

Alexander E Mayer

List of Publications by Year in descending order

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105
papers

2,206
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279487

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times ranked

1351
citing authors

#	ARTICLE	IF	CITATIONS
1	Taylor Impact Tests with Copper Cylinders: Experiments, Microstructural Analysis and 3D SPH Modeling with Dislocation Plasticity and MD-Informed Artificial Neural Network as Equation of State. <i>Metals</i> , 2022, 12, 264.	1.0	9
2	Machine-Learning-Based Model of Elastic-Plastic Deformation of Copper for Application to Shock Wave Problem. <i>Metals</i> , 2022, 12, 402.	1.0	10
3	Homogeneous nucleation of dislocations in copper: Theory and approximate description based on molecular dynamics and artificial neural networks. <i>Computational Materials Science</i> , 2022, 206, 111266.	1.4	9
4	Prediction of the strength of aged Al-Cu alloys with non-hybrid and hybrid {1 0 0}Al plates. <i>Computational Materials Science</i> , 2022, 207, 111331.	1.4	6
5	Dynamic compaction of aluminum with nanopores of varied shape: MD simulations and machine-learning-based approximation of deformation behavior. <i>International Journal of Plasticity</i> , 2022, 156, 103363.	4.1	23
6	High- and low-entropy layers in solids behind shock and ramp compression waves. <i>International Journal of Mechanical Sciences</i> , 2021, 189, 105971.	3.6	24
7	Dislocation nucleation in Al single crystal at shear parallel to (111) plane: Molecular dynamics simulations and nucleation theory with artificial neural networks. <i>International Journal of Plasticity</i> , 2021, 139, 102953.	4.1	30
8	APPLICATION OF NEURAL NETWORKS FOR MODELING SHOCK-WAVE PROCESSES IN ALUMINUM. <i>Mechanics of Solids</i> , 2021, 56, 326-342.	0.3	14
9	Influence of γ Phase Cutting on Precipitate Hardening of Al-Cu Alloy during Prolonged Plastic Deformation: Molecular Dynamics and Continuum Modeling. <i>Applied Sciences (Switzerland)</i> , 2021, 11, 4906.	1.3	8
10	Effect of hydrogen- and oxygen-containing heterogeneities on the tensile strength of solid and molten aluminum. <i>Computational Materials Science</i> , 2021, 196, 110563.	1.4	6
11	Prediction of shear strength of cluster-strengthened aluminum with multi-scale approach describing transition from cutting to bypass of precipitates by dislocations. <i>International Journal of Plasticity</i> , 2021, 146, 103095.	4.1	32
12	Micromechanical model of nanoparticle compaction and shock waves in metal powders. <i>International Journal of Plasticity</i> , 2021, 147, 103102.	4.1	13
13	Interaction of dislocation with GP zones or γ phase precipitates in aluminum: Atomistic simulations and dislocation dynamics. <i>International Journal of Plasticity</i> , 2020, 125, 169-190.	4.1	36
14	Plastic deformation at dynamic compaction of aluminum nanopowder: Molecular dynamics simulations and mechanical model. <i>International Journal of Plasticity</i> , 2020, 124, 22-41.	4.1	22
15	Scalability of increase in spall threshold in the presence of cylindrical protrusions on metals surface. <i>Journal of Physics: Conference Series</i> , 2020, 1556, 012029.	0.3	0
16	Dynamics of growth and collapse of nanopores in copper. <i>International Journal of Solids and Structures</i> , 2020, 202, 418-433.	1.3	9
17	Slip of low-angle tilt grain boundary (110) in FCC metals at perpendicular shear. <i>International Journal of Plasticity</i> , 2020, 134, 102843.	4.1	15
18	Strain rate dependence of spall strength for solid and molten lead and tin. <i>International Journal of Fracture</i> , 2020, 222, 171-195.	1.1	26

