Shenyang Hu

List of Publications by Year
in descending order

85 papers	5,120 citations	126708 33 h-index	102304 66 g-index
88 all docs	88 docs citations	88 times ranked	6950 citing authors

#	Article	IF	Citations
1	Mesoporous silicon sponge as an anti-pulverization structure for high-performance lithium-ion battery anodes. Nature Communications, 2014, 5, 4105.	5.8	1,160
2	Effect of substrate constraint on the stability and evolution of ferroelectric domain structures in thin films. Acta Materialia, 2002, 50, 395-411.	3.8	456
3	A phase-field model for evolving microstructures with strong elastic inhomogeneity. Acta Materialia, 2001, 49, 1879-1890.	3.8	367
4	<i>In Situ</i> TEM Study of Lithiation Behavior of Silicon Nanoparticles Attached to and Embedded in a Carbon Matrix. ACS Nano, 2012, 6, 8439-8447.	7.3	321
5	Hierarchical porous silicon structures with extraordinary mechanical strength as high-performance lithium-ion battery anodes. Nature Communications, 2020, 11, 1474.	5.8	298
6	Solute segregation and coherent nucleation and growth near a dislocationâ€”a phase-field model integrating defect and phase microstructures. Acta Materialia, 2001, 49, 463-472.	3.8	177
7	Atomistic calculations of interfacial energies, nucleus shape and size of Î¸â€² precipitates in Alâ€“Cu alloys. Acta Materialia, 2006, 54, 4699-4707.	3.8	137
8	Computer simulation of spinodal decomposition in constrained films. Acta Materialia, 2003, 51, 5173-5185.	3.8	105
9	A review: applications of the phase field method in predicting microstructure and property evolution of irradiated nuclear materials. Npj Computational Materials, 2017, 3, .	3.5	100
10	Phase-field modeling of gas bubbles and thermal conductivity evolution in nuclear fuels. Journal of Nuclear Materials, 2009, 392, 292-300.	1.3	99
11	Hierarchical Materials as Tailored Nuclear Waste Forms: A Perspective. Chemistry of Materials, 2018, 30, 4475-4488.	3.2	98
12	Effect of solutes on dislocation motion â€”a phase-field simulation. International Journal of Plasticity, 2004, 20, 403-425.	4.1	95
13	Simulations of stress-induced twinning and de-twinning: A phase field model. Acta Materialia, 2010, 58, 6554-6564.	3.8	74
14	Spectral implementation of an adaptive moving mesh method for phase-field equations. Journal of Computational Physics, 2006, 220, 498-510.	1.9	72
15	Phase-field simulation of void migration in a temperature gradient. Acta Materialia, 2010, 58, 3230-3237.	3.8	72
16	Phase-field modeling of void lattice formation under irradiation. Journal of Nuclear Materials, 2009, 394, 155-159.	1.3	69
17	An iterative-perturbation scheme for treating inhomogeneous elasticity in phase-field models. Journal of Computational Physics, 2005, 208, 34-50.	1.9	65
18	Phase-field modeling of void migration and growth kinetics in materials under irradiation and temperature field. Journal of Nuclear Materials, 2010, 407, 119-125.	1.3	63

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19	Thermodynamic description and growth kinetics of stoichiometric precipitates in the phase-field approach. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2007, 31, 303-312.	0.7	60
20	Formation mechanism of gas bubble superlattice in UMo metal fuels: Phase-field modeling investigation. Journal of Nuclear Materials, 2016, 479, 202-215.	1.3	54
21	Phase-field simulations of intragranular fission gas bubble evolution in UO2 under post-irradiation thermal annealing. Nuclear Instruments & Methods in Physics Research B, 2013, 303, 62-67.	0.6	50
22	Phase-field model of pitting corrosion kinetics in metallic materials. Npj Computational Materials, 2018, 4, .	3.5	49
23	Spinodal decomposition in a film with periodically distributed interfacial dislocations. Acta Materialia, 2004, 52, 3069-3074.	3.8	47
24	Investigation of the polymorphs and hydrolysis of uranium trioxide. Journal of Radioanalytical and Nuclear Chemistry, 2013, 296, 105-110.	0.7	46
25	Atomistic studies of nucleation of He clusters and bubbles in bcc iron. Nuclear Instruments & Methods in Physics Research B, 2013, 303, 68-71.	0.6	45
26	Simulation of damage evolution in composites: A phase-field model. Acta Materialia, 2009, 57, 2088-2097.	3.8	43
27	Phase-field modeling of stacking structure formation and transition of Î´-hydride precipitates in zirconium. Acta Materialia, 2019, 165, 528-546.	3.8	43
28	Models and simulations of nuclear fuel materials properties. Journal of Alloys and Compounds, 2007, 444-445, 415-423.	2.8	42
29	Assessment of effective thermal conductivity in Uâ€"Mo metallic fuels with distributed gas bubbles. Journal of Nuclear Materials, 2015, 462, 64-76.	1.3	42
30	A phase-field model for deformation twinning. Philosophical Magazine Letters, 2011, 91, 110-121.	0.5	41
31	Diffusion of small He clusters in bulk and grain boundaries in Î±-Fe. Journal of Nuclear Materials, 2013, 442, S667-S673.	1.3	41
32	Diffuse-interface modeling of composition evolution in the presence of structural defects. Computational Materials Science, 2002, 23, 270-282.	1.4	37
33	Perspectives on multiscale modelling and experiments to accelerate materials development for fusion. Journal of Nuclear Materials, 2021, 554, 153113.	1.3	37
34	Atomistic Simulations of Interactions between Cu Precipitates and an Edge Dislocation in a B.C.C. Fe Single Crystal. Physica Status Solidi (B): Basic Research, 2000, 220, 845-846.	0.7	31
35	Computer simulations of interstitial loop growth kinetics in irradiated bcc Fe. Journal of Nuclear Materials, 2012, 427, 259-267.	1.3	29
36	Effect of grain morphology on gas bubble swelling in UMo fuels â€" A 3D microstructure dependent Booth model. Journal of Nuclear Materials, 2016, 480, 323-331.	1.3	28

