

# Athanasios Arsenlis

## List of Publications by Year in descending order

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Version: 2024-02-01

60  
papers

5,888  
citations

172457

29  
h-index

128289

60  
g-index

61  
all docs

61  
docs citations

61  
times ranked

3717  
citing authors

#	ARTICLE	IF	CITATIONS
1	Automated identification and indexing of dislocations in crystal interfaces. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2012, 20, 085007.	2.0	1,412
2	Crystallographic aspects of geometrically-necessary and statistically-stored dislocation density. <i>Acta Materialia</i> , 1999, 47, 1597-1611.	7.9	746
3	Enabling strain hardening simulations with dislocation dynamics. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2007, 15, 553-595.	2.0	415
4	A non-singular continuum theory of dislocations. <i>Journal of the Mechanics and Physics of Solids</i> , 2006, 54, 561-587.	4.8	359
5	Modeling the evolution of crystallographic dislocation density in crystal plasticity. <i>Journal of the Mechanics and Physics of Solids</i> , 2002, 50, 1979-2009.	4.8	283
6	Dislocation multi-junctions and strain hardening. <i>Nature</i> , 2006, 440, 1174-1178.	27.8	275
7	On the evolution of crystallographic dislocation density in non-homogeneously deforming crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2004, 52, 1213-1246.	4.8	226
8	A multiscale strength model for extreme loading conditions. <i>Journal of Applied Physics</i> , 2011, 109, .	2.5	161
9	In-situ transmission electron microscopy observations and molecular dynamics simulations of dislocation-defect interactions in ion-irradiated copper. <i>Philosophical Magazine</i> , 2003, 83, 955-967.	1.6	157
10	Grain size effects on dislocation and twinning mediated plasticity in magnesium. <i>Scripta Materialia</i> , 2016, 112, 50-53.	5.2	139
11	A study of microstructural length scale effects on the behaviour of FCC polycrystals using strain gradient concepts. <i>International Journal of Plasticity</i> , 2005, 21, 1797-1814.	8.8	138
12	A dislocation dynamics study of the transition from homogeneous to heterogeneous deformation in irradiated body-centered cubic iron. <i>Acta Materialia</i> , 2012, 60, 3748-3757.	7.9	120
13	Atomistically informed dislocation dynamics in fcc crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2008, 56, 869-895.	4.8	115
14	The role of twinning deformation on the hardening response of polycrystalline magnesium from discrete dislocation dynamics simulations. <i>Acta Materialia</i> , 2015, 92, 126-139.	7.9	112
15	Power-Law Creep from Discrete Dislocation Dynamics. <i>Physical Review Letters</i> , 2012, 109, 265504.	7.8	95
16	Dislocation interactions and low-angle grain boundary strengthening. <i>Acta Materialia</i> , 2011, 59, 7125-7134.	7.9	84
17	A polycrystal plasticity model of strain localization in irradiated iron. <i>Journal of the Mechanics and Physics of Solids</i> , 2013, 61, 341-351.	4.8	84
18	On the elastic-plastic decomposition of crystal deformation at the atomic scale. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2012, 20, 035012.	2.0	78

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19	Dislocation density-based constitutive model for the mechanical behaviour of irradiated Cu. Philosophical Magazine, 2004, 84, 3617-3635.	1.6	73
20	Embedded polycrystal plasticity and adaptive sampling. International Journal of Plasticity, 2008, 24, 242-266.	8.8	72
21	Grain-Size-Independent Plastic Flow at Ultrahigh Pressures and Strain Rates. Physical Review Letters, 2015, 114, 065502.	7.8	67
22	Interfacial dislocation motion and interactions in single-crystal superalloys. Acta Materialia, 2014, 79, 216-233.	7.9	50
23	Orientation influence on grain size effects in ultrafine-grained magnesium. Scripta Materialia, 2015, 97, 25-28.	5.2	50
24	A dislocation dynamics study of the strength of stacking fault tetrahedra. Part I: interactions with screw dislocations. Philosophical Magazine, 2008, 88, 809-840.	1.6	46
25	X-ray diffraction at the National Ignition Facility. Review of Scientific Instruments, 2020, 91, 043902.	1.3	42
26	Adaptive sampling in hierarchical simulation. International Journal for Numerical Methods in Engineering, 2008, 76, 572-600.	2.8	36
27	Dislocation dynamics in hexagonal close-packed crystals. Journal of the Mechanics and Physics of Solids, 2016, 94, 105-126.	4.8	35
28	A multiply parallel implementation of finite element-based discrete dislocation dynamics for arbitrary geometries. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 035014.	2.0	33
29	Extreme Hardening of Pb at High Pressure and Strain Rate. Physical Review Letters, 2019, 123, 205701.	7.8	31
30	Generalized in situ adaptive tabulation for constitutive model evaluation in plasticity. Computer Methods in Applied Mechanics and Engineering, 2006, 196, 1-13.	6.6	27
31	Dislocation-obstacle interactions: Dynamic experiments to continuum modeling. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 400-401, 245-250.	5.6	26
32	Simulations on the growth of dislocation density during Stage 0 deformation in BCC metals. Modelling and Simulation in Materials Science and Engineering, 2003, 11, 251-264.	2.0	25
33	Use of spherical harmonics for dislocation dynamics in anisotropic elastic media. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 065013.	2.0	21
34	Prediction of Precipitation Strengthening in the Commercial Mg Alloy AZ91 Using Dislocation Dynamics. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2018, 49, 1908-1915.	2.2	21
35	A crystal plasticity model for slip in hexagonal close packed metals based on discrete dislocation simulations. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 044001.	2.0	20
36	Calculation of the slip system activity in deformed zinc single crystals using digital 3-D image correlation data. Philosophical Magazine Letters, 2006, 86, 795-805.	1.2	18

