

# David T Fullwood

## List of Publications by Year in descending order

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94  
papers

3,046  
citations

218592

26  
h-index

175177

52  
g-index

94  
all docs

94  
docs citations

94  
times ranked

2172  
citing authors

#	ARTICLE	IF	CITATIONS
1	Microstructure sensitive design for performance optimization. Progress in Materials Science, 2010, 55, 477-562.	16.0	326
2	Microstructure reconstructions from 2-point statistics using phase-recovery algorithms. Acta Materialia, 2008, 56, 942-948.	3.8	264
3	Bragg's Law diffraction simulations for electron backscatter diffraction analysis. Ultramicroscopy, 2009, 109, 1148-1156.	0.8	204
4	Nucleation and propagation of $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si1.gif" overflow="scroll" \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mo stretchy="false" \rangle \{ \langle \text{mml:mo} \rangle \langle \text{mml:mn} \rangle 1 \langle \text{mml:mn} \rangle \langle \text{mml:mSPACE width="0.12em" \rangle \langle \text{mml:mn} \rangle 0 \langle \text{mml:mn} \rangle \langle \text{mml:mSPACE width="0.12em" \rangle \langle \text{mml:mover accent="true" \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 1 \langle \text{mml:mn} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mo} \rangle \hat{\sim} \langle \text{mml:mo} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mover} \rangle \langle \text{mml:mo} \rangle \langle \text{mml:mn} \rangle 2 \langle \text{mml:mn} \rangle \langle \text{mml:mo stretchy="false" \rangle \} \langle \text{mml:mo} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mat$	3.8	178
5	Delineation of the space of 2-point correlations in a composite material system. Acta Materialia, 2008, 56, 5285-5292.	3.8	131
6	Computationally efficient database and spectral interpolation for fully plastic Taylor-type crystal plasticity calculations of face-centered cubic polycrystals. International Journal of Plasticity, 2008, 24, 1264-1276.	4.1	115
7	Estimations of bulk geometrically necessary dislocation density using high resolution EBSD. Ultramicroscopy, 2013, 133, 8-15.	0.8	110
8	Gradient-based microstructure reconstructions from distributions using fast Fourier transforms. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 494, 68-72.	2.6	104
9	Optimized structure based representative volume element sets reflecting the ensemble-averaged 2-point statistics. Acta Materialia, 2010, 58, 4432-4445.	3.8	99
10	Twinning in magnesium alloy AZ31B under different strain paths at moderately elevated temperatures. International Journal of Plasticity, 2013, 45, 160-173.	4.1	84
11	Elastic properties closures using second-order homogenization theories: Case studies in composites of two isotropic constituents. Acta Materialia, 2006, 54, 3117-3126.	3.8	70
12	A strong contrast homogenization formulation for multi-phase anisotropic materials. Journal of the Mechanics and Physics of Solids, 2008, 56, 2287-2297.	2.3	62
13	Resolving geometrically necessary dislocation density onto individual dislocation types using EBSD-based continuum dislocation microscopy. International Journal of Plasticity, 2016, 76, 231-243.	4.1	62
14	High-resolution computed tomography in resin infused woven carbon fibre composites with voids. Composites Science and Technology, 2016, 131, 12-21.	3.8	50
15	EBSD-based continuum dislocation microscopy. International Journal of Plasticity, 2010, 26, 1234-1247.	4.1	49
16	The effect of length scale on the determination of geometrically necessary dislocations via EBSD continuum dislocation microscopy. Ultramicroscopy, 2016, 164, 1-10.	0.8	49
17	Strain monitoring of carbon fiber composite via embedded nickel nano-particles. Composites Part B: Engineering, 2012, 43, 1155-1163.	5.9	41
18	The role of crystallographic orientations on heterogeneous deformation in a zirconium alloy: A combined experimental and modeling study. International Journal of Plasticity, 2020, 133, 102785.	4.1	41

