## Hussein M Zbib

List of Publications by Year in descending order

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#	Article	lF	CITATIONS
1	On plastic deformation and the dynamics of 3D dislocations. International Journal of Mechanical Sciences, 1998, 40, 113-127.	6.7	411
2	A multiscale model of plasticity. International Journal of Plasticity, 2002, 18, 1133-1163.	8.8	310
3	Multiscale modelling of plastic flow localization in irradiated materials. Nature, 2000, 406, 871-874.	27.8	308
4	3D dislocation dynamics: stress–strain behavior and hardening mechanisms in fcc and bcc metals. Journal of Nuclear Materials, 2000, 276, 154-165.	2.7	135
5	Multiscale modeling and simulation of deformation in nanoscale metallic multilayer systems. International Journal of Plasticity, 2014, 52, 33-50.	8.8	128
6	Analysis of plastic deformation in nanoscale metallic multilayers with coherent and incoherent international Journal of Plasticity, 2011, 27, 1618-1639.	8.8	108
7	Multiscale dislocation dynamics simulations of shock compression in copper single crystal. International Journal of Plasticity, 2005, 21, 2369-2390.	8.8	85
8	Deformation mechanisms and strength in nanoscale multilayer metallic composites with coherent and incoherent interfaces. Applied Physics Letters, 2009, 94, .	3.3	76
9	A Multiscale Model of Plasticity Based on Discrete Dislocation Dynamics. Journal of Engineering Materials and Technology, Transactions of the ASME, 2002, 124, 78-87.	1.4	74
10	On the structure and width of shear bands. Scripta Metallurgica, 1988, 22, 703-708.	1.2	67
11	A gradient-dependent model for the Portevin-Le Chatelier effect. Scripta Metallurgica, 1988, 22, 1331-1336.	1.2	61
12	Size and boundary effects in discrete dislocation dynamics: coupling with continuum finite element. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 309-310, 294-299.	5.6	61
13	Localized deformation and hardening in irradiated metals: Three-dimensional discrete dislocation dynamics simulations. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2002, 33, 285-296.	2.1	58
14	A dislocation-based model for deformation and size effect in multi-phase steels. International Journal of Plasticity, 2015, 72, 44-59.	8.8	57
15	Crystal plasticity: micro-shear banding in polycrystals using voronoi tessellation. International Journal of Plasticity, 1998, 14, 771-788.	8.8	55
16	Stress/strain gradient plasticity model for size effects in heterogeneous nano-microstructures. International Journal of Plasticity, 2017, 97, 46-63.	8.8	53
17	Free-Surface Effects in 3D Dislocation Dynamics: Formulation and Modeling. Journal of Engineering Materials and Technology, Transactions of the ASME, 2002, 124, 342-351.	1.4	46
18	Modeling planar dislocation boundaries using multi-scale dislocation dynamics plasticity. International Journal of Plasticity, 2004, 20, 1059-1092.	8.8	42

