

# Xin Sun

## List of Publications by Year in descending order

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134  
papers

3,650  
citations

136740

32  
h-index

161609

54  
g-index

139  
all docs

139  
docs citations

139  
times ranked

3919  
citing authors

#	ARTICLE	IF	CITATIONS
1	Tensile Strain Switched Ferromagnetism in Layered NbS <sub>2</sub> and NbSe <sub>2</sub> . ACS Nano, 2012, 6, 9727-9736.	7.3	325
2	Macrophages in spinal cord injury: Phenotypic and functional change from exposure to myelin debris. Glia, 2015, 63, 635-651.	2.5	209
3	Effects of fusion zone size and failure mode on peak load and energy absorption of advanced high strength steel spot welds under lap shear loading conditions. Engineering Failure Analysis, 2008, 15, 356-367.	1.8	149
4	Fatigue behaviors of self-piercing rivets joining similar and dissimilar sheet metals. International Journal of Fatigue, 2007, 29, 370-386.	2.8	115
5	Filtered sub-grid constitutive models for fluidized gas-particle flows constructed from 3-D simulations. Chemical Engineering Science, 2016, 152, 443-456.	1.9	114
6	Effect of graphite flake on the mechanical properties of hot pressed ZrB <sub>2</sub> -SiC ceramics. Materials Letters, 2008, 62, 4360-4362.	1.3	106
7	Microstructure and thermal shock behavior of ZrB <sub>2</sub> -SiC-graphite composite. Materials Chemistry and Physics, 2009, 113, 338-341.	2.0	106
8	Predicting plastic flow and irradiation hardening of iron single crystal with mechanism-based continuum dislocation dynamics. International Journal of Plasticity, 2014, 52, 3-17.	4.1	98
9	Dynamic Failure of Borosilicate Glass Under Compression/Shear Loading Experiments. Journal of the American Ceramic Society, 2007, 90, 2556-2562.	1.9	85
10	Determination of sulfonamides in soil samples based on alumina-coated magnetite nanoparticles as adsorbents. Analytica Chimica Acta, 2010, 665, 185-192.	2.6	72
11	Dynamic strength evaluations for self-piercing rivets and resistance spot welds joining similar and dissimilar metals. International Journal of Impact Engineering, 2007, 34, 1668-1682.	2.4	71
12	Predicting Young's modulus of glass/ceramic sealant for solid oxide fuel cell considering the combined effects of aging, micro-voids and self-healing. Journal of Power Sources, 2008, 185, 1193-1200.	4.0	68
13	Carbon Capture Simulation Initiative: A Case Study in Multiscale Modeling and New Challenges. Annual Review of Chemical and Biomolecular Engineering, 2014, 5, 301-323.	3.3	66
14	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
15	Performance Optimization of Self-Piercing Rivets Through Analytical Rivet Strength Estimation. Journal of Manufacturing Processes, 2005, 7, 83-93.	2.8	57
16	Microstructure, mechanical properties and thermal shock resistance of zirconium diboride containing silicon carbide ceramic toughened by carbon black. Materials Chemistry and Physics, 2010, 122, 470-473.	2.0	56
17	Effects of Intercritical Annealing Temperature on Mechanical Properties of Fe-7.9Mn-0.14Si-0.05Al-0.07C Steel. Materials, 2014, 7, 7891-7906.	1.3	54
18	A quasi-two-dimensional electrochemistry modeling tool for planar solid oxide fuel cell stacks. Journal of Power Sources, 2011, 196, 3204-3222.	4.0	52

