

# Shenyang Hu

## List of Publications by Year in Descending Order

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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.

83

papers

3,745

citations

30

h-index

60

g-index

88

ext. papers

4,553

ext. citations

4.6

avg, IF

5.33

L-index

| #  | Paper   | IF   | Citations |
|----|---|------|-----------|
| 83 | Formation and dissociation of shear-induced high-energy dislocations: insight from molecular dynamics simulations. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2022</b> , 30, 025012                      | 2    | 0         |
| 82 | Leaching model of radionuclides in metal-organic framework particles. <i>Computational Materials Science</i> , <b>2022</b> , 201, 110886  | 3.2  | 0         |
| 81 | Microstructure-dependent rate theory model of defect segregation and phase stability in irradiated polycrystalline LiAlO <sub>2</sub> . <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2022</b> , 30, 025005 | 2    |           |
| 80 | Microstructure-Dependent Rate Theory Model of Radiation-Induced Segregation in Binary Alloys. <i>Frontiers in Materials</i> , <b>2021</b> , 8,  | 4    | 1         |
| 79 | Perspectives on multiscale modelling and experiments to accelerate materials development for fusion. <i>Journal of Nuclear Materials</i> , <b>2021</b> , 554, 153113  | 3.3  | 7         |
| 78 | A phase field study of the thermal migration of gas bubbles in UO <sub>2</sub> nuclear fuel under temperature gradient. <i>Computational Materials Science</i> , <b>2020</b> , 183, 109817  | 3.2  | 2         |
| 77 | A quantitative phase-field model of gas bubble evolution in UO <sub>2</sub> . <i>Computational Materials Science</i> , <b>2020</b> , 184, 109867  | 3.2  | 6         |
| 76 | Hierarchical porous silicon structures with extraordinary mechanical strength as high-performance lithium-ion battery anodes. <i>Nature Communications</i> , <b>2020</b> , 11, 1474   | 17.4 | 142       |
| 75 | A improved equation of state for Xe gas bubbles in U-Mo fuels. <i>Journal of Nuclear Materials</i> , <b>2020</b> , 530, 151961  | 3.3  | 3         |
| 74 | Recrystallization and Grain Growth Simulations for Multiple-Pass Rolling and Annealing of U-10Mo. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , <b>2020</b> , 51, 533-544              | 2.3  | 4         |
| 73 | A Potts Model parameter study of particle size, Monte Carlo temperature, and Particle-Assisted Abnormal Grain Growth. <i>Computational Materials Science</i> , <b>2020</b> , 185, 109945  | 3.2  | 5         |
| 72 | Defect cluster and nonequilibrium gas bubble associated growth in irradiated UMo fuels: A cluster dynamics and phase field model. <i>Journal of Nuclear Materials</i> , <b>2020</b> , 542, 152441                                       | 3.3  | 7         |
| 71 | Effect of grain structure and strain rate on dynamic recrystallization and deformation behavior: A phase field-crystal plasticity model. <i>Computational Materials Science</i> , <b>2020</b> , 180, 109707                             | 3.2  | 6         |
| 70 | A two-set order parameters phase-field modeling of crack deflection/penetration in a heterogeneous microstructure. <i>Computer Methods in Applied Mechanics and Engineering</i> , <b>2019</b> , 347, 108511-1104                        | 5.7  | 15        |
| 69 | A physics-based mesoscale phase-field model for predicting the uptake kinetics of radionuclides in hierarchical nuclear wastefrom materials. <i>Computational Materials Science</i> , <b>2019</b> , 159, 103-109                        | 3.2  | 9         |
| 68 | Microstructure-based model of nonlinear ultrasonic response in materials with distributed defects. <i>Journal of Applied Physics</i> , <b>2019</b> , 125, 145108  | 2.5  | 9         |
| 67 | A Monte Carlo model of irradiation-induced recrystallization in polycrystalline UMo fuels. <i>Journal of Nuclear Materials</i> , <b>2019</b> , 524, 164-176   | 3.3  | 2         |

