

# Zhijie Xu

## List of Publications by Year in descending order

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Version: 2024-02-01

78  
papers

1,778  
citations

304743

22  
h-index

302126

39  
g-index

87  
all docs

87  
docs citations

87  
times ranked

2162  
citing authors

| #  | ARTICLE   | IF   | CITATIONS |
|----|---|------|-----------|
| 1  | Real-time mass spectrometric characterization of the solid–electrolyte interphase of a lithium-ion battery. <i>Nature Nanotechnology</i> , 2020, 15, 224-230.   | 31.5 | 280       |
| 2  | High-Performance Silicon Anodes Enabled By Nonflammable Localized High-Concentration Electrolytes. <i>Advanced Energy Materials</i> , 2019, 9, 1900784.   | 19.5 | 175       |
| 3  | Atomic origins of water-vapour-promoted alloy oxidation. <i>Nature Materials</i> , 2018, 17, 514-518.   | 27.5 | 106       |
| 4  | Modeling of Electric Water Heaters for Demand Response: A Baseline PDE Model. <i>IEEE Transactions on Smart Grid</i> , 2014, 5, 2203-2210.  | 9.0  | 89        |
| 5  | Phase-field modeling of solute precipitation and dissolution. <i>Journal of Chemical Physics</i> , 2008, 129, 014705.   | 3.0  | 72        |
| 6  | Metal oxidation kinetics and the transition from thin to thick films. <i>Physical Chemistry Chemical Physics</i> , 2012, 14, 14534.   | 2.8  | 58        |
| 7  | Formation mechanism of gas bubble superlattice in UMo metal fuels: Phase-field modeling investigation. <i>Journal of Nuclear Materials</i> , 2016, 479, 202-215.  | 2.7  | 54        |
| 8  | Discerning the Location and Nature of Coke Deposition from Surface to Bulk of Spent Zeolite Catalysts. <i>Scientific Reports</i> , 2016, 6, 37586.  | 3.3  | 49        |
| 9  | Investigation of Ion–Solvent Interactions in Nonaqueous Electrolytes Using in Situ Liquid SIMS. <i>Analytical Chemistry</i> , 2018, 90, 3341-3348.  | 6.5  | 41        |
| 10 | Phase field and level set methods for modeling solute precipitation and/or dissolution. <i>Computer Physics Communications</i> , 2012, 183, 15-19.  | 7.5  | 40        |
| 11 | Phase-field modeling of two-dimensional solute precipitation/dissolution: Solid fingers and diffusion-limited precipitation. <i>Journal of Chemical Physics</i> , 2011, 134, 044137.  | 3.0  | 38        |
| 12 | Beyond the standard two-film theory: Computational fluid dynamics simulations for carbon dioxide capture in a wetted wall column. <i>Chemical Engineering Science</i> , 2018, 184, 103-110.   | 3.8  | 35        |
| 13 | Strain rate sensitivity of thermally activated dislocation motion across fields of obstacles of different kind. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2009, 502, 164-171. | 5.6  | 34        |
| 14 | A consistent spatially adaptive smoothed particle hydrodynamics method for fluid–structure interactions. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2019, 347, 402-424.   | 6.6  | 29        |
| 15 | Optimization of Magnesium-Doped Lithium Metal Anode for High Performance Lithium Metal Batteries through Modeling and Experiment. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 16506-16513.   | 13.8 | 28        |
| 16 | Diffuse-interface model for smoothed particle hydrodynamics. <i>Physical Review E</i> , 2009, 79, 036702.   | 2.1  | 27        |
| 17 | A phase-field approach to no-slip boundary conditions in dissipative particle dynamics and other particle models for fluid flow in geometrically complex confined systems. <i>Journal of Chemical Physics</i> , 2009, 130, 234103.                  | 3.0  | 24        |
| 18 | Modeling the homogenization kinetics of as-cast U-10wt% Mo alloys. <i>Journal of Nuclear Materials</i> , 2016, 471, 154-164.  | 2.7  | 24        |