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19	Coupled model for grain rotation, dislocation plasticity and grain boundary sliding in fine-grained solids. <i>International Journal of Plasticity</i> , 2020, 134, 102776.	4.1	19
20	Prediction of the shear strength of aluminum with $\hat{\Gamma}$ phase inclusions based on precipitate statistics, dislocation and molecular dynamics. <i>International Journal of Plasticity</i> , 2020, 128, 102672.	4.1	37
21	Statistical Distribution of Pores in Solid and Molten Metals at Dynamic Tensile Fracture. <i>Structural Integrity</i> , 2019, , 119-125.	0.8	0
22	Molecular Dynamics Investigation of Dislocation Slip in Pure Metals and Alloys. <i>Structural Integrity</i> , 2019, , 59-64.	0.8	4
23	Evolution of pore ensemble in solid and molten aluminum under dynamic tensile fracture: Molecular dynamics simulations and mechanical models. <i>International Journal of Mechanical Sciences</i> , 2019, 157-158, 816-832.	3.6	39
24	Dislocation dynamics in aluminum containing $\hat{\Gamma}$ phase: Atomistic simulation and continuum modeling. <i>International Journal of Plasticity</i> , 2019, 119, 21-42.	4.1	50
25	Evolution of Size Distribution of Pores in Metal Melts at Tension with High Strain Rates. <i>Structural Integrity</i> , 2019, , 211-214.	0.8	1
26	Why the stone exploded. , 2019, , 148-160.		0
27	Physical nature of strain rate sensitivity of metals and alloys at high strain rates. <i>Journal of Physics: Conference Series</i> , 2018, 991, 012012.	0.3	9
28	Effect of hydrogen on the collective behavior of dislocations in the case of nanoindentation. <i>Acta Materialia</i> , 2018, 148, 18-27.	3.8	25
29	High-speed collision of copper nanoparticles with aluminum surface: Inclined impact, interaction with roughness and multiple impact. <i>Computational Materials Science</i> , 2018, 142, 108-121.	1.4	9
30	Influence of local stresses on motion of edge dislocation in aluminum. <i>International Journal of Plasticity</i> , 2018, 101, 170-187.	4.1	53
31	Influence of deposited nanoparticles on the spall strength of metals under the action of picosecond pulses of shock compression. <i>Journal of Physics: Conference Series</i> , 2018, 946, 012045.	0.3	3
32	Simulation of cylindrical shell collapse with considering plasticity and fracture of metals. <i>Journal of Physics: Conference Series</i> , 2018, 946, 012046.	0.3	0
33	Tensile strength of Fe-Ni and Mg-Al nanocomposites: Molecular dynamic simulations. <i>Journal of Physics: Conference Series</i> , 2018, 946, 012043.	0.3	2
34	Dislocation based plasticity in the case of nanoindentation. <i>International Journal of Mechanical Sciences</i> , 2018, 148, 158-173.	3.6	20
35	Evolution of shock compression pulses in polymethylmethacrylate and aluminum. <i>Journal of Applied Physics</i> , 2018, 123, .	1.1	26
36	Evolution of foamed aluminum melt at high rate tension: A mechanical model based on atomistic simulations. <i>Journal of Applied Physics</i> , 2018, 124, .	1.1	13

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37	Size distribution of pores in metal melts at non-equilibrium cavitation and further stretching, and similarity with the spall fracture of solids. <i>International Journal of Heat and Mass Transfer</i> , 2018, 127, 643-657.	2.5	19
38	Multiscale models of metal behaviour and structural change under the action of high-current electron irradiation. <i>Journal of Physics: Conference Series</i> , 2017, 830, 012072.	0.3	1
39	Comparative study of shock-wave hardening and substructure evolution of 304L and Hadfield steels irradiated with a nanosecond relativistic high-current electron beam. <i>Journal of Alloys and Compounds</i> , 2017, 714, 232-244.	2.8	11
40	Shock-induced compaction of nanoparticle layers into nanostructured coating. <i>Journal of Applied Physics</i> , 2017, 122, .	1.1	18
41	Influence of structure of grain boundaries and size distribution of grains on the yield strength at quasistatic and dynamical loading. <i>Materials Research Express</i> , 2017, 4, 085040.	0.8	14
42	Tensile strength of Al matrix with nanoscale Cu, Ti and Mg inclusions. <i>Journal of Physics: Conference Series</i> , 2016, 774, 012034.	0.3	4
43	Continuum model of tensile fracture of pure aluminum and D16 alloy and its application to the shock wave problems. <i>Journal of Physics: Conference Series</i> , 2016, 774, 012061.	0.3	1
44	Molecular dynamics study of the nucleation rate of nanopores in aluminum at a negative pressure. <i>Journal of Physics: Conference Series</i> , 2016, 774, 012062.	0.3	1
45	Molecular dynamic investigations of the shock pulses interaction with nanostructured free surface of a target. <i>Journal of Physics: Conference Series</i> , 2016, 774, 012060.	0.3	1
46	Late stages of high rate tension of aluminum melt: Molecular dynamic simulation. <i>Journal of Applied Physics</i> , 2016, 120, .	1.1	31
47	Molecular dynamic simulations of the high-speed copper nanoparticles collision with the aluminum surface. <i>Journal of Physics: Conference Series</i> , 2016, 774, 012029.	0.3	0
48	Two-dimensional modeling of high-velocity impingement of polymethylmethacrylate plates. <i>Journal of Physics: Conference Series</i> , 2016, 774, 012066.	0.3	1
49	Meteoroid, Bolide and Meteorite «Chelyabinsk». <i>Materials Science Forum</i> , 2016, 845, 273-284.	0.3	2
50	Weak increase of the dynamic tensile strength of aluminum melt at the insertion of refractory inclusions. <i>Computational Materials Science</i> , 2016, 114, 178-182.	1.4	10
51	High-speed collision of copper nanoparticle with aluminum surface: Molecular dynamics simulation. <i>Applied Surface Science</i> , 2016, 390, 289-302.	3.1	21
52	Melting of aluminum with ideal or defect lattice: Molecular dynamics simulations with accounting of electronic heat conductivity. <i>Journal of Physics: Conference Series</i> , 2016, 774, 012016.	0.3	1
53	Influence of free surface nanorelief on the rear spallation threshold: Molecular-dynamics investigation. <i>Journal of Applied Physics</i> , 2016, 120, 165903.	1.1	8
54	Theoretical interpretation of abnormal ultrafine-grained material deformation dynamics. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2016, 24, 025013.	0.8	11