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|----|---|------|----|
| 66 | Simulations of post-recrystallization grain growth in monolithic U10Mo fuel processing. <i>Journal of Nuclear Materials</i> , <b>2019</b> , 526, 151763                                     | 3.3  | 4  |
| 65 | Phase-field modeling of stacking structure formation and transition of hydride precipitates in zirconium. <i>Acta Materialia</i> , <b>2019</b> , 165, 528-546                               | 8.4  | 19 |
| 64 | Recrystallization kinetics of cold-rolled U-10 wt% Mo. <i>Journal of Nuclear Materials</i> , <b>2019</b> , 513, 56-61   | 3.3  | 7  |
| 63 | Short communication on Kinetics of grain growth and particle pinning in U-10wt.% Mo. <i>Journal of Nuclear Materials</i> , <b>2018</b> , 498, 254-258                                       | 3.3  | 13 |
| 62 | Hierarchical Materials as Tailored Nuclear Waste Forms: A Perspective. <i>Chemistry of Materials</i> , <b>2018</b> , 30, 4475-4488  | 9.6  | 69 |
| 61 | Phase-field model of pitting corrosion kinetics in metallic materials. <i>Npj Computational Materials</i> , <b>2018</b> , 4,  | 10.9 | 28 |
| 60 | Nonlinear ultrasonic response of voids and Cu precipitates in body-centered cubic Fe. <i>Journal of Applied Physics</i> , <b>2018</b> , 124, 035104   | 2.5  | 7  |
| 59 | Simulations of Ion Irradiation Induced Segregation in RPV Model Alloys. <i>Springer Proceedings in Energy</i> , <b>2018</b> , 75-84   | 0.2  |    |
| 58 | The effect of Mn/Ni on thermodynamic properties of critical nucleus in Fe-Cu-Mn (Ni) ternary alloys. <i>Journal of Nuclear Materials</i> , <b>2018</b> , 507, 59-67                         | 3.3  | 7  |
| 57 | A review: applications of the phase field method in predicting microstructure and property evolution of irradiated nuclear materials. <i>Npj Computational Materials</i> , <b>2017</b> , 3, | 10.9 | 73 |
| 56 | Atomistic simulations of thermodynamic properties of Xe gas bubbles in U10Mo fuels. <i>Journal of Nuclear Materials</i> , <b>2017</b> , 490, 49-58  | 3.3  | 18 |
| 55 | Simulations of irradiation-enhanced segregation and phase separation in FeCuMn alloys. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2017</b> , 25, 065007      | 2    | 7  |
| 54 | Phase-field modeling of void anisotropic growth behavior in irradiated zirconium. <i>Computational Materials Science</i> , <b>2017</b> , 133, 22-34   | 3.2  | 8  |
| 53 | A Rate-TheoryPhase-Field Model of Irradiation-Induced Recrystallization in UMo Nuclear Fuels. <i>Jom</i> , <b>2017</b> , 69, 2554-2562  | 2.1  | 6  |
| 52 | Modeling the homogenization kinetics of as-cast U-10wt% Mo alloys. <i>Journal of Nuclear Materials</i> , <b>2016</b> , 471, 154-164   | 3.3  | 18 |
| 51 | Formation mechanism of gas bubble superlattice in UMo metal fuels: Phase-field modeling investigation. <i>Journal of Nuclear Materials</i> , <b>2016</b> , 479, 202-215                     | 3.3  | 41 |
| 50 | Effect of grain morphology on gas bubble swelling in UMo fuels A 3D microstructure dependent Booth model. <i>Journal of Nuclear Materials</i> , <b>2016</b> , 480, 323-331                  | 3.3  | 19 |
| 49 | Computational and experimental investigations of magnetic domain structures in patterned magnetic thin films. <i>Journal Physics D: Applied Physics</i> , <b>2015</b> , 48, 305001          | 3    | 10 |

