

Alexander E Mayer

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

104
papers

1,554
citations

19
h-index

36
g-index

106
ext. papers

1,880
ext. citations

3
avg, IF

5.49
L-index

#	Paper	IF	Citations
104	Chelyabinsk airburst, damage assessment, meteorite recovery, and characterization. <i>Science</i> , 2013 , 342, 1069-73	33.3	368
103	Dislocation based high-rate plasticity model and its application to plate-impact and ultra short electron irradiation simulations. <i>International Journal of Plasticity</i> , 2011 , 27, 1294-1308	7.6	100
102	Dynamics and kinetics of dislocations in Al and AlCu alloy under dynamic loading. <i>International Journal of Plasticity</i> , 2014 , 55, 94-107	7.6	77
101	Modeling of plasticity and fracture of metals at shock loading. <i>Journal of Applied Physics</i> , 2013 , 113, 1935-1938	5.9	68
100	Plastic deformation under high-rate loading: The multiscale approach. <i>Physics of the Solid State</i> , 2010 , 52, 1386-1396	0.8	52
99	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	7.6	47
98	Influence of local stresses on motion of edge dislocation in aluminum. <i>International Journal of Plasticity</i> , 2018 , 101, 170-187	7.6	42
97	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	7.6	37
96	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, 035903	2.5	30
95	Dislocation dynamics in aluminum containing β phase: Atomistic simulation and continuum modeling. <i>International Journal of Plasticity</i> , 2019 , 119, 21-42	7.6	29
94	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	2.3	27
93	Late stages of high rate tension of aluminum melt: Molecular dynamic simulation. <i>Journal of Applied Physics</i> , 2016 , 120, 075901	2.5	27
92	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	5.3	24
91	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	7.6	24
90	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	5.5	20
89	A simple mechanical model for grain boundary sliding in nanocrystalline metals. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2012 , 532, 245-248	5.3	19
88	Localization of plastic flow at dynamic channel angular pressing. <i>Technical Physics</i> , 2013 , 58, 1159-1163	0.5	19

87	Maximum yield strength under quasi-static and high-rate plastic deformation of metals. <i>Physics of the Solid State</i> , 2014 , 56, 2470-2479	0.8	19
86	Copper spall fracture under sub-nanosecond electron irradiation. <i>Engineering Fracture Mechanics</i> , 2011 , 78, 1306-1316	4.2	19
85	Prediction of the shear strength of aluminum with β phase inclusions based on precipitate statistics, dislocation and molecular dynamics. <i>International Journal of Plasticity</i> , 2020 , 128, 102672	7.6	18
84	Dynamic shear and tensile strength of iron: Continual and atomistic simulation. <i>Mechanics of Solids</i> , 2014 , 49, 649-656	0.5	17
83	Effect of hydrogen on the collective behavior of dislocations in the case of nanoindentation. <i>Acta Materialia</i> , 2018 , 148, 18-27	8.4	16
82	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. <i>Russian Physics Journal</i> , 2011 , 54, 713-720	0.7	16
81	Evolution of shock compression pulses in polymethylmethacrylate and aluminum. <i>Journal of Applied Physics</i> , 2018 , 123, 235902	2.5	16
80	Strain rate dependence of spall strength for solid and molten lead and tin. <i>International Journal of Fracture</i> , 2020 , 222, 171-195	2.3	15
79	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	5.3	15
78	Yield strength of nanocrystalline materials under high-rate plastic deformation. <i>Physics of the Solid State</i> , 2012 , 54, 808-815	0.8	15
77	Spall Fracture Patterns for the Heterophase Cu ₃ AlNi Alloy in Ultrafine- and Coarse-Grained States Exposed to a Nanosecond Relativistic High-Current Electron Beam. <i>Russian Physics Journal</i> , 2013 , 55, 1451-1457	0.7	15
76	Localization of plastic flow at high-rate simple shear. <i>International Journal of Plasticity</i> , 2013 , 51, 188-199	7.6	15
75	High-speed collision of copper nanoparticle with aluminum surface: Molecular dynamics simulation. <i>Applied Surface Science</i> , 2016 , 390, 289-302	6.7	14
74	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	4.9	14
73	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. <i>Surface and Coatings Technology</i> , 2012 , 212, 79-87	4.4	13
72	Interaction of dislocation with GP zones or β phase precipitates in aluminum: Atomistic simulations and dislocation dynamics. <i>International Journal of Plasticity</i> , 2020 , 125, 169-190	7.6	13
71	Plastic deformation at dynamic compaction of aluminum nanopowder: Molecular dynamics simulations and mechanical model. <i>International Journal of Plasticity</i> , 2020 , 124, 22-41	7.6	13
70	Evolution of foamed aluminum melt at high rate tension: A mechanical model based on atomistic simulations. <i>Journal of Applied Physics</i> , 2018 , 124, 035901	2.5	12