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19	Three-dimensional simulation of rivulet and film flows over an inclined plate: Effects of solvent properties and contact angle. <i>Chemical Engineering Science</i> , 2016, 142, 244-257.	1.9	52
20	Quasi-static and dynamic responses of advanced high strength steels: Experiments and modeling. <i>International Journal of Plasticity</i> , 2012, 30-31, 1-17.	4.1	51
21	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> , 2013, 303, 62-67.	0.6	50
22	Modeling of Glass Fracture Damage Using Continuum Damage Mechanics - Static Spherical Indentation. <i>International Journal of Damage Mechanics</i> , 2004, 13, 263-285.	2.4	48
23	Synthesis of ordered mesoporous boron-containing carbon films and their corrosion behavior in simulated proton exchange membrane fuel cells environment. <i>Journal of Power Sources</i> , 2012, 212, 1-12.	4.0	47
24	Modeling of Stone-impact Resistance of Monolithic Glass Ply Using Continuum Damage Mechanics. <i>International Journal of Damage Mechanics</i> , 2005, 14, 165-178.	2.4	43
25	Effect of surface oxidation on thermal shock resistance of ZrB <sub>2</sub> -SiC-G composite. <i>International Journal of Refractory Metals and Hard Materials</i> , 2010, 28, 280-285.	1.7	43
26	A phase-field model for deformation twinning. <i>Philosophical Magazine Letters</i> , 2011, 91, 110-121.	0.5	41
27	Structural and electrochemical characterization of ordered mesoporous carbon-reduced graphene oxide nanocomposites. <i>Journal of Materials Chemistry</i> , 2012, 22, 10900.	6.7	41
28	Microstructure and mechanical properties of ZrB <sub>2</sub> -Nb composite. <i>International Journal of Refractory Metals and Hard Materials</i> , 2010, 28, 472-474.	1.7	39
29	Nanoindentation study of electrodeposited Ag thin coating: An inverse calculation of anisotropic elastic-plastic properties. <i>Surface and Coatings Technology</i> , 2017, 310, 43-50.	2.2	38
30	Modeling and characterization of dynamic failure of borosilicate glass under compression/shear loading. <i>International Journal of Impact Engineering</i> , 2009, 36, 226-234.	2.4	37
31	Determining Individual Phase Flow Properties in a Quench and Partitioning Steel with In Situ High-Energy X-Ray Diffraction and Multiphase Elasto-Plastic Self-Consistent Method. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2016, 47, 5733-5749.	1.1	34
32	Deformation mode and strain path dependence of martensite phase transformation in a medium manganese TRIP steel. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2018, 711, 611-623.	2.6	33
33	Verification of sub-grid filtered drag models for gas-particle fluidized beds with immersed cylinder arrays. <i>Chemical Engineering Science</i> , 2014, 114, 144-154.	1.9	32
34	In Situ Local Measurement of Austenite Mechanical Stability and Transformation Behavior in Third-Generation Advanced High-Strength Steels. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2018, 49, 2583-2596.	1.1	32
35	Additively manufactured packed bed device for process intensification of CO <sub>2</sub> absorption and other chemical processes. <i>Chemical Engineering Journal</i> , 2020, 388, 124092.	6.6	31
36	Computer simulations of interstitial loop growth kinetics in irradiated bcc Fe. <i>Journal of Nuclear Materials</i> , 2012, 427, 259-267.	1.3	29

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37	3D printed structures for optimized carbon capture technology in packed bed columns. Separation Science and Technology, 2019, 54, 2047-2058.	1.3	29
38	Creep properties of solid oxide fuel cell glass-ceramic seal G18. Journal of Power Sources, 2010, 195, 3631-3635.	4.0	26
39	Novel synthesis of reduced graphene oxide-ordered mesoporous carbon composites and their application in electrocatalysis. Electrochimica Acta, 2013, 90, 53-62.	2.6	26
40	Sub-grid drag models for horizontal cylinder arrays immersed in gas-particle multiphase flows. Chemical Engineering Science, 2013, 104, 399-412.	1.9	25
41	A 2.5D computational method to simulate cylindrical fluidized beds. Chemical Engineering Science, 2015, 123, 236-246.	1.9	25
42	Formation mechanism for the nanoscale amorphous interface in pulse-welded Al/Fe bimetallic systems. Applied Physics Letters, 2016, 108, .	1.5	24
43	Hydrodynamics of the rivulet flow over corrugated sheet used in structured packings. International Journal of Greenhouse Gas Control, 2017, 64, 87-98.	2.3	24
44	Myelin Basic Protein Induces Neuron-Specific Toxicity by Directly Damaging the Neuronal Plasma Membrane. PLoS ONE, 2014, 9, e108646.	1.1	24
45	Comparison of Different Upscaling Methods for Predicting Thermal Conductivity of Complex Heterogeneous Materials System: Application on Nuclear Waste Forms. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2013, 44, 61-69.	1.1	23
46	A discrete element method-based approach to predict the breakage of coal. Advanced Powder Technology, 2017, 28, 2665-2677.	2.0	23
47	Microstructure, property and processing relation in gradient porous cathode of solid oxide fuel cells using statistical continuum mechanics. Journal of Power Sources, 2011, 196, 6325-6331.	4.0	22
48	Hydrogenated Graphene Nanoflakes: Semiconductor to Half-Metal Transition and Remarkable Large Magnetism. Journal of Physical Chemistry C, 2012, 116, 5531-5537.	1.5	22
49	Synthesis of mesoporous carbon-silica-polyaniline and nitrogen-containing carbon-silica films and their corrosion behavior in simulated proton exchange membrane fuel cells environment. Journal of Power Sources, 2011, 196, 9552-9560.	4.0	21
50	Study of magnetic field to promote oxygen transfer and its application in zinc-air fuel cells. Electrochimica Acta, 2013, 90, 44-52.	2.6	21
51	Effect of nickel-phosphorus interactions on structural integrity of anode-supported solid oxide fuel cells. Journal of Power Sources, 2010, 195, 7140-7145.	4.0	20
52	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
53	Bayesian Treed Multivariate Gaussian Process With Adaptive Design: Application to a Carbon Capture Unit. Technometrics, 2014, 56, 145-158.	1.3	20
54	Experimental Study of the Aging and Self-Healing of the Glass/Ceramic Sealant Used in SOFCs. International Journal of Applied Ceramic Technology, 2010, 7, 22-29.	1.1	19