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|----|--|------|-----|
| 48 | Assessment of effective thermal conductivity in UMo metallic fuels with distributed gas bubbles. <i>Journal of Nuclear Materials</i> , <b>2015</b> , 462, 64-76  | 3.3  | 32  |
| 47 | Simulation of magnetic hysteresis loops and magnetic Barkhausen noise of Fe containing nonmagnetic particles. <i>AIP Advances</i> , <b>2015</b> , 5, 077168  | 1.5  | 6   |
| 46 | Magnesium behavior and structural defects in Mg <sup>+</sup> ion implanted silicon carbide. <i>Journal of Nuclear Materials</i> , <b>2015</b> , 458, 146-155   | 3.3  | 10  |
| 45 | Non-classical nuclei and growth kinetics of Cr precipitates in FeCr alloys during ageing. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2014</b> , 22, 025002  | 2    | 14  |
| 44 | Mesoporous silicon sponge as an anti-pulverization structure for high-performance lithium-ion battery anodes. <i>Nature Communications</i> , <b>2014</b> , 5, 4105   | 17.4 | 646 |
| 43 | Thermodynamic and kinetic properties of intrinsic defects and Mg transmutants in 3C2Bc determined by density functional theory. <i>Journal of Nuclear Materials</i> , <b>2014</b> , 448, 121-128   | 3.3  | 7   |
| 42 | Investigation of the polymorphs and hydrolysis of uranium trioxide. <i>Journal of Radioanalytical and Nuclear Chemistry</i> , <b>2013</b> , 296, 105-110   | 1.5  | 33  |
| 41 | Mesoscale Phase-Field Modeling of Charge Transport in Nanocomposite Electrodes for Lithium-Ion Batteries. <i>Journal of Physical Chemistry C</i> , <b>2013</b> , 117, 28-40  | 3.8  | 17  |
| 40 | Investigation of magnetic signatures and microstructures for heat-treated ferritic/martensitic HT-9 alloy. <i>Acta Materialia</i> , <b>2013</b> , 61, 3285-3296  | 8.4  | 14  |
| 39 | Phase-field simulations of intragranular fission gas bubble evolution in UO <sub>2</sub> under post-irradiation thermal annealing. <i>Nuclear Instruments &amp; Methods in Physics Research B</i> , <b>2013</b> , 303, 62-67                   | 1.2  | 37  |
| 38 | Diffusion of small He clusters in bulk and grain boundaries in Fe. <i>Journal of Nuclear Materials</i> , <b>2013</b> , 442, S667-S673  | 3.3  | 29  |
| 37 | Atomistic studies of nucleation of He clusters and bubbles in bcc iron. <i>Nuclear Instruments &amp; Methods in Physics Research B</i> , <b>2013</b> , 303, 68-71  | 1.2  | 36  |
| 36 | . <i>IEEE Magnetics Letters</i> , <b>2013</b> , 4, 3500104-3500104   | 1.6  | 9   |
| 35 | Reply to Comment on simulation of damage evolution in composites: A phase-field model, by H. Emmerich and D. Pilipenko. <i>Scripta Materialia</i> , <b>2012</b> , 66, 128  | 5.6  |     |
| 34 | Computer simulations of interstitial loop growth kinetics in irradiated bcc Fe. <i>Journal of Nuclear Materials</i> , <b>2012</b> , 427, 259-267   | 3.3  | 21  |
| 33 | Predicting Thermal Conductivity Evolution of Polycrystalline Materials Under Irradiation Using Multiscale Approach. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , <b>2012</b> , 43, 1060-1069 | 2.3  | 8   |
| 32 | In situ TEM study of lithiation behavior of silicon nanoparticles attached to and embedded in a carbon matrix. <i>ACS Nano</i> , <b>2012</b> , 6, 8439-47  | 16.7 | 291 |
| 31 | Ab initio study of defect properties in YPO <sub>4</sub> . <i>Computational Materials Science</i> , <b>2012</b> , 54, 170-175  | 3.2  | 9   |

