WaiChing Sun

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/3869667/publications.pdf

Version: 2024-02-01

85	2,846	136740	189595
papers	citations	32 h-index	50 g-index

89	89	89	1402
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A multiscale multi-permeability poroplasticity model linked by recursive homogenizations and deep learning. Computer Methods in Applied Mechanics and Engineering, 2018, 334, 337-380.	3.4	219
2	Coupled phase-field and plasticity modeling of geological materials: From brittle fracture to ductile flow. Computer Methods in Applied Mechanics and Engineering, 2018, 330, 1-32.	3.4	147
3	A mixed-mode phase field fracture model in anisotropic rocks with consistent kinematics. Computer Methods in Applied Mechanics and Engineering, 2018, 342, 561-584.	3.4	130
4	Geometric deep learning for computational mechanics Part I: anisotropic hyperelasticity. Computer Methods in Applied Mechanics and Engineering, 2020, 371, 113299.	3.4	107
5	A stabilized assumed deformation gradient finite element formulation for strongly coupled poromechanical simulations at finite strain. International Journal for Numerical and Analytical Methods in Geomechanics, 2013, 37, 2755-2788.	1.7	100
6	Meta-modeling game for deriving theory-consistent, microstructure-based tractionâ€“separation laws via deep reinforcement learning. Computer Methods in Applied Mechanics and Engineering, 2019, 346, 216-241.	3.4	89
7	Stress-induced anisotropy in granular materials: fabric, stiffness, and permeability. Acta Geotechnica, 2015, 10, 399-419.	2.9	86
8	Sobolev training of thermodynamic-informed neural networks for interpretable elasto-plasticity models with level set hardening. Computer Methods in Applied Mechanics and Engineering, 2021, 377, 113695.	3.4	82
9	Computational thermo-hydro-mechanics for multiphase freezing and thawing porous media in the finite deformation range. Computer Methods in Applied Mechanics and Engineering, 2017, 318, 667-700.	3.4	78
10	Connecting microstructural attributes and permeability from 3D tomographic images of in situ shear-enhanced compaction bands using multiscale computations. Geophysical Research Letters, 2011, 38, n/a-n/a.	1.5	75
11	A nonlocal multiscale discrete-continuum model for predicting mechanical behavior of granular materials. International Journal for Numerical Methods in Engineering, 2016, 106, 129-160.	1.5	74
12	A multiscale DEM-LBM analysis on permeability evolutions inside a dilatant shear band. Acta Geotechnica, 2013, 8, 465-480.	2.9	72
13	Multiscale method for characterization of porous microstructures and their impact on macroscopic effective permeability. International Journal for Numerical Methods in Engineering, 2011, 88, 1260-1279.	1.5	71
14	SO(3)-invariance of informed-graph-based deep neural network for anisotropic elastoplastic materials. Computer Methods in Applied Mechanics and Engineering, 2020, 363, 112875.	3.4	71
15	Cracking and damage from crystallization in pores: Coupled chemo-hydro-mechanics and phase-field modeling. Computer Methods in Applied Mechanics and Engineering, 2018, 335, 347-379.	3.4	69
16	A stabilized finite element formulation for monolithic thermoâ€hydroâ€mechanical simulations at finite strain. International Journal for Numerical Methods in Engineering, 2015, 103, 798-839.	1.5	63
17	A semi-implicit discrete-continuum coupling method for porous media based on the effective stress principle at finite strain. Computer Methods in Applied Mechanics and Engineering, 2016, 304, 546-583.	3.4	62
18	A phase field framework for capillary-induced fracture in unsaturated porous media: Drying-induced vs. hydraulic cracking. Computer Methods in Applied Mechanics and Engineering, 2020, 359, 112647.	3.4	56

