

# Athanasios Arsenlis

## List of Publications by Year in descending order

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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	A broad study of tantalum strength from ambient to extreme conditions. <i>Acta Materialia</i> , 2022, 231, 117875.	7.9	16
2	Dislocation dynamics in polycrystalline materials. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2020, 28, 035009.	2.0	12
3	X-ray diffraction at the National Ignition Facility. <i>Review of Scientific Instruments</i> , 2020, 91, 043902.	1.3	42
4	Analytical integration of the tractions induced by non-singular dislocations on an arbitrary shaped triangular quadratic element. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2020, 28, 075001.	2.0	1
5	GPU-accelerated dislocation dynamics using subcycling time-integration. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2019, 27, 075014.	2.0	13
6	Extreme Hardening of Pb at High Pressure and Strain Rate. <i>Physical Review Letters</i> , 2019, 123, 205701.	7.8	31
7	Prediction of Precipitation Strengthening in the Commercial Mg Alloy AZ91 Using Dislocation Dynamics. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2018, 49, 1908-1915.	2.2	21
8	Fast algorithms for evaluating the stress field of dislocation lines in anisotropic elastic media. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2018, 26, 045007.	2.0	10
9	Modeling laser-driven high-rate plasticity in BCC lead. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	3
10	A crystal plasticity model for slip in hexagonal close packed metals based on discrete dislocation simulations. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2017, 25, 044001.	2.0	20
11	Modeling of grain size strengthening in tantalum at high pressures and strain rates. <i>AIP Conference Proceedings</i> , 2017, , .	0.4	3
12	Dislocation dynamics in hexagonal close-packed crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2016, 94, 105-126.	4.8	35
13	A multi-wavelength, high-contrast contact radiography system for the study of low-density aerogel foams. <i>Review of Scientific Instruments</i> , 2016, 87, 073706.	1.3	1
14	Computing forces on interface elements exerted by dislocations in an elastically anisotropic crystalline material. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2016, 24, 055013.	2.0	8
15	Binary dislocation junction formation and strength in hexagonal close-packed crystals. <i>International Journal of Plasticity</i> , 2016, 79, 176-195.	8.8	5
16	Grain size effects on dislocation and twinning mediated plasticity in magnesium. <i>Scripta Materialia</i> , 2016, 112, 50-53.	5.2	139
17	Implicit integration methods for dislocation dynamics. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2015, 23, 025006.	2.0	11
18	Grain-Size-Independent Plastic Flow at Ultrahigh Pressures and Strain Rates. <i>Physical Review Letters</i> , 2015, 114, 065502.	7.8	67

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19	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
20	The effect of nearly steady shock waves in ramp compression experiments. <i>Journal of Applied Physics</i> , 2015, 117, 245903.	2.5	13
21	Discrete dislocation dynamics simulations of twin size-effects in magnesium. <i>Materials Research Society Symposia Proceedings</i> , 2015, 1741, 27.	0.1	5
22	Orientation influence on grain size effects in ultrafine-grained magnesium. <i>Scripta Materialia</i> , 2015, 97, 25-28.	5.2	50
23	A multiply parallel implementation of finite element-based discrete dislocation dynamics for arbitrary geometries. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2014, 22, 035014.	2.0	33
24	Analytical integration of the forces induced by dislocations on a surface element. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2014, 22, 035004.	2.0	11
25	Methods to compute dislocation line tension energy and force in anisotropic elasticity. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2014, 22, 015001.	2.0	10
26	Multiscale strength (MS) models: their foundation, their successes, and their challenges. <i>Journal of Physics: Conference Series</i> , 2014, 500, 112055.	0.4	16
27	Interfacial dislocation motion and interactions in single-crystal superalloys. <i>Acta Materialia</i> , 2014, 79, 216-233.	7.9	50
28	Use of spherical harmonics for dislocation dynamics in anisotropic elastic media. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2013, 21, 065013.	2.0	21
29	The strength of binary junctions in hexagonal close-packed crystals. <i>Acta Materialia</i> , 2013, 61, 3422-3431.	7.9	16
30	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
31	Dislocation Dynamics Simulations of Junctions in Hexagonal Close-Packed Crystals. <i>Materials Research Society Symposia Proceedings</i> , 2012, 1424, 67.	0.1	2
32	Rayleigh-Taylor strength experiments of the pressure-induced $\epsilon$ - $\delta$ phase transition in iron. <i>AIP Conference Proceedings</i> , 2012, , .	0.4	8
33	A multi-scale strength model with phase transformation. <i>AIP Conference Proceedings</i> , 2012, , .	0.4	5
34	Power-Law Creep from Discrete Dislocation Dynamics. <i>Physical Review Letters</i> , 2012, 109, 265504.	7.8	95
35	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
36	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