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55	Simulation and experimental investigation of the spall fracture of 304L stainless steel irradiated by a nanosecond relativistic high-current electron beam. <i>International Journal of Fracture</i> , 2016, 199, 59-70.	1.1	36
56	The definition of characteristic times of plastic relaxation by dislocation slip and grain boundary sliding in copper and nickel. <i>International Journal of Plasticity</i> , 2016, 82, 97-111.	4.1	51
57	Influence of titanium and magnesium nanoinclusions on the strength of aluminum at high-rate tension: Molecular dynamics simulations. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2016, 662, 227-240.	2.6	27
58	Strength of solid and molten aluminum under dynamic tension. <i>JETP Letters</i> , 2015, 102, 80-84.	0.4	13
59	Continuum model of tensile fracture of metal melts and its application to a problem of high-current electron irradiation of metals. <i>Journal of Applied Physics</i> , 2015, 118, .	1.1	34
60	Shear strength of metals under uniaxial deformation and pure shear. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012041.	0.3	5
61	Propagation of shock waves and fracture in the Al-Cu composite: Numerical simulation. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012046.	0.3	0
62	Kinetic model for mechanical twinning and its application for intensive loading of metals. <i>EPJ Web of Conferences</i> , 2015, 94, 04041.	0.1	0
63	Energy approach to kinetics equations for dislocations and twins and its application for high strain rate collision problems. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012042.	0.3	0
64	Multi-scale model of the dynamic fracture of molten and solid metals. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012093.	0.3	5
65	2D simulations of the dynamics and fracture of metals in the energy absorption zone of the high-current electron beam. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012010.	0.3	0
66	Numerical simulation of experiments on the high-speed impact of metal plates. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012044.	0.3	0
67	Initial stage of fracture of aluminum with ideal and defect lattice. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012094.	0.3	3
68	Numerical investigations of shock wave propagation in polymethylmethacrylate. <i>Journal of Physics: Conference Series</i> , 2015, 653, 012045.	0.3	4
69	Influence of copper inclusions on the strength of aluminum matrix at high-rate tension. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2015, 642, 351-359.	2.6	37
70	Structural model of mechanical twinning and its application for modeling of the severe plastic deformation of copper rods in Taylor impact tests. <i>International Journal of Plasticity</i> , 2015, 74, 141-157.	4.1	29
71	Plasticity driven growth of nanovoids and strength of aluminum at high rate tension: Molecular dynamics simulations and continuum modeling. <i>International Journal of Plasticity</i> , 2015, 74, 75-91.	4.1	63
72	Model of fracture of metal melts and the strength of melts under dynamic conditions. <i>Journal of Experimental and Theoretical Physics</i> , 2015, 121, 35-47.	0.2	8