#	Article	IF	Citations
19	Effects of spatial heterogeneity and material anisotropy on the fracture pattern and macroscopic effective toughness of Mancos Shale in Brazilian tests. Journal of Geophysical Research: Solid Earth, 2017, 122, 6202-6230.	1.4	53
20	Modeling the hydro-mechanical responses of strip and circular punch loadings on water-saturated collapsible geomaterials. Acta Geotechnica, 2014, 9, 903-934.	2.9	49
21	Computational thermomechanics of crystalline rock, Part I: A combined multi-phase-field/crystal plasticity approach for single crystal simulations. Computer Methods in Applied Mechanics and Engineering, 2018, 338, 657-691.	3.4	49
22	An updated Lagrangian LBMâ€“DEMâ€“FEM coupling model for dual-permeability fissured porous media with embedded discontinuities. Computer Methods in Applied Mechanics and Engineering, 2019, 344, 276-305.	3.4	45
23	Coupled flow network and discrete element modeling of injection-induced crack propagation and coalescence in brittle rock. Acta Geotechnica, 2019, 14, 843-868.	2.9	44
24	A cooperative game for automated learning of elasto-plasticity knowledge graphs and models with AI-guided experimentation. Computational Mechanics, 2019, 64, 467-499.	2.2	42
25	FFT-based solver for higher-order and multi-phase-field fracture models applied to strongly anisotropic brittle materials. Computer Methods in Applied Mechanics and Engineering, 2020, 362, 112781.	3.4	42
26	ALBANY: USING COMPONENT-BASED DESIGN TO DEVELOP A FLEXIBLE, GENERIC MULTIPHYSICS ANALYSIS CODE. International Journal for Multiscale Computational Engineering, 2016, 14, 415-438.	0.8	37
27	A micromorphically regularized Cam-clay model for capturing size-dependent anisotropy of geomaterials. Computer Methods in Applied Mechanics and Engineering, 2019, 354, 56-95.	3.4	37
28	Lie-group interpolation and variational recovery for internal variables. Computational Mechanics, 2013, 52, 1281-1299.	2.2	34
29	DNN2: A hyper-parameter reinforcement learning game for self-design of neural network based elasto-plastic constitutive descriptions. Computers and Structures, 2021, 249, 106505.	2.4	34
30	IDENTIFYING MATERIAL PARAMETERS FOR A MICRO-POLAR PLASTICITY MODEL VIA X-RAY MICRO-COMPUTED TOMOGRAPHIC (CT) IMAGES: LESSONS LEARNED FROM THE CURVE-FITTING EXERCISES. International Journal for Multiscale Computational Engineering, 2016, 14, 389-413.	0.8	33
31	Prediction of permeability and formation factor of sandstone with hybrid lattice Boltzmann/finite element simulation on microtomographic images. International Journal of Rock Mechanics and Minings Sciences, 2018, 106, 269-277.	2.6	33
32	A unified method to predict diffuse and localized instabilities in sands. Geomechanics and Geoengineering, 2013, 8, 65-75.	0.9	32
33	Determining Material Parameters for Critical State Plasticity Models Based on Multilevel Extended Digital Database. Journal of Applied Mechanics, Transactions ASME, 2016, 83, .	1.1	32
34	A unified variational eigen-erosion framework for interacting brittle fractures and compaction bands in fluid-infiltrating porous media. Computer Methods in Applied Mechanics and Engineering, 2017, 318, 1-32.	3.4	32
35	Discrete element simulations of powder-bed sintering-based additive manufacturing. International Journal of Mechanical Sciences, 2018, 149, 373-392.	3.6	31
36	A phase field model for cohesive fracture in micropolar continua. Computer Methods in Applied Mechanics and Engineering, 2020, 369, 113181.	3.4	31