69	On the mechanism of cratering on solid surfaces exposed to an intense charged particle beam. <i>Technical Physics</i> , 2002 , 47, 968-977	0.5	12
68	Dislocation based plasticity in the case of nanoindentation. <i>International Journal of Mechanical Sciences</i> , 2018 , 148, 158-173	5.5	12
67	Distribution of dislocations and twins in copper and 18Cr-10Ni-Ti steel under shock-wave loading. <i>Technical Physics</i> , 2014 , 59, 1163-1170	0.5	11
66	Shock-induced compaction of nanoparticle layers into nanostructured coating. <i>Journal of Applied Physics</i> , 2017 , 122, 165901	2.5	11
65	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	1.7	11
64	Strength of solid and molten aluminum under dynamic tension. <i>JETP Letters</i> , 2015 , 102, 80-84	1.2	11
63	High- and low-entropy layers in solids behind shock and ramp compression waves. <i>International Journal of Mechanical Sciences</i> , 2021 , 189, 105971	5.5	11
62	Mechanisms of metallic nanoparticle generation during an electric explosion of conductors. <i>Technical Physics</i> , 2010 , 55, 509-513	0.5	10
61	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	3.2	9
60	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	7.6	8
59	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	5.7	7
58	Theoretical interpretation of abnormal ultrafine-grained material deformation dynamics. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2016 , 24, 025013	2	7
57	Numerical modelling of physical processes and structural changes in metals under intensive irradiation with use of CRS code: dislocations, twinning, evaporation and stress waves. <i>Journal of Physics: Conference Series</i> , 2014 , 552, 012002	0.3	7
56	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	7.6	7
55	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	1	6
54	Modeling of plastic localization in aluminum and AlCu alloys under shock loading. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2014 , 619, 354-363	5.3	6
53	Surface microrelief smoothing mechanisms in a target irradiated by an intense charged particle beam. <i>Technical Physics</i> , 2007 , 52, 431-439	0.5	6
52	On the mechanism of microcrater formation on the surface of a target under the action of a high-power electron beam. <i>Technical Physics Letters</i> , 2006 , 32, 424-428	0.7	6

51	The nonlinear dynamics of the interface between media possessing different densities and symmetries. <i>Technical Physics Letters</i> , 2001 , 27, 20-24	0.7	6
50	APPLICATION OF NEURAL NETWORKS FOR MODELING SHOCK-WAVE PROCESSES IN ALUMINUM. <i>Mechanics of Solids</i> , 2021 , 56, 326-342	0.5	6
49	Slip of low-angle tilt grain boundary (110) in FCC metals at perpendicular shear. <i>International Journal of Plasticity</i> , 2020 , 134, 102843	7.6	5
48	Coupled model for grain rotation, dislocation plasticity and grain boundary sliding in fine-grained solids. <i>International Journal of Plasticity</i> , 2020 , 134, 102776	7.6	5
47	Influence of free surface nanorelief on the rear spallation threshold: Molecular-dynamics investigation. <i>Journal of Applied Physics</i> , 2016 , 120, 165903	2.5	5
46	The action of ultrashort high-power electron beam pulses on metal targets. <i>Technical Physics Letters</i> , 2007 , 33, 69-72	0.7	5
45	Dynamics of growth and collapse of nanopores in copper. <i>International Journal of Solids and Structures</i> , 2020 , 202, 418-433	3.1	5
44	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	3.2	4
43	Dynamic Fracture of Metals in Solid and Liquid States under Ultra- short Intensive Electron or Laser Irradiation 2014 , 3, 1890-1895		4
42	Shear strength of metals under uniaxial deformation and pure shear. <i>Journal of Physics: Conference Series</i> , 2015 , 653, 012041	0.3	4
41	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	3
40	Droplet size distribution in a metal evaporated by high-current electron beam. <i>Technical Physics Letters</i> , 2012 , 38, 559-561	0.7	3
39	Multi-scale model of the dynamic fracture of molten and solid metals. <i>Journal of Physics: Conference Series</i> , 2015 , 653, 012093	0.3	3
38	Initial stage of fracture of aluminum with ideal and defect lattice. <i>Journal of Physics: Conference Series</i> , 2015 , 653, 012094	0.3	3
37	Numerical investigations of shock wave propagation in polymethylmethacrylate. <i>Journal of Physics: Conference Series</i> , 2015 , 653, 012045	0.3	3
36	Localization of plastic deformation and mechanical twinning in dynamical channel angular pressing. <i>IOP Conference Series: Materials Science and Engineering</i> , 2014 , 63, 012034	0.4	3
35	Wave attenuation in microcrystal copper at irradiation by a powerful electron beam. <i>Current Applied Physics</i> , 2011 , 11, 1315-1318	2.6	3
34	Elastic waves in suspensions. <i>Acoustical Physics</i> , 2011 , 57, 136-143	1.1	3

