Wenxiang Xu

List of Publications by Year
in descending order

74 papers	2,400 citations	147786 31 h-index	233409 45 g-index
75 all docs	75 docs citations	75 times ranked	1046 citing authors

#	ARTICLE	IF	CITATIONS
1	Random aggregate model for mesoscopic structures and mechanical analysis of fully-graded concrete. Computers and Structures, 2016, 177, 103-113.	4.4	157
2	Aggregate shape effect on the diffusivity of mortar: A 3D numerical investigation by random packing models of ellipsoidal particles and of convex polyhedral particles. Computers and Structures, 2014, 144, 40-51.	4.4	127
3	A general micromechanical framework of effective moduli for the design of nonspherical nano- and micro-particle reinforced composites with interface properties. Materials and Design, 2017, 127, 162-172.	7.0	99
4	Characterizing the creep of viscoelastic materials by fractal derivative models. International Journal of Non-Linear Mechanics, 2016, 87, 58-63.	2.6	79
5	Theoretical framework for percolation threshold, tortuosity and transport properties of porous materials containing 3D non-spherical pores. International Journal of Engineering Science, 2019, 134, 31-46.	5.0	76
6	Analytical effective elastic properties of particulate composites with soft interfaces around anisotropic particles. Composites Science and Technology, 2016, 129, 10-18.	7.8	71
7	Numerical investigation of effect of particle shape and particle size distribution on fresh cement paste microstructure via random sequential packing of dodecahedral cement particles. Computers and Structures, 2013, 114-115, 35-45.	4.4	60
8	Effects of particle size distribution, shape and volume fraction of aggregates on the wall effect of concrete via random sequential packing of polydispersed ellipsoidal particles. Physica A: Statistical Mechanics and Its Applications, 2013, 392, 416-426.	2.6	60
9	Effective elastic moduli of nonspherical particle-reinforced composites with inhomogeneous interphase considering graded evolutions of elastic modulus and porosity. Computer Methods in Applied Mechanics and Engineering, 2019, 350, 535-553.	6.6	57
10	An overlapping detection algorithm for random sequential packing of elliptical particles. Physica A: Statistical Mechanics and Its Applications, 2011, 390, 2452-2467.	2.6	56
11	Random non-convex particle model for the fraction of interfacial transition zones (ITZs) in fully-graded concrete. Powder Technology, 2018, 323, 301-309.	4.2	53
12	Mesostructural characterization of particulate composites via a contact detection algorithm of ellipsoidal particles. Powder Technology, 2012, 221, 296-305.	4.2	51
13	Continuum percolation of congruent overlapping spherocylinders. Physical Review E, 2016, 94, 032122.	2.1	49
14	Thermal conductivity and tortuosity of porous composites considering percolation of porous network: From spherical to polyhedral pores. Composites Science and Technology, 2018, 167, 134-140.	7.8	48
15	Thermal conductivity and elastic modulus of 3D porous/fractured media considering percolation. International Journal of Engineering Science, 2021, 161, 103456.	5.0	48
16	Elastic properties of particle-reinforced composites containing nonspherical particles of high packing density and interphase: DEMâ€"FEM simulation and micromechanical theory. Computer Methods in Applied Mechanics and Engineering, 2017, 326, 122-143.	6.6	46
17	n-Phase micromechanical framework for the conductivity and elastic modulus of particulate composites: Design to microencapsulated phase change materials (MPCMs)-cementitious composites. Materials and Design, 2018, 145, 108-115.	7.0	46
18	Prediction of transport behaviors of particulate composites considering microstructures of soft interfacial layers around ellipsoidal aggregate particles. Soft Matter, 2014, 10, 627-638.	2.7	43