#	Article	IF	Citations
37	A multiscale overlapped coupling formulation for large-deformation strain localization. Computational Mechanics, 2014, 54, 803-820.	2.2	25
38	ILS-MPM: An implicit level-set-based material point method for frictional particulate contact mechanics of deformable particles. Computer Methods in Applied Mechanics and Engineering, 2020, 369, 113168.	3.4	23
39	Mixed Arlequin method for multiscale poromechanics problems. International Journal for Numerical Methods in Engineering, 2017, 111, 624-659.	1.5	22
40	Anisotropy of a Tensorial Bishopâ€™s Coefficient for Wetted Granular Materials. Journal of Engineering Mechanics - ASCE, 2017, 143, .	1.6	20
41	Phase field modeling of frictional slip with slip weakening/strengthening under non-isothermal conditions. Computer Methods in Applied Mechanics and Engineering, 2021, 375, 113557.	3.4	19
42	An offline multiâ€scale unsaturated poromechanics model enabled by selfâ€designed/selfâ€improved neural networks. International Journal for Numerical and Analytical Methods in Geomechanics, 2021, 45, 1212-1237.	1.7	19
43	Data-driven discovery of interpretable causal relations for deep learning material laws with uncertainty propagation. Granular Matter, 2022, 24, 1.	1.1	18
44	Multiscale analysis of shear failure of thick-walled hollow cylinder in dry sand. Geotechnique Letters, 2016, 6, 77-82.	0.6	17
45	Open-source support toward validating and falsifying discrete mechanics models using synthetic granular materialsâ€”Part I: Experimental tests with particles manufactured by a 3D printer. Acta Geotechnica, 2019, 14, 923-937.	2.9	17
46	A non-cooperative meta-modeling game for automated third-party calibrating, validating and falsifying constitutive laws with parallelized adversarial attacks. Computer Methods in Applied Mechanics and Engineering, 2021, 373, 113514.	3.4	17
47	A kd-tree-accelerated hybrid data-driven/model-based approach for poroelasticity problems with multi-fidelity multi-physics data. Computer Methods in Applied Mechanics and Engineering, 2021, 382, 113868.	3.4	17
48	Computational thermomechanics for crystalline rock. Part II: Chemo-damage-plasticity and healing in strongly anisotropic polycrystals. Computer Methods in Applied Mechanics and Engineering, 2020, 369, 113184.	3.4	16
49	Synthesizing controlled microstructures of porous media using generative adversarial networks and reinforcement learning. Scientific Reports, 2022, 12, .	1.6	16
50	Manifold embedding data-driven mechanics. Journal of the Mechanics and Physics of Solids, 2022, 166, 104927.	2.3	15
51	Multiâ€phaseâ€field microporomechanics model for simulating iceâ€lens growth in frozen soil. International Journal for Numerical and Analytical Methods in Geomechanics, 2022, 46, 2307-2336.	1.7	15
52	Wave propagation and strain localization in a fully saturated softening porous medium under the nonâ€isothermal conditions. International Journal for Numerical and Analytical Methods in Geomechanics, 2016, 40, 1485-1510.	1.7	13
53	Shift boundary material point method: an image-to-simulation workflow for solids of complex geometries undergoing large deformation. Computational Particle Mechanics, 2020, 7, 291-308.	1.5	13
54	A SURROGATE MODELING APPROACH FOR ADDITIVE-MANUFACTURED MATERIALS. International Journal for Multiscale Computational Engineering, 2017, 15, 525-543.	0.8	13