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19	On dislocation pileups and stress-gradient dependent plastic flow. International Journal of Plasticity, 2015, 74, 1-16.	8.8	37
20	Size-dependent strength in nanolaminate metallic systems. Journal of Materials Research, 2011, 26, 1179-1187.	2.6	36
21	A stochastic crystal plasticity framework for deformation of micro-scale polycrystalline materials. International Journal of Plasticity, 2015, 68, 21-33.	8.8	35
22	Dislocation stress fields for dynamic codes using anisotropic elasticity: methodology and analysis. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 309-310, 288-293.	5.6	34
23	Dislocation dynamics simulations of the interaction between a short rigid fiber and a glide circular dislocation pile-up. Computational Materials Science, 2002, 24, 310-322.	3.0	33
24	Crystal Plasticity from Dislocation Dynamics. MRS Bulletin, 2001, 26, 191-195.	3.5	31
25	The mechanical response of core-shell structures for nanoporous metallic materials. Philosophical Magazine, 2013, 93, 736-748.	1.6	31
26	Stochastic effects in plasticity in small volumes. International Journal of Plasticity, 2014, 52, 117-132.	8.8	31
27	3D printed high performance strain sensors for high temperature applications. Journal of Applied Physics, 2018, 123, .	2.5	30
28	Numerical analysis of plane cracks in strain-gradient elastic materials. International Journal of Fracture, 2006, 141, 403-430.	2.2	29
29	Internal structures of deformation induced planar dislocation boundaries. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 309-310, 220-226.	5.6	28
30	Explicit incorporation of cross-slip in a dislocation density-based crystal plasticity model. Philosophical Magazine, 2012, 92, 3084-3100.	1.6	28
31	Stochastic Dislocation Dynamics for Dislocation-Defects Interaction: A Multiscale Modeling Approach. Journal of Engineering Materials and Technology, Transactions of the ASME, 2002, 124, 335-341.	1.4	27
32	On the homogeneous nucleation and propagation of dislocations under shock compression. Philosophical Magazine, 2016, 96, 2752-2778.	1.6	27
33	Recent advances in modeling of interfaces and mechanical behavior of multilayer metallic/ceramic composites. Journal of Materials Science, 2018, 53, 5604-5617.	3.7	25
34	The Somigliana ring dislocation. Journal of Elasticity, 1992, 28, 223-246.	1.9	24
35	A multiscale gradient-dependent plasticity model for size effects. Philosophical Magazine, 2016, 96, 1883-1908.	1.6	24
36	Energies and distributions of dislocations in stacked pile-ups. International Journal of Solids and Structures, 2010, 47, 1144-1153.	2.7	23

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37	Modeling and Characterization of Grain Boundaries and Slip Transmission in Dislocation Density-Based Crystal Plasticity. Crystals, 2017, 7, 152.	2.2	23
38	Determination of Dislocation Interaction Strengths Using Discrete Dislocation Dynamics of Curved Dislocations. Journal of Engineering Materials and Technology, Transactions of the ASME, 2012, 134, .	1.4	22
39	Creation of heterogeneous microstructures in copper using high-pressure torsion to enhance mechanical properties. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 756, 142-148.	5.6	22
40	A macroscopic model for plastic flow in metal-matrix composites. International Journal of Plasticity, 1995, 11, 471-499.	8.8	21
41	The treatment of traction-free boundary condition in three-dimensional dislocation dynamics using generalized image stress analysis. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 309-310, 283-287.	5.6	21
42	A strain-gradient thermodynamic theory of plasticity based on dislocation density and incompatibility tensors. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 309-310, 416-419.	5.6	19
43	Crystallographic orientation and indenter radius effects on the onset of plasticity during nanoindentation. Journal of Materials Research, 2012, 27, 3058-3065.	2.6	19
44	A predictive discrete-continuum multiscale model of plasticity with quantified uncertainty. International Journal of Plasticity, 2021, 138, 102935.	8.8	19
45	Optimum Forming Loading Paths for Pb-Sn Superplastic Sheet Materials. Journal of Engineering Materials and Technology, Transactions of the ASME, 1999, 121, 341-345.	1.4	18
46	A continuum thermo-inelastic model for damage and healing in self-healing glass materials. International Journal of Plasticity, 2014, 62, 1-16.	8.8	18
47	Line-integral solution for the stress and displacement fields of an arbitrary dislocation segment in isotropic bi-materials in 3D space. Philosophical Magazine, 2009, 89, 2149-2166.	1.6	16
48	Molecular dynamics simulations of mechanical behavior in nanoscale ceramic–metallic multilayer composites. Materials Research Letters, 2017, 5, 306-313.	8.7	16
49	Multiscale Modeling of Inclusions and Precipitation Hardening in Metal Matrix Composites: Application to Advanced High-Strength Steels. Journal of Nanomechanics & Micromechanics, 2013, 3, 24-33.	1.4	15
50	A mesoscopic model for inelastic deformation and damage. International Journal of Engineering Science, 2001, 39, 1597-1615.	5.0	13
51	Strength and plastic deformation behavior of nanolaminate composites with pre-existing dislocations. Computational Materials Science, 2017, 138, 42-48.	3.0	13
52	Pseudoelastic behavior of Cu–Ni composite nanowires. Applied Physics Letters, 2009, 94, .	3.3	12
53	Plasticity in Materials with Heterogeneous Microstructures. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 6608-6620.	2.2	12