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|----|--|------|-----------|
| 19 | Thermally activated motion of dislocations in fields of obstacles: The effect of obstacle distribution. <i>Physical Review B</i> , 2007, 76, .   | 3.2  | 23        |
| 20 | Dissipative-particle-dynamics model of biofilm growth. <i>Physical Review E</i> , 2011, 83, 066702.  | 2.1  | 23        |
| 21 | A generalized mathematical framework for thermal oxidation kinetics. <i>Journal of Chemical Physics</i> , 2011, 135, 024108.   | 3.0  | 23        |
| 22 | Analytical modeling for redox flow battery design. <i>Journal of Power Sources</i> , 2021, 482, 228817.  | 7.8  | 23        |
| 23 | Development of a coupled thermo-hydro-mechanical model in discontinuous media for carbon sequestration. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2013, 62, 138-147.             | 5.8  | 22        |
| 24 | Dislocation-solute cluster interaction in Al-Mg binary alloys. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2006, 14, 195-206.   | 2.0  | 21        |
| 25 | Simulation of heterogeneous atom probe tip shapes evolution during field evaporation using a level set method and different evaporation models. <i>Computer Physics Communications</i> , 2015, 189, 106-113. | 7.5  | 20        |
| 26 | Discrete-element model for the interaction between ocean waves and sea ice. <i>Physical Review E</i> , 2012, 85, 016703.   | 2.1  | 19        |
| 27 | A fluid pressure and deformation analysis for geological sequestration of carbon dioxide. <i>Computers and Geosciences</i> , 2012, 46, 31-37.  | 4.2  | 19        |
| 28 | Dissipative Particle Dynamics and other particle methods for multiphase fluid flow in fractured and porous media. <i>Progress in Computational Fluid Dynamics</i> , 2009, 9, 399.                            | 0.2  | 18        |
| 29 | Mechanical reliability and life prediction of coated metallic interconnects within solid oxide fuel cells. <i>Renewable Energy</i> , 2017, 113, 1472-1479.   | 8.9  | 18        |
| 30 | A generalized kinetic model for heterogeneous gas-solid reactions. <i>Journal of Chemical Physics</i> , 2012, 137, 074702.   | 3.0  | 17        |
| 31 | Hierarchical calibration and validation of computational fluid dynamics models for solid sorbent-based carbon capture. <i>Powder Technology</i> , 2016, 288, 388-406.  | 4.2  | 17        |
| 32 | Evaluating the impact of aquifer layer properties on geomechanical response during CO2 geological sequestration. <i>Computers and Geosciences</i> , 2013, 54, 28-37.   | 4.2  | 15        |
| 33 | A two-dimensional analytical unit cell model for redox flow battery evaluation and optimization. <i>Journal of Power Sources</i> , 2021, 506, 230192.  | 7.8  | 15        |
| 34 | Hydrodynamics of countercurrent flows in a structured packed column: Effects of initial wetting and dynamic contact angle. <i>Chemical Engineering Journal</i> , 2020, 398, 125548.                          | 12.7 | 15        |
| 35 | Vacancy concentration in Al-Mg solid solutions. <i>Scripta Materialia</i> , 2007, 57, 45-48.   | 5.2  | 13        |
| 36 | A coupled thermal-hydro-mechanical simulation for carbon dioxide sequestration. <i>Environmental Geotechnics</i> , 2016, 3, 312-324.   | 2.3  | 12        |