#	Article	IF	Citations
55	Molecular dynamics inferred transfer learning models for finiteâ€strain hyperelasticity of monoclinic crystals: Sobolev training and validations against physical constraints. International Journal for Numerical Methods in Engineering, 2022, 123, 3922-3949.	1.5	13
56	Estimating inelastic sediment deformation from local site response simulations. Acta Geotechnica, 2007, 2, 183-195.	2.9	12
57	A configurational force for adaptive re-meshing of gradient-enhanced poromechanics problems with history-dependent variables. Computer Methods in Applied Mechanics and Engineering, 2019, 357, 112572.	3.4	12
58	DP-MPM: Domain partitioning material point method for evolving multi-body thermalâ€“mechanical contacts during dynamic fracture and fragmentation. Computer Methods in Applied Mechanics and Engineering, 2021, 385, 114063.	3.4	12
59	Asynchronous phase field fracture model for porous media with thermally non-equilibrated constituents. Computer Methods in Applied Mechanics and Engineering, 2021, 387, 114182.	3.4	12
60	A hierarchical sequential ALE poromechanics model for tireâ€soilâ€water interaction on fluidâ€infiltrated roads. International Journal for Numerical Methods in Engineering, 2017, 112, 909-938.	1.5	11
61	Capturing the twoâ€way hydromechanical coupling effect on fluidâ€driven fracture in a dualâ€graph lattice beam model. International Journal for Numerical and Analytical Methods in Geomechanics, 2018, 42, 736-767.	1.7	10
62	Atomistic-model informed pressure-sensitive crystal plasticity for crystalline HMX. International Journal of Solids and Structures, 2021, 232, 111170.	1.3	10
63	Micropolar effect on the cataclastic flow and brittleâ€ductile transition in highâ€porosity rocks. Journal of Geophysical Research: Solid Earth, 2016, 121, 1425-1440.	1.4	9
64	Circumventing mesh bias by r- and h-adaptive techniques for variational eigenfracture. International Journal of Fracture, 2019, 220, 129.	1.1	9
65	An immersed phase field fracture model for microporomechanics with Darcyâ€“Stokes flow. Physics of Fluids, 2021, 33, .	1.6	9
66	AN OPEN-SOURCE FENICS IMPLEMENTATION OF A PHASE FIELD FRACTURE MODEL FOR MICROPOLAR CONTINUA. International Journal for Multiscale Computational Engineering, 2019, 17, 639-663.	0.8	9
67	AN ADAPTIVE REDUCED-DIMENSIONAL DISCRETE ELEMENT MODEL FOR DYNAMIC RESPONSES OF GRANULAR MATERIALS WITH HIGH-FREQUENCY NOISES. International Journal for Multiscale Computational Engineering, 2018, 16, 345-366.	0.8	8
68	Freezingâ€induced stiffness and strength anisotropy in freezing clayey soil: Theory, numerical modeling, and experimental validation. International Journal for Numerical and Analytical Methods in Geomechanics, 2022, 46, 2087-2114.	1.7	8
69	Phase field modeling of coupled crystal plasticity and deformation twinning in polycrystals with monolithic and splitting solvers. International Journal for Numerical Methods in Engineering, 2021, 122, 1167-1189.	1.5	7
70	A finite micro-rotation material point method for micropolar solid and fluid dynamics with three-dimensional evolving contacts and free surfaces. Computer Methods in Applied Mechanics and Engineering, 2022, 391, 114540.	3.4	6
71	A SEMI-IMPLICIT MICROPLAR DISCRETE-TO-CONTINUUM METHOD FOR GRANULAR MATERIALS. , 2016, , .		5
72	A reduced-dimensional explicit discrete element solver for simulating granular mixing problems. Granular Matter, 2021, 23, 1.	1.1	4

#	Article	IF	Citations
73	Coseismic sediment deformation during the 1989 Loma Prieta earthquake. Journal of Geophysical Research, 2008, 113, .	3.3	3
74	Shear Wave Splitting and Polarization in Anisotropic Fluid-Infiltrating Porous Media: A Numerical Study. Materials, 2020, 13, 4988.	1.3	3
75	A new finite element level set reinitialization method based on the shifted boundary method. Journal of Computational Physics, 2021, 438, 110360.	1.9	3
76	Capturing the effective permeability of field compaction band using hybrid lattice Boltzmann/Finite element simulations. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012077.	0.3	2
77	Finite Element Analysis of Hydro-Mechanical Coupling Effects on Shear Failures of Fully Saturated Collapsible Geomaterials. , 2014, , .		2
78	Data-Driven Discrete-Continuum Method for Partially Saturated Micro-Polar Porous Media. , 2017, , .		1
79	PREFACE: MULTISCALE COMPUTATIONAL ANALYSIS OF COMPLEX MATERIALS. International Journal for Multiscale Computational Engineering, 2018, 16, v-vi.	0.8	1
80	An immersed phase field fracture model in fluid-infiltrating porous media with evolving Beavers-Joseph-Saffman condition. E3S Web of Conferences, 2020, 205, 03009.	0.2	1
81	A multiscale study of inherent anisotropy and strain localization in granular soils. Japanese Geotechnical Society Special Publication, 2016, 2, 615-620.	0.2	0
82	PREFACE: COMPUTATIONAL POROMECHANICS. International Journal for Multiscale Computational Engineering, 2016, 14, v-vi.	0.8	0
83	A Multi-Phase-Field Anisotropic Damage-Plasticity Model for Crystalline Rocks. Springer Series in Geomechanics and Geoengineering, 2018, , 57-60.	0.0	0
84	Advancements in multiâ€phase unsaturated porous media fracture. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000223.	0.2	0
85	DIFFUSE BIFURCATIONS OF POROUS MEDIA UNDER PARTIALLY DRAINED CONDITIONS. Springer Series in Geomechanics and Geoengineering, 2011, , 61-64.	0.0	0