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73	Localization of plastic deformation and mechanical twinning in dynamical channel angular pressing. IOP Conference Series: Materials Science and Engineering, 2014, 63, 012034.	0.3	3
74	Dynamic shear and tensile strength of iron: Continual and atomistic simulation. Mechanics of Solids, 2014, 49, 649-656.	0.3	21
75	Numerical modelling of physical processes and structural changes in metals under intensive irradiation with use of CRS code: dislocations, twinning, evaporation and stress waves. Journal of Physics: Conference Series, 2014, 552, 012002.	0.3	9
76	Modeling of plastic localization in aluminum and Al–Cu alloys under shock loading. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 619, 354-363.	2.6	10
77	Maximum yield strength under quasi-static and high-rate plastic deformation of metals. Physics of the Solid State, 2014, 56, 2470-2479.	0.2	22
78	Dynamics and kinetics of dislocations in Al and Al–Cu alloy under dynamic loading. International Journal of Plasticity, 2014, 55, 94-107.	4.1	86
79	Distribution of dislocations and twins in copper and 18Cr-10Ni-Ti steel under shock-wave loading. Technical Physics, 2014, 59, 1163-1170.	0.2	12
80	Dynamic Fracture of Metals in Solid and Liquid States under Ultra- short Intensive Electron or Laser Irradiation. , 2014, 3, 1890-1895.		4
81	Chelyabinsk Airburst, Damage Assessment, Meteorite Recovery, and Characterization. Science, 2013, 342, 1069-1073.	6.0	487
82	Localization of plastic flow at dynamic channel angular pressing. Technical Physics, 2013, 58, 1159-1163.	0.2	19
83	Modeling of plasticity and fracture of metals at shock loading. Journal of Applied Physics, 2013, 113, .	1.1	87
84	Spall Fracture Patterns for the Heterophase Cu–Al–Ni Alloy in Ultrafine- and Coarse-Grained States Exposed to a Nanosecond Relativistic High-Current Electron Beam. Russian Physics Journal, 2013, 55, 1451-1457.	0.2	17
85	Localization of plastic flow at high-rate simple shear. International Journal of Plasticity, 2013, 51, 188-199.	4.1	18
86	Dynamics and Kinetics of Dislocations in Metals and Alloys Under Dynamic Loading. Materials Research Society Symposia Proceedings, 2012, 1535, 5401.	0.1	1
87	Numerical investigation of the change of dislocation density and microhardness in surface layer of iron targets under the high power ion- and electron-beam treatment. Surface and Coatings Technology, 2012, 212, 79-87.	2.2	15
88	A simple mechanical model for grain boundary sliding in nanocrystalline metals. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2012, 532, 245-248.	2.6	22
89	Yield strength of nanocrystalline materials under high-rate plastic deformation. Physics of the Solid State, 2012, 54, 808-815.	0.2	16
90	Droplet size distribution in a metal evaporated by high-current electron beam. Technical Physics Letters, 2012, 38, 559-561.	0.2	3

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91	Wave attenuation in microcrystal copper at irradiation by a powerful electron beam. Current Applied Physics, 2011, 11, 1315-1318.	1.1	3
92	Elastic waves in suspensions. Acoustical Physics, 2011, 57, 136-143.	0.2	6
93	Deformation behavior and spalling fracture of a heterophase aluminum alloy with ultrafine-grained and coarse-grained structure subjected to a nanosecond relativistic high-current electron beam. Russian Physics Journal, 2011, 54, 713-720.	0.2	18
94	Copper spall fracture under sub-nanosecond electron irradiation. Engineering Fracture Mechanics, 2011, 78, 1306-1316.	2.0	20
95	Dislocation based high-rate plasticity model and its application to plate-impact and ultra short electron irradiation simulations. International Journal of Plasticity, 2011, 27, 1294-1308.	4.1	111
96	Plastic deformation under high-rate loading: The multiscale approach. Physics of the Solid State, 2010, 52, 1386-1396.	0.2	57
97	Mechanisms of metallic nanoparticle generation during an electric explosion of conductors. Technical Physics, 2010, 55, 509-513.	0.2	11
98	Surface microrelief smoothing mechanisms in a target irradiated by an intense charged particle beam. Technical Physics, 2007, 52, 431-439.	0.2	10
99	The action of ultrashort high-power electron beam pulses on metal targets. Technical Physics Letters, 2007, 33, 69-72.	0.2	6
100	On the mechanism of microcrater formation on the surface of a target under the action of a high-power electron beam. Technical Physics Letters, 2006, 32, 424-428.	0.2	7
101	Mechanical stresses in an irradiated target with a disturbed surface. Technical Physics, 2006, 51, 459-465.	0.2	4
102	The dynamics of under surface condensed substance irradiated by intense energy stream. AIP Conference Proceedings, 2006, , .	0.3	2
103	Nonlinear dynamics of the interface between continuous media with different densities. Technical Physics, 2003, 48, 275-283.	0.2	3
104	On the mechanism of cratering on solid surfaces exposed to an intense charged particle beam. Technical Physics, 2002, 47, 968-977.	0.2	15
105	The nonlinear dynamics of the interface between media possessing different densities and symmetries. Technical Physics Letters, 2001, 27, 20-24.	0.2	6