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|----|---|-----|-----------|
| 37 | Investigation of countercurrent flow profile and liquid holdup in random packed column with local CFD data. <i>Chemical Engineering Science</i> , 2020, 221, 115693.  | 3.8 | 12        |
| 38 | A Reduced-Boundary-Function Method for Convective Heat Transfer With Axial Heat Conduction and Viscous Dissipation. <i>Journal of Heat Transfer</i> , 2012, 134, .  | 2.1 | 11        |
| 39 | Predicting the performance uncertainty of a 1-MW pilot-scale carbon capture system after hierarchical laboratory-scale calibration and validation. <i>Powder Technology</i> , 2017, 312, 58-66.   | 4.2 | 11        |
| 40 | Direct Effect of Solvent Viscosity on the Physical Mass Transfer for Wavy Film Flow in a Packed Column. <i>Industrial &amp; Engineering Chemistry Research</i> , 2019, 58, 17524-17539.   | 3.7 | 11        |
| 41 | A three-dimensional phase field model coupled with a lattice kinetics solver for modeling crystal growth in furnaces with accelerated crucible rotation and traveling magnetic field. <i>Computers and Fluids</i> , 2014, 103, 204-214. | 2.5 | 10        |
| 42 | Uncertainty quantification for the impact of injection rate fluctuation on the geomechanical response of geological carbon sequestration. <i>International Journal of Greenhouse Gas Control</i> , 2014, 20, 160-167.                   | 4.6 | 9         |
| 43 | Effects of heat exchanger tubes on hydrodynamics and CO <sub>2</sub> capture of a sorbent-based fluidized bed reactor. <i>Powder Technology</i> , 2017, 322, 202-213.   | 4.2 | 9         |
| 44 | Homogenization and Upscaling for Diffusion, Heat Conduction, and Wave Propagation in Heterogeneous Materials. <i>Communications in Theoretical Physics</i> , 2012, 57, 348-354.   | 2.5 | 8         |
| 45 | Upscaling of solute transport in heterogeneous media with non-uniform flow and dispersion fields. <i>Applied Mathematical Modelling</i> , 2013, 37, 8533-8542.  | 4.2 | 8         |
| 46 | A finite element model for simulation of carbon dioxide sequestration. <i>Environmental Geotechnics</i> , 2014, 1, 152-160.   | 2.3 | 8         |
| 47 | Hierarchical calibration and validation framework of bench-scale computational fluid dynamics simulations for solvent-based carbon capture. Part 2: Chemical absorption across a wetted wall column. , 2018, 8, 150-160.                |     | 8         |
| 48 | Device-scale computational fluid dynamics modeling of carbon dioxide absorption using encapsulated sorbents. <i>Powder Technology</i> , 2019, 344, 590-597.   | 4.2 | 8         |
| 49 | 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> , 2020, 51, 533-544.                     | 2.2 | 8         |
| 50 | Nonsacrificial Additive for Tuning the Cathode-Electrolyte Interphase of Lithium-Ion Batteries. <i>ACS Applied Materials &amp; Interfaces</i> , 2022, 14, 4111-4118.  | 8.0 | 8         |
| 51 | Hierarchical calibration and validation for modeling bench-scale solvent-based carbon capture. Part 1: Non-reactive physical mass transfer across the wetted wall column. , 2017, 7, 706-720.   |     | 7         |
| 52 | Device-scale CFD modeling of gas-liquid multiphase flow and amine absorption for CO <sub>2</sub> capture. , 2018, 8, 603-620.   |     | 7         |
| 53 | Analytical approximation and numerical studies of one-dimensional elliptic equation with random coefficients. <i>Applied Mathematical Modelling</i> , 2016, 40, 5542-5559.  | 4.2 | 6         |
| 54 | Residence time distribution in a structured packing unit for monitoring aerosol emissions. <i>International Journal of Greenhouse Gas Control</i> , 2018, 79, 181-192.  | 4.6 | 6         |