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19	Validation of kinematically simulated pattern HR-EBSD for measuring absolute strains and lattice tetragonality. <i>Materials Characterization</i> , 2015, 107, 270-277.	1.9	40
20	An RVE procedure for micromechanical prediction of mechanical behavior of dual-phase steel. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2017, 695, 101-111.	2.6	40
21	Pattern Center Determination in Electron Backscatter Diffraction Microscopy. <i>Microscopy and Microanalysis</i> , 2011, 17, 330-340.	0.2	37
22	Insights into twinning in Mg AZ31: A combined EBSD and machine learning study. <i>Computational Materials Science</i> , 2016, 124, 353-363.	1.4	32
23	An investigation of geometrically necessary dislocations and back stress in large grained tantalum via EBSD and CPFEM. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2020, 772, 138704.	2.6	30
24	A new spectral framework for establishing localization relationships for elastic behavior of composites and their calibration to finite-element models. <i>Acta Materialia</i> , 2008, 56, 2272-2282.	3.8	28
25	Estimation of 3D Ground Reaction Force Using Nanocomposite Piezo-Responsive Foam Sensors During Walking. <i>Annals of Biomedical Engineering</i> , 2017, 45, 2122-2134.	1.3	28
26	Comparison of dislocation characterization by electron channeling contrast imaging and cross-correlation electron backscattered diffraction. <i>Ultramicroscopy</i> , 2018, 184, 125-133.	0.8	28
27	Generalized Pareto front methods applied to second-order material property closures. <i>Computational Materials Science</i> , 2007, 38, 788-799.	1.4	27
28	Analysis of traction-free assumption in high-resolution EBSD measurements. <i>Journal of Microscopy</i> , 2015, 260, 73-85.	0.8	27
29	Atomistic survey of grain boundary-dislocation interactions in FCC nickel. <i>Computational Materials Science</i> , 2019, 164, 171-185.	1.4	27
30	Slip band characteristics in the presence of grain boundaries in nickel-based superalloy. <i>Acta Materialia</i> , 2020, 193, 229-238.	3.8	27
31	Spectral representation of higher-order localization relationships for elastic behavior of polycrystalline cubic materials. <i>Acta Materialia</i> , 2008, 56, 3843-3853.	3.8	26
32	Room Temperature Shear Band Development in Highly Twinned Wrought Magnesium AZ31B Sheet. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2013, 44, 512-516.	1.1	26
33	Piezoresistive in-situ strain sensing of composite laminate structures. <i>Composites Part B: Engineering</i> , 2015, 69, 534-541.	5.9	26
34	Modeling of trans-grain twin transmission in AZ31 via a neighborhood-based viscoplastic self-consistent model. <i>International Journal of Plasticity</i> , 2019, 117, 21-32.	4.1	26
35	Variability of non-Schmid effects in grain boundary dislocation nucleation criteria. <i>Acta Materialia</i> , 2017, 124, 588-597.	3.8	24
36	Performance of Dynamically Simulated Reference Patterns for Cross-Correlation Electron Backscatter Diffraction. <i>Microscopy and Microanalysis</i> , 2016, 22, 789-802.	0.2	23

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37	Materials selection of flexible open-cell foams in energy absorption applications. <i>Materials and Design</i> , 2018, 137, 414-421.	3.3	23
38	Reply to comment by Maurice et al. in response to "Bragg's Law Diffraction Simulations for Electron Backscatter Diffraction Analysis". <i>Ultramicroscopy</i> , 2010, 110, 760-762.	0.8	21
39	Clustering metrics for two-phase composites. <i>Computational Materials Science</i> , 2011, 50, 2262-2272.	1.4	21
40	Comparison of EBSD, DIC, AFM, and ECCI for active slip system identification in deformed Ti-7Al. <i>Materials Characterization</i> , 2021, 173, 110941.	1.9	20
41	Influence of Noise-Generating Factors on Cross-Correlation Electron Backscatter Diffraction (EBSD) Measurement of Geometrically Necessary Dislocations (GNDs). <i>Microscopy and Microanalysis</i> , 2017, 23, 460-471.	0.2	18
42	Interplay of dislocation substructure and elastic strain evolution in additively manufactured Inconel 625. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2020, 785, 139380.	2.6	18
43	Design for Performance Optimization. , 2013, , 195-235.		17
44	Oxidation behavior of interstitial free steel: The defining role of substrate crystallographic texture. <i>Acta Materialia</i> , 2020, 190, 43-57.	3.8	17
45	Estimation of the full Nye's tensor and its gradients by micro-mechanical stereo-inference using EBSD dislocation microscopy. <i>International Journal of Plasticity</i> , 2013, 50, 146-157.	4.1	16
46	Optimization of nickel nanocomposite for large strain sensing applications. <i>Sensors and Actuators A: Physical</i> , 2011, 166, 40-47.	2.0	15
47	A predictive strain-gradient model with no undetermined constants or length scales. <i>Journal of the Mechanics and Physics of Solids</i> , 2020, 145, 104178.	2.3	15
48	Local dislocation creep accommodation of a zirconium diboride silicon carbide composite. <i>Acta Materialia</i> , 2015, 84, 359-367.	3.8	14
49	Inverse Piezoresistive Nanocomposite Sensors for Identifying Human Sitting Posture. <i>Sensors</i> , 2018, 18, 1745.	2.1	14
50	Predicting vertical ground reaction force during running using novel piezoresponsive sensors and accelerometry. <i>Journal of Sports Sciences</i> , 2020, 38, 1844-1858.	1.0	14
51	Measuring simulated hydrogen diffusion in symmetric tilt nickel grain boundaries and examining the relevance of the Borisov relationship for individual boundary diffusion. <i>Acta Materialia</i> , 2021, 212, 116882.	3.8	14
52	Nano-Composite Foam Sensor System in Football Helmets. <i>Annals of Biomedical Engineering</i> , 2017, 45, 2742-2749.	1.3	13
53	Five-Parameter Grain Boundary Inclination Recovery with EBSD and Interaction Volume Models. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2014, 45, 4165-4172.	1.1	12
54	Ductility of Advanced High-Strength Steel in the Presence of a Sheared Edge. <i>Jom</i> , 2016, 68, 1839-1849.	0.9	12

