

Wayne E King

List of Publications by Year in descending order

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69
papers

8,706
citations

136740

32
h-index

102304

66
g-index

72
all docs

72
docs citations

72
times ranked

5889
citing authors

#	ARTICLE	IF	CITATIONS
1	Laser powder-bed fusion additive manufacturing: Physics of complex melt flow and formation mechanisms of pores, spatter, and denudation zones. <i>Acta Materialia</i> , 2016, 108, 36-45.	3.8	1,803
2	Observation of keyhole-mode laser melting in laser powder-bed fusion additive manufacturing. <i>Journal of Materials Processing Technology</i> , 2014, 214, 2915-2925.	3.1	1,007
3	Laser powder bed fusion additive manufacturing of metals; physics, computational, and materials challenges. <i>Applied Physics Reviews</i> , 2015, 2, 041304.	5.5	750
4	An Experimental Investigation into Additive Manufacturing-Induced Residual Stresses in 316L Stainless Steel. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2014, 45, 6260-6270.	1.1	473
5	Role of thermal spikes in energetic displacement cascades. <i>Physical Review Letters</i> , 1987, 59, 1930-1933.	2.9	376
6	Controlling interdependent meso-nanosecond dynamics and defect generation in metal 3D printing. <i>Science</i> , 2020, 368, 660-665.	6.0	291
7	Density of additively-manufactured, 316L SS parts using laser powder-bed fusion at powers up to 400 W. <i>International Journal of Advanced Manufacturing Technology</i> , 2014, 74, 65-78.	1.5	286
8	Ultrafast electron microscopy in materials science, biology, and chemistry. <i>Journal of Applied Physics</i> , 2005, 97, 111101.	1.1	281
9	Imaging of Transient Structures Using Nanosecond in Situ TEM. <i>Science</i> , 2008, 321, 1472-1475.	6.0	281
10	Analysis of grain boundary networks and their evolution during grain boundary engineering. <i>Acta Materialia</i> , 2003, 51, 687-700.	3.8	258
11	Modifications to the microstructural topology in f.c.c. materials through thermomechanical processing. <i>Acta Materialia</i> , 2000, 48, 2081-2091.	3.8	249
12	Finite elements for materials with strain gradient effects. <i>International Journal for Numerical Methods in Engineering</i> , 1999, 44, 373-391.	1.5	246
13	Observations of lattice curvature near the interface of a deformed aluminium bicrystal. <i>Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties</i> , 2000, 80, 9-25.	0.8	238
14	Microstructural evolution during grain boundary engineering of low to medium stacking fault energy fcc materials. <i>Acta Materialia</i> , 2002, 50, 2599-2612.	3.8	238
15	Overview of modelling and simulation of metal powder bed fusion process at Lawrence Livermore National Laboratory. <i>Materials Science and Technology</i> , 2015, 31, 957-968.	0.8	237
16	Tensile properties, strain rate sensitivity, and activation volume of additively manufactured 316L stainless steels. <i>International Journal of Plasticity</i> , 2019, 120, 395-410.	4.1	155
17	Gaussian process-based surrogate modeling framework for process planning in laser powder-bed fusion additive manufacturing of 316L stainless steel. <i>International Journal of Advanced Manufacturing Technology</i> , 2018, 94, 3591-3603.	1.5	153
18	Scaling laws for the additive manufacturing. <i>Journal of Materials Processing Technology</i> , 2018, 257, 234-243.	3.1	142

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19	Molecular dynamics simulation of low energy displacement cascades in Cu. Journal of Nuclear Materials, 1983, 117, 26-35.	1.3	119
20	Single-shot dynamic transmission electron microscopy. Applied Physics Letters, 2006, 89, 044105.	1.5	118
21	Laser peening: A tool for additive manufacturing post-processing. Additive Manufacturing, 2018, 24, 67-75.	1.7	106
22	Practical considerations for high spatial and temporal resolution dynamic transmission electron microscopy. Ultramicroscopy, 2007, 107, 356-367.	0.8	99
23	Security of additive manufacturing: Attack taxonomy and survey. Additive Manufacturing, 2018, 21, 431-457.	1.7	82
24	Quantitative HREM using non-linear least-squares methods. Ultramicroscopy, 1994, 56, 46-53.	0.8	65
25	Atomic structure of the (310) twin in niobium: Experimental determination and comparison with theoretical predictions. Physical Review Letters, 1993, 70, 449-452.	2.9	59
26	Cation Tracer Diffusion in Cr ₂ O ₃ and Cr ₂ O ₃ -0.09 wt% Y ₂ O ₃ . Journal of the American Ceramic Society, 1987, 70, 880-885.	1.9	45
27	Uncertainty Propagation Analysis of Computational Models in Laser Powder Bed Fusion Additive Manufacturing Using Polynomial Chaos Expansions. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, .	1.3	41
28	Threshold energy surface and frenkel pair resistivity for Cu. Journal of Nuclear Materials, 1983, 117, 12-25.	1.3	40
29	Computer simulation study of the displacement threshold-energy surface in Cu. Physical Review B, 1981, 23, 6335-6339.	1.1	39
30	Determination of the threshold-energy surface for copper using in-situ electrical-resistivity measurements in the high-voltage electron microscope. Physical Review B, 1981, 23, 6319-6334.	1.1	38
31	Multi-scale modeling of polycrystal plasticity: a workshop report. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1998, 251, 1-22.	2.6	37
32	Determination of thickness and defocus by quantitative comparison of experimental and simulated high-resolution images. Ultramicroscopy, 1993, 51, 128-135.	0.8	33
33	Computational model for a low-temperature laser-plasma driver for shock-processing of metals and comparison to experimental data. Physics of Plasmas, 2003, 10, 2940-2947.	0.7	23
34	Strongly driven crystallization processes in a metallic glass. Applied Physics Letters, 2009, 94, .	1.5	23
35	Pyrite oxidation in aqueous ferric chloride. AIChE Journal, 1977, 23, 679-685.	1.8	21
36	Laser-based in situ techniques: Novel methods for generating extreme conditions in TEM samples. Microscopy Research and Technique, 2009, 72, 122-130.	1.2	21