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37	Change in flow stress and ductility of $\delta$ -phase Pu-Ga alloys due to self-irradiation damage. Journal of Nuclear Materials, 2005, 336, 31-39.	2.7	17
38	The strength of binary junctions in hexagonal close-packed crystals. Acta Materialia, 2013, 61, 3422-3431.	7.9	16
39	Multiscale strength (MS) models: their foundation, their successes, and their challenges. Journal of Physics: Conference Series, 2014, 500, 112055.	0.4	16
40	A broad study of tantalum strength from ambient to extreme conditions. Acta Materialia, 2022, 231, 117875.	7.9	16
41	The effect of nearly steady shock waves in ramp compression experiments. Journal of Applied Physics, 2015, 117, 245903.	2.5	13
42	GPU-accelerated dislocation dynamics using subcycling time-integration. Modelling and Simulation in Materials Science and Engineering, 2019, 27, 075014.	2.0	13
43	Dislocation dynamics in polycrystalline materials. Modelling and Simulation in Materials Science and Engineering, 2020, 28, 035009.	2.0	12
44	Analytical integration of the forces induced by dislocations on a surface element. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 035004.	2.0	11
45	Implicit integration methods for dislocation dynamics. Modelling and Simulation in Materials Science and Engineering, 2015, 23, 025006.	2.0	11
46	Methods to compute dislocation line tension energy and force in anisotropic elasticity. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 015001.	2.0	10
47	Fast algorithms for evaluating the stress field of dislocation lines in anisotropic elastic media. Modelling and Simulation in Materials Science and Engineering, 2018, 26, 045007.	2.0	10
48	Rayleigh-Taylor strength experiments of the pressure-induced $\delta$ - $\epsilon$ phase transition in iron. AIP Conference Proceedings, 2012, , .	0.4	8
49	Computing forces on interface elements exerted by dislocations in an elastically anisotropic crystalline material. Modelling and Simulation in Materials Science and Engineering, 2016, 24, 055013.	2.0	8
50	A multi-scale strength model with phase transformation. AIP Conference Proceedings, 2012, , .	0.4	5
51	Discrete dislocation dynamics simulations of twin size-effects in magnesium. Materials Research Society Symposia Proceedings, 2015, 1741, 27.	0.1	5
52	Binary dislocation junction formation and strength in hexagonal close-packed crystals. International Journal of Plasticity, 2016, 79, 176-195.	8.8	5
53	Atomistic study of Eshelby's inclusion and inhomogeneity problems in a model bcc crystal. Modelling and Simulation in Materials Science and Engineering, 2011, 19, 085001.	2.0	3
54	Modeling of grain size strengthening in tantalum at high pressures and strain rates. AIP Conference Proceedings, 2017, , .	0.4	3

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55	Modeling laser-driven high-rate plasticity in BCC lead. AIP Conference Proceedings, 2018, , .	0.4	3
56	Dislocation Behavior During Deformation- Combining Experiments, Simulation and Modeling.. Materials Research Society Symposia Proceedings, 2003, 779, 151.	0.1	2
57	Dislocation Dynamics Simulations of Junctions in Hexagonal Close-Packed Crystals. Materials Research Society Symposia Proceedings, 2012, 1424, 67.	0.1	2
58	A multi-wavelength, high-contrast contact radiography system for the study of low-density aerogel foams. Review of Scientific Instruments, 2016, 87, 073706.	1.3	1
59	Uncertainties in Predictions of Material Performance Using Experimental Data That Is Only Distantly Related to the System of Interest. International Federation for Information Processing, 2012, , 294-311.	0.4	1
60	Analytical integration of the tractions induced by non-singular dislocations on an arbitrary shaped triangular quadratic element. Modelling and Simulation in Materials Science and Engineering, 2020, 28, 075001.	2.0	1