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37	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
38	Uncertainties in Predictions of Material Performance Using Experimental Data That Is Only Distantly Related to the System of Interest. <i>International Federation for Information Processing</i> , 2012, , 294-311.	0.4	1
39	A multiscale strength model for extreme loading conditions. <i>Journal of Applied Physics</i> , 2011, 109, .	2.5	161
40	Dislocation interactions and low-angle grain boundary strengthening. <i>Acta Materialia</i> , 2011, 59, 7125-7134.	7.9	84
41	Atomistic study of Eshelby's inclusion and inhomogeneity problems in a model bcc crystal. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2011, 19, 085001.	2.0	3
42	Embedded polycrystal plasticity and adaptive sampling. <i>International Journal of Plasticity</i> , 2008, 24, 242-266.	8.8	72
43	Adaptive sampling in hierarchical simulation. <i>International Journal for Numerical Methods in Engineering</i> , 2008, 76, 572-600.	2.8	36
44	Atomistically informed dislocation dynamics in fcc crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2008, 56, 869-895.	4.8	115
45	A dislocation dynamics study of the strength of stacking fault tetrahedra. Part I: interactions with screw dislocations. <i>Philosophical Magazine</i> , 2008, 88, 809-840.	1.6	46
46	Enabling strain hardening simulations with dislocation dynamics. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2007, 15, 553-595.	2.0	415
47	Dislocation multi-junctions and strain hardening. <i>Nature</i> , 2006, 440, 1174-1178.	27.8	275
48	Generalized in situ adaptive tabulation for constitutive model evaluation in plasticity. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2006, 196, 1-13.	6.6	27
49	A non-singular continuum theory of dislocations. <i>Journal of the Mechanics and Physics of Solids</i> , 2006, 54, 561-587.	4.8	359
50	Calculation of the slip system activity in deformed zinc single crystals using digital 3-D image correlation data. <i>Philosophical Magazine Letters</i> , 2006, 86, 795-805.	1.2	18
51	Change in flow stress and ductility of $\hat{\Gamma}$ -phase Pu-Ga alloys due to self-irradiation damage. <i>Journal of Nuclear Materials</i> , 2005, 336, 31-39.	2.7	17
52	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
53	Dislocation-obstacle interactions: Dynamic experiments to continuum modeling. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2005, 400-401, 245-250.	5.6	26
54	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

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55	Dislocation density-based constitutive model for the mechanical behaviour of irradiated Cu. Philosophical Magazine, 2004, 84, 3617-3635.	1.6	73
56	In-situ transmission electron microscopy observations and molecular dynamics simulations of dislocation-defect interactions in ion-irradiated copper. Philosophical Magazine, 2003, 83, 955-967.	1.6	157
57	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
58	Dislocation Behavior During Deformation- Combining Experiments, Simulation and Modeling.. Materials Research Society Symposia Proceedings, 2003, 779, 151.	0.1	2
59	Modeling the evolution of crystallographic dislocation density in crystal plasticity. Journal of the Mechanics and Physics of Solids, 2002, 50, 1979-2009.	4.8	283
60	Crystallographic aspects of geometrically-necessary and statistically-stored dislocation density. Acta Materialia, 1999, 47, 1597-1611.	7.9	746