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37	Atomistic simulations of thermodynamic properties of Xe gas bubbles in U10Mo fuels. Journal of Nuclear Materials, 2017, 490, 49-58.	1.3	26
38	A two-set order parameters phase-field modeling of crack deflection/penetration in a heterogeneous microstructure. Computer Methods in Applied Mechanics and Engineering, 2019, 347, 1085-1104.	3.4	26
39	Modeling the homogenization kinetics of as-cast U-10wt% Mo alloys. Journal of Nuclear Materials, 2016, 471, 154-164.	1.3	24
40	Phase-field simulations of Te-precipitate morphology and evolution kinetics in Te-rich CdTe crystals. Journal of Crystal Growth, 2009, 311, 3184-3194.	0.7	23
41	Non-classical nuclei and growth kinetics of Cr precipitates in FeCr alloys during ageing. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 025002.	0.8	20
42	Phase-field model for grain boundary grooving in multi-component thin films. Modelling and Simulation in Materials Science and Engineering, 2006, 14, 433-443.	0.8	19
43	Investigation of magnetic signatures and microstructures for heat-treated ferritic/martensitic HT-9 alloy. Acta Materialia, 2013, 61, 3285-3296.	3.8	19
44	Mesoscale Phase-Field Modeling of Charge Transport in Nanocomposite Electrodes for Lithium-Ion Batteries. Journal of Physical Chemistry C, 2013, 117, 28-40.	1.5	18
45	A Rate-Theoryâ€"Phase-Field Model of Irradiation-Induced Recrystallization in UMo Nuclear Fuels. Jom, 2017, 69, 2554-2562.	0.9	16
46	Short communication on Kinetics of grain growth and particle pinning in U-10Âwt.% Mo. Journal of Nuclear Materials, 2018, 498, 254-258.	1.3	16
47	Application of the phase-field method in predicting gas bubble microstructure evolution in nuclear fuels. International Journal of Materials Research, 2010, 101, 515-522.	0.1	15
48	Effect of grain structure and strain rate on dynamic recrystallization and deformation behavior: A phase field-crystal plasticity model. Computational Materials Science, 2020, 180, 109707.	1.4	15
49	A quantitative phase-field model of gas bubble evolution in UO2. Computational Materials Science, 2020, 184, 109867.	1.4	14
50	Evolution kinetics of interstitial loops in irradiated materials: a phase-field model. Modelling and Simulation in Materials Science and Engineering, 2012, 20, 015011.	0.8	13
51	Magnesium behavior and structural defects in Mg+ ion implanted silicon carbide. Journal of Nuclear Materials, 2015, 458, 146-155.	1.3	13
52	Recrystallization kinetics of cold-rolled U-10â€¯wt% Mo. Journal of Nuclear Materials, 2019, 513, 56-61.	1.3	13
53	A improved equation of state for Xe gas bubbles in Î³U-Mo fuels. Journal of Nuclear Materials, 2020, 530, 151961.	1.3	13
54	Phase-field modeling of void evolution and swelling in materials under irradiation. Science China: Physics, Mechanics and Astronomy, 2011, 54, 856-865.	2.0	12