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55	An engineering prototype of Hadamard transform spectral imager based on Digital Micro-mirror Device. <i>Optics and Laser Technology</i> , 2012, 44, 210-217.	2.2	19
56	Determination of carbon distributions in quenched and partitioned microstructures using nanoscale secondary ion mass spectroscopy. <i>Scripta Materialia</i> , 2015, 104, 79-82.	2.6	19
57	Breakup of a liquid rivulet falling over an inclined plate: Identification of a critical Weber number. <i>Physics of Fluids</i> , 2017, 29, 052101.	1.6	19
58	Representation of correlation statistics functions in heterogeneous materials using layered fast spherical harmonics expansion. <i>Computational Materials Science</i> , 2010, 48, 133-139.	1.4	18
59	A continuum thermo-elastic model for damage and healing in self-healing glass materials. <i>International Journal of Plasticity</i> , 2014, 62, 1-16.	4.1	18
60	Towards an integrated experimental and computational framework for large-scale metal additive manufacturing. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2019, 761, 138057.	2.6	18
61	Process intensification of CO <sub>2</sub> capture by low-aqueous solvent. <i>Chemical Engineering Journal</i> , 2021, 426, 131240.	6.6	18
62	Shear Band Initiation of Brittle Damage Materials. <i>International Journal of Damage Mechanics</i> , 1996, 5, 403-421.	2.4	17
63	Modeling of irradiation hardening of polycrystalline materials. <i>Computational Materials Science</i> , 2011, 50, 2496-2501.	1.4	17
64	A generalized kinetic model for heterogeneous gas-solid reactions. <i>Journal of Chemical Physics</i> , 2012, 137, 074702.	1.2	17
65	Hierarchical calibration and validation of computational fluid dynamics models for solid sorbent-based carbon capture. <i>Powder Technology</i> , 2016, 288, 388-406.	2.1	17
66	An Intelligent Model for Software Project Risk Prediction. , 2009, , .		16
67	Process intensification of CO <sub>2</sub> absorption using a 3D printed intensified packing device. <i>AIChE Journal</i> , 2020, 66, e16285.	1.8	16
68	Modeling of Friction Stir Welding (FSW) Process with Smooth Particle Hydrodynamics (SPH). , 0, , .		15
69	Application of the phase-field method in predicting gas bubble microstructure evolution in nuclear fuels. <i>International Journal of Materials Research</i> , 2010, 101, 515-522.	0.1	15
70	A mechanistic-based healing model for self-healing glass seals used in solid oxide fuel cells. <i>Journal of Power Sources</i> , 2012, 218, 445-454.	4.0	15
71	Multiscale Modeling of Inclusions and Precipitation Hardening in Metal Matrix Composites: Application to Advanced High-Strength Steels. <i>Journal of Nanomechanics &amp; Micromechanics</i> , 2013, 3, 24-33.	1.4	15
72	Creep Behavior of Glass/Ceramic Sealant and its Effect on Long-Term Performance of Solid Oxide Fuel Cells. <i>International Journal of Applied Ceramic Technology</i> , 2011, 8, 49-59.	1.1	14