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19	Parking simulation of three-dimensional multi-sized star-shaped particles. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 035008.	2.0	42
20	Multiple-inclusion model for the transport properties of porous composites considering coupled effects of pores and interphase around spheroidal particles. International Journal of Mechanical Sciences, 2019, 150, 610-616.	6.7	42
21	A 2D elliptical model of random packing for aggregates in concrete. Journal Wuhan University of Technology, Materials Science Edition, 2010, 25, 717-720.	1.0	40
22	Experimental study on micro-damage identification in reinforced concrete beam with wavelet packet and DIC method. Construction and Building Materials, 2019, 210, 338-346.	7.2	38
23	Insights into excluded volume and percolation of soft interphase and conductivity of carbon fibrous composites with core-shell networks. Carbon, 2020, 161, 392-402.	10.3	38
24	Microstructural characterization of fresh cement paste via random packing of ellipsoidal cement particles. Materials Characterization, 2012, 66, 16-23.	4.4	37
25	Microstructure and mechanical properties of hyperuniform heterogeneous materials. Physical Review E, 2017, 96, 043301.	2.1	36
26	In-situ measurement of nominal compressive elastic modulus of interfacial transition zone in concrete by SEM-DIC coupled method. Cement and Concrete Composites, 2020, 114, 103779.	10.7	36
27	Disordered hyperuniformity in two-dimensional amorphous silica. Science Advances, 2020, 6, eaba0826.	10.3	35
28	Analytical and modeling investigations of volume fraction of interfacial layers around ellipsoidal aggregate particles in multiphase materials. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 015005.	2.0	34
29	Geometrical percolation threshold of congruent cuboidlike particles in overlapping particle systems. Physical Review E, 2018, 98, 012134.	2.1	33
30	Evaluation of Mesostructure of Particulate Composites by Quantitative Stereology and Random Sequential Packing Model of Mono-/Polydisperse Convex Polyhedral Particles. Industrial & Engineering Chemistry Research, 2013, 52, 6678-6693.	3.7	32
31	Experimental study on alarming of concrete micro-crack initiation based on wavelet packet analysis. Construction and Building Materials, 2017, 149, 716-723.	7.2	32
32	The fraction of overlapping interphase around 2D and 3D polydisperse non-spherical particles: Theoretical and numerical models. Computer Methods in Applied Mechanics and Engineering, 2019, 345, 728-747.	6.6	32
33	Interfacial effect on physical properties of composite media: Interfacial volume fraction with non-spherical hard-core-soft-shell-structured particles. Scientific Reports, 2015, 5, 16003.	3.3	31
34	Transport properties of concrete-like granular materials interacted by their microstructures and particle components. International Journal of Modern Physics B, 2018, 32, 1840011.	2.0	31
35	Elastic dependence of particle-reinforced composites on anisotropic particle geometries and reinforced/weak interphase microstructures at nano- and micro-scales. Composite Structures, 2018, 203, 124-131.	5.8	31
36	Continuum percolation-based tortuosity and thermal conductivity of soft superball systems: shape dependence from octahedra <i>via</i> spheres to cubes. Soft Matter, 2018, 14, 8684-8691.	2.7	30

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37	A novel numerical scheme for random parameterized convex aggregate models with a high-volume fraction of aggregates in concrete-like granular materials. Computers and Structures, 2018, 209, 57-64.	4.4	29
38	Packing Fraction, Tortuosity, and Permeability of Granular–Porous Media With Densely Packed Spheroidal Particles: Monodisperse and Polydisperse Systems. Water Resources Research, 2022, 58, .	4.2	29
39	Evolution of microstructures of cement paste via continuous-based hydration model of non-spherical cement particles. Composites Part B: Engineering, 2020, 185, 107795.	12.0	27
40	Fractional modeling of Pasternak-type viscoelastic foundation. Mechanics of Time-Dependent Materials, 2017, 21, 119-131.	4.4	24
41	Insight into interfacial effect on effective physical properties of fibrous materials. I. The volume fraction of soft interfaces around anisotropic fibers. Journal of Chemical Physics, 2016, 144, 014703.	3.0	22
42	Numerical modeling on the influence of particle shape on ITZ's microstructure and macro-properties of cementitious composites: a critical review. Journal of Sustainable Cement-Based Materials, 2018, 7, 248-269.	3.1	22
43	Fractional creep and relaxation models of viscoelastic materials via a non-Newtonian time-varying viscosity: physical interpretation. Mechanics of Materials, 2020, 140, 103222.	3.2	22
44	DEM and dual-probability-Brownian motion scheme for thermal conductivity of multiphase granular materials with densely packed non-spherical particles and soft interphase networks. Computer Methods in Applied Mechanics and Engineering, 2020, 372, 113372.	6.6	22
45	Theoretical estimation for the volume fraction of interfacial layers around convex particles in multiphase materials. Powder Technology, 2013, 249, 513-515.	4.2	21
46	Strategy for interfacial overlapping degree in multiphase materials with complex convex particles. Powder Technology, 2015, 283, 455-461.	4.2	21
47	Modeling of soft interfacial volume fraction in composite materials with complex convex particles. Journal of Chemical Physics, 2014, 140, 034704.	3.0	20
48	Characterizing the rheological behaviors of non-Newtonian fluid via a viscoelastic component: Fractal dashpot. Advances in Mechanical Engineering, 2017, 9, 168781401769976.	1.6	20
49	Hierarchical n-point polytope functions for quantitative representation of complex heterogeneous materials and microstructural evolution. Acta Materialia, 2019, 179, 317-327.	7.9	20
50	Three-dimensional mesoscopic investigation of the compression mechanical properties of ultra-high performance concrete containing coarse aggregates. Cement and Concrete Composites, 2022, 133, 104678.	10.7	20
51	Non-local structural derivative Maxwell model for characterizing ultra-slow rheology in concrete. Construction and Building Materials, 2018, 190, 342-348.	7.2	17
52	A new method for formulating linear viscoelastic models. International Journal of Engineering Science, 2020, 156, 103375.	5.0	16
53	The fractal derivative wave equation: Application to clinical amplitude/velocity reconstruction imaging. Journal of the Acoustical Society of America, 2018, 143, 1559-1566.	1.1	15
54	Deformation analysis of shear band in granular materials via a robust plane shear test and numerical simulation. Powder Technology, 2018, 323, 385-392.	4.2	14