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|----|--|------|-----------|
| 55 | A discrete element model simulation of structure and bonding at interfaces between cathode and cathode contact paste in solid oxide fuel cells. <i>Renewable Energy</i> , 2020, 157, 998-1007.                     | 8.9  | 6         |
| 56 | Hydrodynamics of countercurrent flow in an additive-manufactured column with triply periodic minimal surfaces for carbon dioxide capture. <i>Chemical Engineering Journal</i> , 2022, 450, 138124.                 | 12.7 | 6         |
| 57 | A Study of Interaction between Embedded SMA Fibers and Host Material. <i>Mechanics of Advanced Materials and Structures</i> , 2006, 13, 33-42.   | 2.6  | 5         |
| 58 | Effect of residual and pre-existing solute clusters on dynamic strain ageing in dilute solid solutions. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2007, 15, 385-396.                  | 2.0  | 5         |
| 59 | Impact of dynamic specimen shape evolution on the atom probe tomography results of doped epitaxial oxide multilayers: Comparison of experiment and simulation. <i>Applied Physics Letters</i> , 2015, 107, 091601. | 3.3  | 5         |
| 60 | Modeling Early-Stage Processes of U-10Wt.%Mo Alloy Using Integrated Computational Materials Engineering Concepts. <i>Jom</i> , 2017, 69, 2532-2537.  | 1.9  | 5         |
| 61 | Poisson-Boltzmann theory with non-linear ion correlations. <i>Journal of Physics Condensed Matter</i> , 2019, 31, 355101.  | 1.8  | 5         |
| 62 | Particle methods for simulation of subsurface multiphase fluid flow and biogeochemical processes. <i>Journal of Physics: Conference Series</i> , 2007, 78, 012047.   | 0.4  | 4         |
| 63 | Homogenization for Periodic Heterogeneous Materials with Arbitrary Position-Dependent Material Properties. <i>Communications in Theoretical Physics</i> , 2012, 58, 189-194.                                       | 2.5  | 4         |
| 64 | A stochastic analysis of steady and transient heat conduction in random media using a homogenization approach. <i>Applied Mathematical Modelling</i> , 2014, 38, 3233-3243.  | 4.2  | 4         |
| 65 | The influence of random packed column parameters on the liquid holdup and interfacial area. <i>AIChE Journal</i> , 2022, 68, .   | 3.6  | 4         |
| 66 | Prediction of grain structure after thermomechanical processing of U-10Mo alloy using sensitivity analysis and machine learning surrogate model. <i>Scientific Reports</i> , 2022, 12, .                           | 3.3  | 4         |
| 67 | A Phase-Field Model Coupled with Lattice Kinetics Solver for Modeling Crystal Growth in Furnaces. <i>Communications in Computational Physics</i> , 2014, 15, 76-92.  | 1.7  | 3         |
| 68 | Modeling selective intergranular oxidation of binary alloys. <i>Journal of Chemical Physics</i> , 2015, 142, 014704.   | 3.0  | 3         |
| 69 | A REDUCED-BOUNDARY-FUNCTION METHOD FOR LONGITUDINAL SOLUTION DISPERSION IN SYMMETRIC CONFINED FLOWS. <i>Chemical Engineering Communications</i> , 2013, 200, 853-862.  | 2.6  | 2         |
| 70 | A coupled discrete element and finite element model for multiscale simulation of geological carbon sequestration. , 2015, 5, 474-486.  |      | 2         |
| 71 | A NUMERICAL STUDY OF TWO-PHASE FLOW AND INTERFACIAL MASS TRANSFER IN A WETTED WALL COLUMN FOR COUNTER-CURRENT GAS ABSORPTION. , 2019, 46, 395-406.   |      | 2         |
| 72 | Quantifying and Qualifying Alloys Based on Level of Homogenization: A U-10Mo Alloy Case Study. <i>Journal of Engineering Materials and Technology</i> , <i>Transactions of the ASME</i> , 2020, 142, .             | 1.4  | 2         |

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|----|--|-----|-----------|
| 73 | Level Set Method for Tip Shape Evolution Simulation for Atom Probe Tomography. <i>Microscopy and Microanalysis</i> , 2015, 21, 841-842.  | 0.4 | 1         |
| 74 | Uncertainty quantification for the reliability of the analytical analysis for the simplified model of CO <sub>2</sub> geological sequestration. , 2015, 5, 141-151.  |     | 1         |
| 75 | Method of model reduction and multifidelity models for solute transport in random layered porous media. <i>Physical Review E</i> , 2017, 96, 033314.   | 2.1 | 1         |
| 76 | Dynamic composition determination in heterogeneous ensembles using angular autocorrelation functions as signatures. <i>Applied Physics Letters</i> , 2013, 102, 223701.  | 3.3 | 0         |
| 77 | Phonon Excitation and Energy Redistribution in Phonon Space for Energy Dissipation and Transport in Lattice Structure with Nonlinear Dispersion. <i>Communications in Theoretical Physics</i> , 2015, 63, 101-108. | 2.5 | 0         |
| 78 | Differentiation of static and dynamic interfacial area in the structured packed column. <i>Chemical Engineering Science</i> , 2022, 260, 117877.   | 3.8 | 0         |