapes and boundary migration: Analysis of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si43.svg"><mml:mstyle mathvariant="normal"><mml:mi>Î£</mml:mi></mml:mstyle></mml:math>5, 7, 9, and 11 boundaries in Ni. Acta Materialia, 2021, 218, 117220.	3.8	16
33	Measuring simulated hydrogen diffusion in symmetric tilt nickel grain boundaries and examining the relevance of the Borisov relationship for individual boundary diffusion. Acta Materialia, 2021, 212, 116882.	3.8	14
34	Recovery of the grain boundary character distribution through oblique double-sectioning. Scripta Materialia, 2006, 54, 1017-1021.	2.6	13
35	High-throughput simulations for insight into grain boundary structure-property relationships and other complex microstructural phenomena. Computational Materials Science, 2019, 161, 244-254.	1.4	13
36	Aluminum alloy compositions and properties extracted from a corpus of scientific manuscripts and US patents. Scientific Data, 2022, 9, 128.	2.4	12

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37	Cryogenic Stress-Driven Grain Growth Observed via Microcompression with in situ Electron Backscatter Diffraction. Jom, 2020, 72, 2051-2056.	0.9	11
38	Investigating the mechanisms of grain boundary migration during recrystallization using molecular dynamics. IOP Conference Series: Materials Science and Engineering, 2015, 89, 012006.	0.3	10
39	Five degree-of-freedom property interpolation of arbitrary grain boundaries via Voronoi fundamental zone framework. Computational Materials Science, 2021, 200, 110756.	1.4	9
40	An experimentally-based molecular dynamics analysis of grain boundary migration during recrystallization in aluminum. Scripta Materialia, 2022, 211, 114489.	2.6	8
41	Effect of strain path on forming limits and retained austenite transformation in Q&P 1180 steel. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 734, 192-199.	2.6	7
42	Comment on â€œToward realistic molecular dynamics simulations of grain boundary mobilityâ€• by Zhou and Mohles. Scripta Materialia, 2012, 66, 714-716.	2.6	6
43	Improved twin detection via tracking of individual Kikuchi band intensity of EBSD patterns. Ultramicroscopy, 2018, 185, 5-14.	0.8	6
44	Simulation of kinematic Kikuchi diffraction patterns from atomistic structures. MethodsX, 2018, 5, 1187-1203.	0.7	6
45	Simulated Microstructural and Compositional Evolution of U-Pu-Zr Alloys Using the Potts-Phase Field Modeling Technique. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2018, 49, 6457-6468.	1.1	5
46	Crystallographic Reconstruction of Parent Austenite Twin Boundaries in a Lath Martensitic Steel. IOP Conference Series: Materials Science and Engineering, 2018, 375, 012012.	0.3	5
47	Digital Image Correlation of Forescatter Detector Images for Simultaneous Strain and Orientation Mapping. Microscopy and Microanalysis, 2020, 26, 641-652.	0.2	5
48	Coupling kinetic Monte Carlo and finite element methods to model the strain path sensitivity of the isothermal stress-assisted martensite nucleation in TRIP-assisted steels. Mechanics of Materials, 2021, 154, 103707.	1.7	5
49	Inference and uncertainty propagation of GB structure-property models: H diffusivity in [100] tilt GBs in Ni. Acta Materialia, 2021, 215, 116967.	3.8	5
50	Grain boundary structureâ€“property model inference using polycrystals: the overdetermined case. Journal of Materials Science, 2020, 55, 1562-1576.	1.7	4
51	Grain boundary structure-property model inference using polycrystals: The underdetermined case. Acta Materialia, 2021, 209, 116769.	3.8	4
52	Coupled microstructural-compositional evolution informed by a thermodynamic database using the hybrid Potts-phase field model. Materials Research Society Symposia Proceedings, 2013, 1524, 1.	0.1	3
53	Insights into grain boundary energy structure-property relationships by examining computed [1â€‰0â€‰0] disorientation axis grain boundaries in Nickel. Scripta Materialia, 2020, 185, 165-169.	2.6	3
54	Phase determination in dual phase steels via HREBSDâ€based tetragonality mapping. Journal of Microscopy, 2021, 282, 60-72.	0.8	3

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55	Determining Grain Boundary Position and Geometry from EBSD Data: Limits of Accuracy. Microscopy and Microanalysis, 2022, 28, 96-108.	0.2	3
56	Kinetic Monte Carlo Modeling of Nanomechanics in Amorphous Systems. Springer Series in Materials Science, 2016, , 441-468.	0.4	1
57	Incorporating the Element of Stochasticity in Coarse-Grained Modeling of Materials Mechanics. , 2018, , 1-14.		0
58	Shear Transformation Zone Dynamics Modeling of Deformation in Metallic Glasses. , 2018, , 1-28.		0
59	Shear Transformation Zone Dynamics Modeling of Deformation in Metallic Glasses. , 2020, , 1237-1263.		0
60	Computationally efficient barycentric interpolation of large grain boundary octonion point sets. MethodsX, 2022, 9, 101731.	0.7	0