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|----|---|-----|-----|
| 30 | Evolution kinetics of interstitial loops in irradiated materials: a phase-field model. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2012</b> , 20, 015011                        | 2   | 9   |
| 29 | Phase-field modeling of void evolution and swelling in materials under irradiation. <i>Science China: Physics, Mechanics and Astronomy</i> , <b>2011</b> , 54, 856-865  | 3.6 | 8   |
| 28 | A phase-field model for deformation twinning. <i>Philosophical Magazine Letters</i> , <b>2011</b> , 91, 110-121   | 1   | 36  |
| 27 | Application of the phase-field method in predicting gas bubble microstructure evolution in nuclear fuels. <i>International Journal of Materials Research</i> , <b>2010</b> , 101, 515-522                     | 0.5 | 11  |
| 26 | Simulations of stress-induced twinning and de-twinning: A phase field model. <i>Acta Materialia</i> , <b>2010</b> , 58, 6554-6564   | 8.4 | 61  |
| 25 | Phase-field modeling of void migration and growth kinetics in materials under irradiation and temperature field. <i>Journal of Nuclear Materials</i> , <b>2010</b> , 407, 119-125                             | 3.3 | 51  |
| 24 | Phase-field simulation of void migration in a temperature gradient. <i>Acta Materialia</i> , <b>2010</b> , 58, 3230-3237  | 8.4 | 62  |
| 23 | Phase-field simulations of Te-precipitate morphology and evolution kinetics in Te-rich CdTe crystals. <i>Journal of Crystal Growth</i> , <b>2009</b> , 311, 3184-3194   | 1.6 | 20  |
| 22 | Phase-field modeling of gas bubbles and thermal conductivity evolution in nuclear fuels. <i>Journal of Nuclear Materials</i> , <b>2009</b> , 392, 292-300   | 3.3 | 86  |
| 21 | Phase-field modeling of void lattice formation under irradiation. <i>Journal of Nuclear Materials</i> , <b>2009</b> , 394, 155-159  | 3.3 | 62  |
| 20 | Simulation of damage evolution in composites: A phase-field model. <i>Acta Materialia</i> , <b>2009</b> , 57, 2088-2097   | 8.4 | 37  |
| 19 | Phase-field modeling of coring structure evolution in Pu-Ca alloys. <i>Acta Materialia</i> , <b>2007</b> , 55, 3641-3648  | 8.4 | 5   |
| 18 | Thermodynamic description and growth kinetics of stoichiometric precipitates in the phase-field approach. <i>Calphad: Computer Coupling of Phase Diagrams and Thermochemistry</i> , <b>2007</b> , 31, 303-312 | 1.9 | 51  |
| 17 | Models and simulations of nuclear fuel materials properties. <i>Journal of Alloys and Compounds</i> , <b>2007</b> , 444-445, 415-423  | 5.7 | 39  |
| 16 | Phase-field model for grain boundary grooving in multi-component thin films. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2006</b> , 14, 433-443                                 | 2   | 15  |
| 15 | Atomistic calculations of interfacial energies, nucleus shape and size of $\gamma$ precipitates in Al-Cu alloys. <i>Acta Materialia</i> , <b>2006</b> , 54, 4699-4707   | 8.4 | 111 |
| 14 | Spectral implementation of an adaptive moving mesh method for phase-field equations. <i>Journal of Computational Physics</i> , <b>2006</b> , 220, 498-510   | 4.1 | 65  |
| 13 | Phase-Field Method Applied to Strain-Dominated Microstructure Evolution during Solid-State Phase Transformations <b>2005</b> , 271-296  |     | 2   |

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|----|--|-----|-----|
| 12 | An iterative-perturbation scheme for treating inhomogeneous elasticity in phase-field models. <i>Journal of Computational Physics</i> , <b>2005</b> , 208, 34-50                                   | 4.1 | 57  |
| 11 | Effect of solutes on dislocation motion in phase-field simulation. <i>International Journal of Plasticity</i> , <b>2004</b> , 20, 403-425  | 7.6 | 86  |
| 10 | Spinodal decomposition in a film with periodically distributed interfacial dislocations. <i>Acta Materialia</i> , <b>2004</b> , 52, 3069-3074  | 8.4 | 42  |
| 9  | Computer simulation of spinodal decomposition in constrained films. <i>Acta Materialia</i> , <b>2003</b> , 51, 5173-5185   | 8.4 | 89  |
| 8  | Effect of substrate constraint on the stability and evolution of ferroelectric domain structures in thin films. <i>Acta Materialia</i> , <b>2002</b> , 50, 395-411                                 | 8.4 | 392 |
| 7  | Diffuse-interface modeling of composition evolution in the presence of structural defects. <i>Computational Materials Science</i> , <b>2002</b> , 23, 270-282                                      | 3.2 | 37  |
| 6  | A phase-field model for evolving microstructures with strong elastic inhomogeneity. <i>Acta Materialia</i> , <b>2001</b> , 49, 1879-1890   | 8.4 | 320 |
| 5  | Solute segregation and coherent nucleation and growth near a dislocation in phase-field model integrating defect and phase microstructures. <i>Acta Materialia</i> , <b>2001</b> , 49, 463-472     | 8.4 | 160 |
| 4  | Atomistic Simulations of Interactions between Cu Precipitates and an Edge Dislocation in a B.C.C. Fe Single Crystal. <i>Physica Status Solidi (B): Basic Research</i> , <b>2000</b> , 220, 845-846 | 1.3 | 30  |
| 3  | The stress intensity of crack-tip and notch-tip in cylinder under torsion. <i>International Journal of Engineering Science</i> , <b>1995</b> , 33, 447-455   | 5.7 | 2   |
| 2  | Interaction of crack-tip and notch-tip stress singularities for circular cylinder in torsion. <i>Theoretical and Applied Fracture Mechanics</i> , <b>1993</b> , 18, 259-272                        | 3.7 | 4   |
| 1  | Process Modeling of U-10wt% Mo Alloys Using Integrated Computational Materials Engineering   |     | 3   |