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55	Computational and experimental investigations of magnetic domain structures in patterned magnetic thin films. Journal Physics D: Applied Physics, 2015, 48, 305001.	1.3	12
56	The effect of Mn/Ni on thermodynamic properties of critical nucleus in Fe-Cu-Mn (Ni) ternary alloys. Journal of Nuclear Materials, 2018, 507, 59-67.	1.3	12
57	Magnetic hardening from the suppression of domain walls by nonmagnetic particles. IEEE Magnetics Letters, 2013, 4, 3500104-3500104.	0.6	11
58	Thermodynamic and kinetic properties of intrinsic defects and Mg transmutants in 3Câ€“SiC determined by density functional theory. Journal of Nuclear Materials, 2014, 448, 121-128.	1.3	11
59	Nonlinear ultrasonic response of voids and Cu precipitates in body-centered cubic Fe. Journal of Applied Physics, 2018, 124, .	1.1	11
60	A physics-based mesoscale phase-field model for predicting the uptake kinetics of radionuclides in hierarchical nuclear wasteform materials. Computational Materials Science, 2019, 159, 103-109.	1.4	11
61	Microstructure-based model of nonlinear ultrasonic response in materials with distributed defects. Journal of Applied Physics, 2019, 125, .	1.1	11
62	A Potts Model parameter study of particle size, Monte Carlo temperature, and â€œParticle-Assisted Abnormal Grain Growthâ€. Computational Materials Science, 2020, 185, 109945.	1.4	11
63	Defect cluster and nonequilibrium gas bubble associated growth in irradiated UMo fuels â€“ A cluster dynamics and phase field model. Journal of Nuclear Materials, 2020, 542, 152441.	1.3	11
64	Ab initio study of defect properties in YPO4. Computational Materials Science, 2012, 54, 170-175.	1.4	10
65	Phase-field modeling of void anisotropic growth behavior in irradiated zirconium. Computational Materials Science, 2017, 133, 22-34.	1.4	10
66	Predicting Thermal Conductivity Evolution of Polycrystalline Materials Under Irradiation Using Multiscale Approach. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 1060-1069.	1.1	9
67	Simulations of irradiated-enhanced segregation and phase separation in Feâ€“Cuâ€“Mn alloys. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 065007.	0.8	9
68	Simulations of post-recrystallization grain growth in monolithic Uâ€“10Mo fuel processing. Journal of Nuclear Materials, 2019, 526, 151763.	1.3	8
69	Recrystallization and Grain Growth Simulations for Multiple-Pass Rolling and Annealing of U-10Mo. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2020, 51, 533-544.	1.1	8
70	Phase-field modeling of coring structure evolution in Puâ€“Ga alloys. Acta Materialia, 2007, 55, 3641-3648.	3.8	6
71	Simulation of magnetic hysteresis loops and magnetic Barkhausen noise of Î±-iron containing nonmagnetic particles. AIP Advances, 2015, 5, .	0.6	6
72	A Monte Carlo model of irradiation-induced recrystallization in polycrystalline UMo fuels. Journal of Nuclear Materials, 2019, 524, 164-176.	1.3	6

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73	A phase field study of the thermal migration of gas bubbles in UO2 nuclear fuel under temperature gradient. Computational Materials Science, 2020, 183, 109817.	1.4	6
74	Thermal stress-assisted annealing to improve the crystalline quality of an epitaxial YSZ buffer layer on Si. Journal of Materials Chemistry C, 2022, 10, 10027-10036.	2.7	5
75	Interaction of crack-tip and notch-tip stress singularities for circular cylinder in torsion. Theoretical and Applied Fracture Mechanics, 1993, 18, 259-272.	2.1	4
76	Formation and dissociation of shear-induced high-energy dislocations: insight from molecular dynamics simulations. Modelling and Simulation in Materials Science and Engineering, 2022, 30, 025012.	0.8	4
77	The stress intensity of crack-tip and notch-tip in cylinder under torsion. International Journal of Engineering Science, 1995, 33, 447-455.	2.7	3
78	Phase-Field Method Applied to Strain-Dominated Microstructure Evolution during Solid-State Phase Transformations. , 2005, , 271-296.		3
79	Microstructure-Dependent Rate Theory Model of Radiation-Induced Segregation in Binary Alloys. Frontiers in Materials, 2021, 8, .	1.2	3
80	Gas Bubble Evolution in Polycrystalline UMo Fuels Under Elastic-Plastic Deformation: A Phase-Field Model With Crystal-Plasticity. Frontiers in Materials, 2021, 8, .	1.2	3
81	Leaching model of radionuclides in metal-organic framework particles. Computational Materials Science, 2022, 201, 110886.	1.4	2
82	Microstructure-dependent rate theory model of defect segregation and phase stability in irradiated polycrystalline LiAlO₂. Modelling and Simulation in Materials Science and Engineering, 2022, 30, 025005.	0.8	1
83	Investigations into the polymorphs and hydration products of UO₃. , 2012, , .		0
84	Reply to â€œComment on simulation of damage evolution in composites: A phase-field model, by H. Emmerich and D. Pilipenkoâ€• Scripta Materialia, 2012, 66, 128.	2.6	0
85	Simulations of Ion Irradiation Induced Segregation in RPV Model Alloys. Springer Proceedings in Energy, 2018, , 75-84.	0.2	0