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55	Quantitative methods for correlating dispersion and electrical conductivity in conductor-polymer nanostrand composites. <i>Composites Part A: Applied Science and Manufacturing</i> , 2012, 43, 1939-1946.	3.8	11
56	Resolving pseudosymmetry in $\beta$ -TiAl using cross-correlation electron backscatter diffraction with dynamically simulated reference patterns. <i>Journal of Applied Crystallography</i> , 2018, 51, 655-669.	1.9	10
57	Multiscale Model for the Extreme Piezoresistivity in Silicone/Nickel Nanostrand Nanocomposites. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2011, 42, 3898-3906.	1.1	9
58	Room Temperature Ductility and Microstructure of Magnesium AZ31B Sheet. <i>Journal of Materials Engineering and Performance</i> , 2011, 20, 1357-1363.	1.2	9
59	Five degree-of-freedom property interpolation of arbitrary grain boundaries via Voronoi fundamental zone framework. <i>Computational Materials Science</i> , 2021, 200, 110756.	1.4	9
60	Lattice-based structures for studying percolation in two-dimensional grain networks. <i>Acta Materialia</i> , 2006, 54, 1381-1388.	3.8	8
61	Evolution of nano-junctions in piezoresistive nanostrand composites. <i>Composites Part B: Engineering</i> , 2015, 72, 45-52.	5.9	8
62	Reducing the microstructure design space of 2nd order homogenization techniques using discrete Fourier Transforms. <i>Mechanics of Materials</i> , 2013, 59, 14-23.	1.7	7
63	Effect of strain path on forming limits and retained austenite transformation in Q&P 1180 steel. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2018, 734, 192-199.	2.6	7
64	Nanoparticle orientation distribution analysis and design for polymeric piezoresistive sensors. <i>Sensors and Actuators A: Physical</i> , 2020, 303, 111851.	2.0	7
65	Characterization of nickel nanostrand nanocomposites through dielectric spectroscopy and nanoindentation. <i>Polymer Engineering and Science</i> , 2013, 53, 2666-2673.	1.5	6
66	Correlating structure topological metrics with bulk composite properties via neural network analysis. <i>Computational Materials Science</i> , 2014, 91, 20-27.	1.4	6
67	Evaluation and development of electrical conductivity models for nickel nanostrand polymer composites. <i>Polymer Engineering and Science</i> , 2015, 55, 549-557.	1.5	6
68	Microstructure Correlation with Formability for Biaxial Stretching of Magnesium Alloy AZ31B at Mildly Elevated Temperatures. <i>Jom</i> , 2017, 69, 907-914.	0.9	6
69	Improved twin detection via tracking of individual Kikuchi band intensity of EBSD patterns. <i>Ultramicroscopy</i> , 2018, 185, 5-14.	0.8	6
70	The effects of voids in quasi-static indentation of resin-infused reinforced polymers. <i>Journal of Composite Materials</i> , 2019, 53, 4399-4410.	1.2	6
71	Percolation analysis for estimating the maximum size of particles passing through nanosphere membranes. <i>Physical Review E</i> , 2019, 99, 022904.	0.8	6
72	Accurate Prediction of Knee Angles during Open-Chain Rehabilitation Exercises Using a Wearable Array of Nanocomposite Stretch Sensors. <i>Sensors</i> , 2022, 22, 2499.	2.1	6