54 Multiscale Discrete Dislocation Dynamics Plasticity. , 2005, , 201-229.

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55	Microstructure Optimization of Dual-Phase Steels Using a Representative Volume Element and a Response Surface Method: Parametric Study. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2017, 48, 6153-6177.	2.2	8
56	Key Factors Influencing the Energy Absorption of Dual-Phase Steels: Multiscale Material Model Approach and Microstructural Optimization. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2018, 49, 2419-2440.	2.2	8
57	A novel continuum approach to gradient plasticity based on the complementing concepts of dislocation and disequilibrium densities. Journal of the Mechanics and Physics of Solids, 2019, 132, 103680.	4.8	6
58	Accelerating the Discovery of New DP Steel Using Machine Learning-Based Multiscale Materials Simulations. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2020, 51, 3268-3279.	2.2	6
59	Multiscale Modeling of Irradiation Induced Hardening in a-Fe, Fe-Cr and Fe-Ni Systems. Materials Research Society Symposia Proceedings, 2010, 1264, 1.	0.1	5
60	A Mesoscale Model of Plasticity: Dislocation Dynamics and Patterning (One-Dimensional). Journal of Engineering Materials and Technology, Transactions of the ASME, 2016, 138, .	1.4	5
61	Stress Patterns of Deformation Induced Planar Dislocation Boundaries. Materials Research Society Symposia Proceedings, 2001, 683, 1.	0.1	4
62	Prediction of flow stress and textures of AZ31 magnesium alloy at elevated temperature. Philosophical Magazine, 2014, 94, 3353-3367.	1.6	4
63	Multiscale Modeling of Dislocation Mechanisms in Nanoscale Multilayered Composites. Materials Research Society Symposia Proceedings, 2008, 1130, 130101.	0.1	3
64	A Continuum Dislocation Dynamics Crystal Plasticity Approach to Irradiated Body-Centered Cubic α-Iron. Journal of Engineering Materials and Technology, Transactions of the ASME, 2022, 144, .	1.4	3
65	Introduction to Discrete Dislocation Dynamics. , 2012, , 289-317.		2
66	Dislocation Density-Based Multiscale Modeling of Deformation and Subgrain Texture in Polycrystals. Jom, 2019, 71, 4136-4143.	1.9	2
67	Multiscale Dislocation-Based Plasticity. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 51-85.	0.6	2
68	Modeling of porosity and grain size effects on mechanical behavior of additively manufactured structures. Additive Manufacturing, 2021, 38, 101833.	3.0	2
69	Modeling of Dislocation Mobility in Metals: Effect of Obstacles and Thermal Processes. Materials Research Society Symposia Proceedings, 2001, 683, 1.	0.1	1
70	Statistical Quantification of the Impact of Surface Preparation on Yield Point Phenomena in Nickel. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 4307-4315.	2.2	1
71	A Continuum Deformation Model for Steel Coated with Nanolaminate Metallic Systems. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2018, 49, 6093-6109.	2.2	1
72	The Interaction of a Circular Dislocation Pile-up with a Short Rigid Fiber: a 3-D Dislocation Dynamics Simulation. Materials Research Society Symposia Proceedings, 2001, 683, 1.	0.1	0

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73	Stochastic Dislocation Dynamics under Creep Conditions in Metals. Materials Research Society Symposia Proceedings, 2002, 731, 171.	0.1	0
74	Special Issue on Multi-Scale Modeling of Plastic Deformation Phenomena. Journal of Engineering Materials and Technology, Transactions of the ASME, 2002, 124, 289-289.	1.4	0
75	Treating internal surfaces and interfaces in discrete dislocation dynamics. Journal of the Mechanical Behavior of Materials, 2011, 20, 13-20.	1.8	0
76	Multiscale Modeling of Irradiation Induced Hardening in Iron Alloys. Materials Research Society Symposia Proceedings, 2012, 1444, 43.	0.1	0
77	A Note on Dislocation Dynamics. Journal of the Society of Mechanical Engineers, 2005, 108, 805-808.	0.0	Ο
78	Challenges Below the Grain Scale and Multiscale Models. , 2011, , 555-590.		0