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73	Evolution kinetics of interstitial loops in irradiated materials: a phase-field model. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2012, 20, 015011.	0.8	13
74	Multiphase flow simulations of a moving fluidized bed regenerator in a carbon capture unit. <i>Powder Technology</i> , 2014, 265, 35-46.	2.1	13
75	Mechanistic based DEM simulation of particle attrition in a jet cup. <i>Powder Technology</i> , 2014, 253, 385-392.	2.1	13
76	In situ neutron diffraction in quantifying deformation behaviors of nano-sized carbide strengthened UFG ferritic steel. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2018, 726, 298-308.	2.6	13
77	Phase-field modeling of void evolution and swelling in materials under irradiation. <i>Science China: Physics, Mechanics and Astronomy</i> , 2011, 54, 856-865.	2.0	12
78	Effects of platinum on photo-assisted electrocatalytic activity of fringe-shaped highly ordered mesoporous titanium dioxide film. <i>Journal of Power Sources</i> , 2012, 208, 58-66.	4.0	12
79	Quantifying Grain Level Stress-Strain Behavior for AM40 via Instrumented Microindentation. <i>MRS Advances</i> , 2016, 1, 761-772.	0.5	11
80	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.	2.1	11
81	Effects of Failure Modes on Strength of Aluminum Resistance Spot Welds. , 0, , .		10
82	Mathematical model for spreading dynamics of social network worms. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2012, 2012, P04009.	0.9	10
83	Effects of Bi Addition on the Microstructure and Mechanical Properties of Nanocrystalline Ag Coatings. <i>Materials</i> , 2017, 10, 932.	1.3	10
84	Interfacial Shear Strength of Oxide Scale and SS 441 Substrate. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2011, 42, 1222-1228.	1.1	9
85	Uniformly dispersed pt nanoparticles as fuel-cell catalyst supported onto ordered mesoporous carbon-silica composites. <i>Electrochimica Acta</i> , 2012, 63, 318-322.	2.6	9
86	Predicting Thermal Conductivity Evolution of Polycrystalline Materials Under Irradiation Using Multiscale Approach. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2012, 43, 1060-1069.	1.1	9
87	Particle-scale CO <sub>2</sub> adsorption kinetics modeling considering three reaction mechanisms. <i>International Journal of Greenhouse Gas Control</i> , 2013, 17, 388-396.	2.3	9
88	Effects of Pore Distributions on Ductility of Thin-Walled High Pressure Die-Cast Magnesium. , 0, , .		9
89	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.	2.1	9
90	Modeling electrokinetics in ionic liquids. <i>Electrophoresis</i> , 2017, 38, 1693-1705.	1.3	8

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91	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
92	Effects of Fusion Zone Size on Failure Modes and Performance of Advanced High Strength Steel Spot Welds. , 0, , .		7
93	Analysis of Percent On-Cell Reformation of Methane in SOFC Stacks and the Effects on Thermal, Electrical, and Mechanical Performance. ECS Transactions, 2007, 5, 473-478.	0.3	7
94	Formation mechanism of micro-arc oxidation coatings formed on ZrB <sub>2</sub> -SiC ceramics. Materials Chemistry and Physics, 2010, 120, 417-420.	2.0	7
95	Materials Design of All-Cellulose Composite Using Microstructure Based Finite Element Analysis. Journal of Engineering Materials and Technology, Transactions of the ASME, 2012, 134, .	0.8	7
96	Identify structural flaw location and type with an inverse algorithm of resonance inspection. JVC/Journal of Vibration and Control, 2015, 21, 2685-2696.	1.5	7
97	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
98	Device-scale CFD modeling of gas-liquid multiphase flow and amine absorption for CO <sub>2</sub> capture. , 2018, 8, 603-620.		7
99	Ultrasonic welding of AZ31B magnesium alloy. MRS Bulletin, 2019, 44, 630-636.	1.7	7
100	A mechanism-based quantitative multi-scale framework for investigating irradiation hardening of tungsten at low temperature. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2020, 774, 138941.	2.6	7
101	A Framework for Modeling Spot Welds in Finite Element Analysis of Auto-Body Structures. , 1999, , .		6
102	Development of an Inverse Algorithm for Resonance Inspection. Journal of Vibration and Acoustics, Transactions of the ASME, 2012, 134, .	1.0	6
103	Dynamic response performance of proton exchange membrane fuel cell stack with Pt/C-RuO <sub>2</sub> -xH <sub>2</sub> O electrode. Journal of Power Sources, 2013, 242, 99-105.	4.0	6
104	Integrated Computational Materials Engineering (ICME) for Third Generation Advanced High-Strength Steel Development. , 0, , .		6
105	Predicting Stress vs. Strain Behaviors of Thin-Walled High Pressure Die Cast Magnesium Alloy with Actual Pore Distribution. SAE International Journal of Materials and Manufacturing, 0, 9, 361-367.	0.3	6
106	Effects of Oxide Thickness on Scale and Interface Stresses under Isothermal Cooling and Micro-Indentation for Ferritic Stainless Steel Interconnect. ECS Transactions, 2007, 5, 357-368.	0.3	5
107	Mechanism-based representative volume elements (RVEs) for predicting property degradations in multiphase materials. Computational Materials Science, 2013, 68, 152-159.	1.4	5
108	Modeling deformation and failure in AlSi-polyester abrasible sealcoating material using microstructure-based finite element simulation. Materials and Design, 2022, 219, 110791.	3.3	5