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73	Digital Image Correlation of Forescatter Detector Images for Simultaneous Strain and Orientation Mapping. <i>Microscopy and Microanalysis</i> , 2020, 26, 641-652.	0.2	5
74	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. <i>Mechanics of Materials</i> , 2021, 154, 103707.	1.7	5
75	Inference and uncertainty propagation of GB structure-property models: H diffusivity in [100] tilt GBs in Ni. <i>Acta Materialia</i> , 2021, 215, 116967.	3.8	5
76	Micromechanical origins of remarkable elongation-to-fracture in AHSS TRIP steels via continuous bending under tension. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2021, 825, 141876.	2.6	5
77	Efficient Propagation of Error Through System Models for Functions Common in Engineering. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2012, 134, .	1.7	4
78	Microstructure Detail Extraction via EBSD: An Overview. , 2014, , 405-437.		4
79	Grain boundary structureâ€“property model inference using polycrystals: the overdetermined case. <i>Journal of Materials Science</i> , 2020, 55, 1562-1576.	1.7	4
80	Grain boundary structure-property model inference using polycrystals: The underdetermined case. <i>Acta Materialia</i> , 2021, 209, 116769.	3.8	4
81	Second-Order Microstructure Sensitive Design Using 2-Point Spatial Correlations. , 2009, , 177-188.		4
82	Vibration monitoring via nano-composite piezoelectric foam bushings. <i>Smart Materials and Structures</i> , 2016, 25, 115013.	1.8	3
83	Phase determination in dual phase steels via HREBSDâ€“based tetragonality mapping. <i>Journal of Microscopy</i> , 2021, 282, 60-72.	0.8	3
84	Optical measurement of voids <i>in situ</i> during infusion of carbon reinforcements. <i>Journal of Composite Materials</i> , 2021, 55, 775-786.	1.2	3
85	Determining Grain Boundary Position and Geometry from EBSD Data: Limits of Accuracy. <i>Microscopy and Microanalysis</i> , 2022, 28, 96-108.	0.2	3
86	A Novel Method to Characterize Walking and Running Energy Expenditure. <i>Journal for the Measurement of Physical Behaviour</i> , 2018, 1, 100-107.	0.5	2
87	A step towards intelligent EBSD microscopy: machineâ€“learning prediction of twin activity in MgAZ31. <i>Journal of Microscopy</i> , 2018, 272, 67-78.	0.8	2
88	Functional Data Analyses of Gait Data Measured Using In-Shoe Sensors. <i>Statistics in Biosciences</i> , 2019, 11, 288-313.	0.6	1
89	Accounting for Viscoelasticity When Interpreting Nano-Composite High-Deflection Strain Gauges. <i>Sensors</i> , 2022, 22, 5239.	2.1	1
90	Four-Parameter Hybridâ€“Bishopâ€“Hill Model Applied to OFE Copper for the Evaluation of Elastic/Yield Limit. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2014, 45, 4710-4722.	1.1	0

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91	Improving Spatial Detection of Twins Achieved by Measuring Individual Kikuchi Band Intensity in EBSD Patterns. <i>Microscopy and Microanalysis</i> , 2015, 21, 1669-1670.	0.2	0
92	Comparison of Dislocation Mapping Using Electron Channeling Contrast Imaging and Cross-Correlation Electron Backscattered Diffraction. <i>Microscopy and Microanalysis</i> , 2017, 23, 546-547.	0.2	0
93	Residual Stress Characterization on the Mesoscale in Additive Manufacturing. <i>Microscopy and Microanalysis</i> , 2018, 24, 968-969.	0.2	0
94	Computationally efficient barycentric interpolation of large grain boundary octonion point sets. <i>MethodsX</i> , 2022, 9, 101731.	0.7	0