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55	Continuum percolation of congruent overlapping polyhedral particles: Finite-size-scaling analysis and renormalization-group method. Physical Review E, 2019, 99, 032107.	2.1	14
56	Microstructural modelling of cement-based materials via random packing of three-dimensional ellipsoidal particles. Procedia Engineering, 2012, 27, 332-340.	1.2	13
57	Creep behavior due to interface diffusion in unidirectional fiber-reinforced metal matrix composites under general loading conditions: a micromechanics analysis. Acta Mechanica, 2020, 231, 1321-1335.	2.1	13
58	Processing of viscoelastic data via a generalized fractional model. International Journal of Engineering Science, 2021, 161, 103465.	5.0	13
59	Absorbing–active transition in a multi-cellular system regulated by a dynamic force network. Soft Matter, 2019, 15, 6938-6945.	2.7	12
60	Diffusivity of cement paste via a continuum-based microstructure and hydration model: Influence of cement grain shape. Cement and Concrete Composites, 2021, 118, 103920.	10.7	12
61	Probing information content of hierarchical n -point polytope functions for quantifying and reconstructing disordered systems. Physical Review E, 2020, 102, 013305.	2.1	11
62	Numerical study on the excluded volumes of realistic 3D non-convex particles. Powder Technology, 2019, 349, 52-58.	4.2	10
63	A micromechanical framework for thermo-elastic properties of multiphase cementitious composites with different saturation. International Journal of Mechanical Sciences, 2022, 224, 107313.	6.7	10
64	Novel inverse finite-element formulation for reconstruction of relative local stiffness in heterogeneous extra-cellular matrix and traction forces on active cells. Physical Biology, 2019, 16, 036002.	1.8	9
65	Discrete element modeling of 3D irregular concave particles: Transport properties of particle-reinforced composites considering particles and soft interphase effects. Computer Methods in Applied Mechanics and Engineering, 2022, 394, 114932.	6.6	9
66	Hydraulic transport properties of unsaturated cementitious composites with spheroidal aggregates. International Journal of Mechanical Sciences, 2021, 212, 106845.	6.7	8
67	Determination of overlapping degree of interfacial layers around polydisperse ellipsoidal particles in particulate composites. Physica A: Statistical Mechanics and Its Applications, 2014, 399, 126-136.	2.6	7
68	Correlation-function-based microstructure design of alloy-polymer composites for dynamic dry adhesion tuning in soft gripping. Journal of Applied Physics, 2022, 131, .	2.5	6
69	Mesoscopic Insight into the Damage Mechanism for the Static Preload Effect on Dynamic Tensile Strength of Concrete. Journal of Materials in Civil Engineering, 2019, 31, 04018380.	2.9	5
70	Modeling Study of the Valid Apparent Interface Thickness in Particulate Materials with Ellipsoidal Particles. Industrial & Engineering Chemistry Research, 2013, 52, 17171-17178.	3.7	4
71	Pore tortuosity and diffusivity of porous composite RVEs composed of random sequential additions of polydisperse superellipsoidal particles. Powder Technology, 2022, , 117324.	4.2	3
72	Numerical evaluation of overestimation of the interface thickness around ellipsoidal particle. Theoretical and Applied Mechanics Letters, 2013, 3, 054008.	2.8	2

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73	Analytical and numerical study of Stokes flow problems for Hausdorff fluids. Communications in Nonlinear Science and Numerical Simulation, 2019, 79, 104932.	3.3	1
74	Percolation threshold and excluded volume of overlapping spherotetrahedral particle systems: Shape evolution from tetrahedron to sphere. Powder Technology, 2022, 408, 117713.	4.2	1