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109	Modeling of Resistance Spot Welds:From Process to Performance. , 0, , .		4
110	Modeling and Characterization of Dynamic Failure of Soda-lime Glass Under High-Speed Impact. International Journal of Damage Mechanics, 2012, 21, 577-598.	2.4	4
111	Integrated Computational Materials Engineering (ICME) Multi-Scale Model Development for Advanced High Strength Steels. , 2017, , .		4
112	Surface engineering to enhance heat generation and joint strength in dissimilar materials AZ31 and DP590 ultrasonic welding. International Journal of Advanced Manufacturing Technology, 2020, 111, 3095-3109.	1.5	4
113	Investigation of Forming Performance of Laminated Steel Sheets Using Finite Element Analyses. AIP Conference Proceedings, 2007, , .	0.3	3
114	Relationship between Material Properties and Local Formability of DP980 Steels. , 2012, , .		3
115	Effects of Constituent Properties on Performance Improvement of a Quenching and Partitioning Steel. , 2014, , .		3
116	An integrated two-dimensional modeling method for predicting ductility of thin-walled die cast magnesium. International Journal of Fracture, 2019, 219, 203-220.	1.1	3
117	Examining deformation localization of irradiated tungsten under uniaxial compression with crystal plasticity. International Journal of Refractory Metals and Hard Materials, 2021, 100, 105637.	1.7	3
118	Migration of defect clusters and xenon-vacancy clusters in uranium dioxide. International Journal of Modern Physics B, 2014, 28, 1450120.	1.0	2
119	Effects of Forming Induced Phase Transformation on Crushing Behavior of TRIP Steel. , 0, , .		1
120	Loading Path Dependence of Forming Limit Diagram of a TRIP800 Steel. SAE International Journal of Materials and Manufacturing, 2011, 4, 75-83.	0.3	1
121	Multi-Phase CFD Modeling of a Solid Sorbent Carbon Capture System. , 2012, , .		1
122	Preparation and Electromagnetic Characteristics of Flake Shaped Carbonyl Iron-Zinc Oxide Nanocomposites. , 2015, , .		1
123	A Discrete Element Model of Armor Glass Fragmentation and Comminution Failure Under Compression. International Journal of Applied Glass Science, 2016, 7, 503-512.	1.0	1
124	Structural Bifurcation of Side Members in Vehicle Frontal Impact. , 0, , .		0
125	Impact of human factors on email worm propagation. , 2009, , .		0
126	Dynamic Replica Selection Using Improved Kernel Density Estimation. , 2010, , .		0



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127	Multiscale Modeling of Irradiation Induced Hardening in Iron Alloys. Materials Research Society Symposia Proceedings, 2012, 1444, 43.	0.1	0
128	Ambiguity-Function-Based Methods for Near-Field Source Localization. Applied Mechanics and Materials, 2012, 160, 395-399.	0.2	0
129	Modeling of TWIP Steel Tensile Behavior with Crystal Plasticity Finite Element Method. Advanced Materials Research, 0, 926-930, 162-165.	0.3	0
130	Molecular Dynamics Simulation of Thermodynamic Properties in Uranium Dioxide. Nuclear Science and Engineering, 2014, 176, 360-369.	0.5	0
131	The Role of Second Phase Hard Particles on Hole Stretchability of Two AA6xxx Alloys. , 0, , .		0
132	An Inverse Algorithm for Resonance Inspection. , 2012, , .		0
133	Energetics and Length Scales of Point Defect and Element Segregation to Grain Boundaries in $\hat{1}\pm$ -Fe. , 0, , 727-736.		0
134	A comparison of different NDE signal processing techniques based on waveform entropies applied to long fiber-graphite/epoxy-plates. Proceedings of SPIE, 2017, , .	0.8	0