# Hussein M Zbib

List of Publications by Year
in descending order

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|---|---|---|---|
| 78 papers | 3,040 citations | 201385 27 h-index | 161609 54 g-index |
| 78 all docs | 78 docs citations | 78 times ranked | 1742 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | On plastic deformation and the dynamics of 3D dislocations. International Journal of Mechanical Sciences, 1998, 40, 113-127. | 3.6 | 411 |
| 2 | A multiscale model of plasticity. International Journal of Plasticity, 2002, 18, 1133-1163. | 4.1 | 310 |
| 3 | Multiscale modelling of plastic flow localization in irradiated materials. Nature, 2000, 406, 871-874. | 13.7 | 308 |
| 4 | 3D dislocation dynamics: stressâ€“strain behavior and hardening mechanisms in fcc and bcc metals. Journal of Nuclear Materials, 2000, 276, 154-165. | 1.3 | 135 |
| 5 | Multiscale modeling and simulation of deformation in nanoscale metallic multilayer systems. International Journal of Plasticity, 2014, 52, 33-50. | 4.1 | 128 |
| 6 | Analysis of plastic deformation in nanoscale metallic multilayers with coherent and incoherent interfaces. International Journal of Plasticity, 2011, 27, 1618-1639. | 4.1 | 108 |
| 7 | Multiscale dislocation dynamics simulations of shock compression in copper single crystal. International Journal of Plasticity, 2005, 21, 2369-2390. | 4.1 | 85 |
| 8 | Deformation mechanisms and strength in nanoscale multilayer metallic composites with coherent and incoherent interfaces. Applied Physics Letters, 2009, 94, . | 1.5 | 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. | 0.8 | 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. | 2.6 | 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. | 1.0 | 58 |
| 14 | A dislocation-based model for deformation and size effect in multi-phase steels. International Journal of Plasticity, 2015, 72, 44-59. | 4.1 | 57 |
| 15 | Crystal plasticity: micro-shear banding in polycrystals using voronoi tessellation. International Journal of Plasticity, 1998, 14, 771-788. | 4.1 | 55 |
| 16 | Stress/strain gradient plasticity model for size effects in heterogeneous nano-microstructures. International Journal of Plasticity, 2017, 97, 46-63. | 4.1 | 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. | 0.8 | 46 |
| 18 | Modeling planar dislocation boundaries using multi-scale dislocation dynamics plasticity. International Journal of Plasticity, 2004, 20, 1059-1092. | 4.1 | 42 |

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|---|---|---|---|
| 19 | On dislocation pileups and stress-gradient dependent plastic flow. International Journal of Plasticity, 2015, 74, 1-16. | 4.1 | 37 |
| 20 | Size-dependent strength in nanolaminate metallic systems. Journal of Materials Research, 2011, 26, 1179-1187. | 1.2 | 36 |
| 21 | A stochastic crystal plasticity framework for deformation of micro-scale polycrystalline materials. International Journal of Plasticity, 2015, 68, 21-33. | 4.1 | 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. | 2.6 | 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. | 1.4 | 33 |
| 24 | Crystal Plasticity from Dislocation Dynamics. MRS Bulletin, 2001, 26, 191-195. | 1.7 | 31 |
| 25 | The mechanical response of core-shell structures for nanoporous metallic materials. Philosophical Magazine, 2013, 93, 736-748. | 0.7 | 31 |
| 26 | Stochastic effects in plasticity in small volumes. International Journal of Plasticity, 2014, 52, 117-132. | 4.1 | 31 |
| 27 | 3D printed high performance strain sensors for high temperature applications. Journal of Applied Physics, 2018, 123, . | 1.1 | 30 |
| 28 | Numerical analysis of plane cracks in strain-gradient elastic materials. International Journal of Fracture, 2006, 141, 403-430. | 1.1 | 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. | 2.6 | 28 |
| 30 | Explicit incorporation of cross-slip in a dislocation density-based crystal plasticity model. Philosophical Magazine, 2012, 92, 3084-3100. | 0.7 | 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. | 0.8 | 27 |
| 32 | On the homogeneous nucleation and propagation of dislocations under shock compression. Philosophical Magazine, 2016, 96, 2752-2778. | 0.7 | 27 |
| 33 | Recent advances in modeling of interfaces and mechanical behavior of multilayer metallic/ceramic composites. Journal of Materials Science, 2018, 53, 5604-5617. | 1.7 | 25 |
| 34 | The Somigliana ring dislocation. Journal of Elasticity, 1992, 28, 223-246. | 0.9 | 24 |
| 35 | A multiscale gradient-dependent plasticity model for size effects. Philosophical Magazine, 2016, 96, 1883-1908. | 0.7 | 24 |
| 36 | Energies and distributions of dislocations in stacked pile-ups. International Journal of Solids and Structures, 2010, 47, 1144-1153. | 1.3 | 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. | 1.0 | 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, . | 0.8 | 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. | 2.6 | 22 |
| 40 | A macroscopic model for plastic flow in metal-matrix composites. International Journal of Plasticity, 1995, 11, 471-499. | 4.1 | 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. | 2.6 | 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. | 2.6 | 19 |
| 43 | Crystallographic orientation and indenter radius effects on the onset of plasticity during nanoindentation. Journal of Materials Research, 2012, 27, 3058-3065. | 1.2 | 19 |
| 44 | A predictive discrete-continuum multiscale model of plasticity with quantified uncertainty. International Journal of Plasticity, 2021, 138, 102935. | 4.1 | 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. | 0.8 | 18 |
| 46 | A continuum thermo-inelastic model for damage and healing in self-healing glass materials. International Journal of Plasticity, 2014, 62, 1-16. | 4.1 | 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. | 0.7 | 16 |
| 48 | Molecular dynamics simulations of mechanical behavior in nanoscale ceramicâ€“metallic multilayer composites. Materials Research Letters, 2017, 5, 306-313. | 4.1 | 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. | 2.7 | 13 |
| 51 | Strength and plastic deformation behavior of nanolaminate composites with pre-existing dislocations. Computational Materials Science, 2017, 138, 42-48. | 1.4 | 13 |
| 52 | Pseudoelastic behavior of Cuâ€“Ni composite nanowires. Applied Physics Letters, 2009, 94, . | 1.5 | 12 |
| 53 | Plasticity in Materials with Heterogeneous Microstructures. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 6608-6620. | 1.1 | 12 |
| 54 | Multiscale Discrete Dislocation Dynamics Plasticity. , 2005, , 201-229. | | 10 |

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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. | 1.1 | 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. | 1.1 | 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. | 2.3 | 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. | 1.1 | 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, . | 0.8 | 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. | 0.7 | 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 Î±-Iron. Journal of Engineering Materials and Technology, Transactions of the ASME, 2022, 144, . | 0.8 | 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. | 0.9 | 2 |
| 67 | Multiscale Dislocation-Based Plasticity. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 51-85. | 0.3 | 2 |
| 68 | Modeling of porosity and grain size effects on mechanical behavior of additively manufactured structures. Additive Manufacturing, 2021, 38, 101833. | 1.7 | 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. | 1.1 | 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. | 1.1 | 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. | 0.8 | 0 |
| 75 | Treating internal surfaces and interfaces in discrete dislocation dynamics. Journal of the Mechanical Behavior of Materials, 2011, 20, 13-20. | 0.7 | 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 | 0 |
| 78 | Challenges Below the Grain Scale and Multiscale Models. , 2011, , 555-590. | | 0 |