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37	Copper Segregation to the $\hat{A}5$ (310)/[001] Symmetric Tilt Grain Boundary in Aluminum. Journal of Materials Science, 2004, 12, 165-174.	1.2	19
38	High-resolution electron microscopy investigation of the (710) twin in Nb. Ultramicroscopy, 1993, 51, 247-263.	0.8	18
39	Flicker (1/f) noise in copper films due to radiation-induced defects. Physical Review B, 1988, 38, 10371-10386.	1.1	16
40	Theory, simulation, and modeling of interfaces in materials—bridging the length-scale gap: a workshop report. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1995, 191, 1-16.	2.6	16
41	Experimental determination of the energy dependence of defect production. Journal of Nuclear Materials, 1983, 117, 4-11.	1.3	14
42	Damage effects of high energy electrons on metals. Ultramicroscopy, 1987, 23, 345-353.	0.8	14
43	Effect of Y ₂ O ₃ additions on the plasticity of sintered Cr ₂ O ₃ . Oxidation of Metals, 1988, 29, 217-223.	1.0	14
44	Crystallographic effects on the fatigue fracture of copper-sapphire interfaces. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2000, 80, 2109-2129.	0.8	12
45	Rapidly solidified U—6wt%Nb powders for dispersion-type nuclear fuels. Journal of Nuclear Materials, 2014, 448, 72-79.	1.3	12
46	Microstructural Development in the Surface Region during Oxidation of Iron—Manganese—Nickel—Silicon Alloys. Journal of the Electrochemical Society, 1986, 133, 1042-1048.	1.3	11
47	Comments on the bond strength measurements of Gupta and co-workers. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1992, 159, 135-142.	2.6	11
48	Ultrafast Imaging of Materials: Exploring the Gap of Space and Time. MRS Bulletin, 2006, 31, 614-619.	1.7	7
49	The effect of lattice and grain boundary diffusion on the redistribution of Xe in metallic nuclear fuels: Implications for the use of ion implantation to study fission-gas-bubble nucleation mechanisms. Journal of Nuclear Materials, 2011, 415, 38-54.	1.3	7
50	Rutherford-backscattering study of high-temperature oxidation of Y-implanted Fe-24Cr. Oxidation of Metals, 1989, 31, 181-207.	1.0	5
51	Data Preparation for Quantitative High-Resolution Electron Microscopy. Microscopy and Microanalysis, 1997, 3, 299-310.	0.2	5
52	The application of a figure of merit for nuclear explosive utility as a metric for material attractiveness in a nuclear material theft scenario. Nuclear Engineering and Design, 2010, 240, 3699-3707.	0.8	5
53	The potential to use fission gas release experiments to measure lattice and grain boundary diffusion in metallic fuels. Journal of Nuclear Materials, 2011, 411, 97-111.	1.3	5
54	Size-dependent microstructures in rapidly solidified uranium niobium powder particles. Journal of Nuclear Materials, 2016, 479, 1-10.	1.3	5

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55	Creep of Cr ₂ O ₃ and yttrium doped Cr ₂ O ₃ . Materials Science and Technology, 1989, 5, 499-501.	0.8	4
56	Analysis of Experimental Error in High Resolution Electron Micrographs. Microscopy and Microanalysis, 1997, 3, 451-457.	0.2	4
57	Dependence of stage-I recovery on the irradiation direction in copper doped with beryllium. Physical Review B, 1992, 46, 8593-8596.	1.1	3
58	Quantitative Comparison of HREM Image Intensities with Image Simulation for Application in Materials Science. Physica Status Solidi A, 1998, 166, 343-356.	1.7	3
59	Lattice rotations during compression deformation of a [011] Ta single crystal. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 317, 77-84.	2.6	3
60	The rigid-body displacement observed at the $\hat{\alpha} = 5$, (310)-[001] symmetric tilt grain boundary in central transition bcc metals. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2002, 82, 1573-1594.	0.8	3
61	An experimental technique to measure x-ray production and detection efficiencies in the analytical electron microscope. Ultramicroscopy, 1985, 18, 151-154.	0.8	2
62	Two methods for aligning a mechanical dimpling device for TEM sample preparation. Journal of Electron Microscopy Technique, 1987, 6, 303-304.	1.1	2
63	The effects of crystallization on the microhardness of Fe-22.5Al-10Zr metallic glass ribbons. Journal of Materials Science Letters, 1989, 8, 793-795.	0.5	2
64	Quantitative Hrem of Twin Boundaries in Compound Semiconductors and Metals Using Non-Linear Least-Squares Methods. Microscopy and Microanalysis, 1998, 4, 784-785.	0.2	1
65	Toward Ultrafast Electron Microscopy. Microscopy and Microanalysis, 2004, 10, 14-15.	0.2	1
66	Magnetic properties of copper(II) octanoate. Journal of Molecular Structure, 1981, 73, 261-263.	1.8	0
67	Substitutional Impurity Segregation to the $\hat{\alpha} = 5$ (310)/[001] Stgb in Cu Doped Aluminum and Ag Doped Copper. Microscopy and Microanalysis, 2001, 7, 246-247.	0.2	0
68	Introduction: Frontiers of Electron Microscopy in Materials Science. Microscopy and Microanalysis, 2005, 11, 377-377.	0.2	0
69	Title is missing!. Ultramicroscopy, 2005, 103, vii.	0.8	0