33	Mechanical stresses in an irradiated target with a disturbed surface. <i>Technical Physics</i> , 2006 , 51, 459-465	0.5	3
32	Nonlinear dynamics of the interface between continuous media with different densities. <i>Technical Physics</i> , 2003 , 48, 275-283	0.5	3
31	Limit of Ultra-high Strain Rates in Plastic Response of Metals. <i>Structural Integrity</i> , 2019 , 273-278	0.2	3
30	Influence of α Phase Cutting on Precipitate Hardening of AlCu Alloy during Prolonged Plastic Deformation: Molecular Dynamics and Continuum Modeling. <i>Applied Sciences (Switzerland)</i> , 2021 , 11, 4906	2.6	3
29	Molecular Dynamics Investigation of Dislocation Slip in Pure Metals and Alloys. <i>Structural Integrity</i> , 2019 , 59-64	0.2	2
28	Tensile strength of Al matrix with nanoscale Cu, Ti and Mg inclusions. <i>Journal of Physics: Conference Series</i> , 2016 , 774, 012034	0.3	2
27	Meteoroid, Bolide and Meteorite "Chelyabinsk". <i>Materials Science Forum</i> , 2016 , 845, 273-284	0.4	2
26	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	2
25	Micromechanical model of nanoparticle compaction and shock waves in metal powders. <i>International Journal of Plasticity</i> , 2021 , 147, 103102	7.6	2
24	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	3.2	2
23	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
22	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
21	Dynamics and Kinetics of Dislocations in Metals and Alloys Under Dynamic Loading. <i>Materials Research Society Symposia Proceedings</i> , 2012 , 1535, 5401		1
20	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	2.3	1
19	Evolution of Size Distribution of Pores in Metal Melts at Tension with High Strain Rates. <i>Structural Integrity</i> , 2019 , 211-214	0.2	1
18	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
17	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
16	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	1

15	Two-dimensional modeling of high-velocity impingement of polymethylmethacrylate plates. <i>Journal of Physics: Conference Series</i> , 2016 , 774, 012066	0.3	1
14	Tensile strength of FeNi and MgAl nanocomposites: Molecular dynamic simulations. <i>Journal of Physics: Conference Series</i> , 2018 , 946, 012043	0.3	1
13	Effect of hydrogen- and oxygen-containing heterogeneities on the tensile strength of solid and molten aluminum. <i>Computational Materials Science</i> , 2021 , 196, 110563	3.2	1
12	Machine-Learning-Based Model of ElasticPlastic Deformation of Copper for Application to Shock Wave Problem. <i>Metals</i> , 2022 , 12, 402	2.3	1
11	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	3.2	1
10	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	0
9	Statistical Distribution of Pores in Solid and Molten Metals at Dynamic Tensile Fracture. <i>Structural Integrity</i> , 2019 , 119-125	0.2	
8	Propagation of shock waves and fracture in the AlCu composite: Numerical simulation. <i>Journal of Physics: Conference Series</i> , 2015 , 653, 012046	0.3	
7	Kinetic model for mechanical twinning and its application for intensive loading of metals. <i>EPJ Web of Conferences</i> , 2015 , 94, 04041	0.3	
6	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	
5	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	
4	Numerical simulation of experiments on the high-speed impact of metal plates. <i>Journal of Physics: Conference Series</i> , 2015 , 653, 012044	0.3	
3	Why the stone exploded 2019 , 148-160		
2	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	
1	Simulation of cylindrical shell collapse with considering plasticity and fracture of metals. <i>Journal of Physics: Conference Series</i> , 2018 , 946, 012046	0.3	