Antoine JÃ©rusalem

List of Publications by Year
in descending order

61
papers

2,440
citations

236612

25
h-index

205818

48
g-index

62
all docs

62
docs citations

62
times ranked

2850
citing authors

#	Article	IF	Citations
1	Mechanics of the brain: perspectives, challenges, and opportunities. Biomechanics and Modeling in Mechanobiology, 2015, 14, 931-965.	1.4	289
2	Mechanistic models versus machine learning, a fight worth fighting for the biological community?. Biology Letters, 2018, 14, 20170660.	1.0	221
3	Design of FDM 3D printed polymers: An experimental-modelling methodology for the prediction of mechanical properties. Materials and Design, 2020, 188, 108414.	3.3	183
4	Computational biology â€" Modeling of primary blast effects on the central nervous system. NeuroImage, 2009, 47, T10-T20.	2.1	182
5	On the microtwinning mechanism in a single crystal superalloy. Acta Materialia, 2017, 135, 314-329.	3.8	102
6	Three-dimensional investigation of grain boundaryâ€"twin interactions in a Mg AZ31 alloy by electron backscatter diffraction and continuum modeling. Acta Materialia, 2013, 61, 7679-7692.	3.8	101
7	Continuum modeling of the response of a Mg alloy AZ31 rolled sheet during uniaxial deformation. International Journal of Plasticity, 2011, 27, 1739-1757.	4.1	93
8	On the mechanical behaviour of PEEK and HA cranial implants under impact loading. Journal of the Mechanical Behavior of Biomedical Materials, 2017, 69, 342-354.	1.5	70
9	The Specification of Geometric Edges by a Plant Rab GTPase Is an Essential Cell-Patterning Principle During Organogenesis in Arabidopsis. Developmental Cell, 2016, 36, 386-400.	3.1	67
10	Ballistic performance of nanocrystalline and nanotwinned ultrafine crystal steel. Acta Materialia, 2012, 60, 1353-1367.	3.8	66
11	Three-dimensional model of strength and ductility of polycrystalline copper containing nanoscale twins. Acta Materialia, 2008, 56, 4647-4657.	3.8	65
12	Rapid and efficient differentiation of functional motor neurons from human iPSC for neural injury modelling. Stem Cell Research, 2018, 32, 126-134.	0.3	65
13	Multi-scale mechanisms of twinning-detwinning in magnesium alloy AZ31B simulated by crystal plasticity modeling and validated via in situ synchrotron XRD and in situ SEM-EBSD. International Journal of Plasticity, 2019, 119, 43-56.	4.1	64
14	On the composition of microtwins in a single crystal nickel-basedÂsuperalloy. Scripta Materialia, 2017, 127, 37-40.	2.6	59
15	A microâ€"meso-model of intra-laminar fracture in fiber-reinforced composites based on a discontinuous Galerkin/cohesive zone method. Engineering Fracture Mechanics, 2013, 104, 162-183.	2.0	54
16	Electrophysiological-mechanical coupling in the neuronal membrane and its role in ultrasound neuromodulation and general anaesthesia. Acta Biomaterialia, 2019, 97, 116-140.	4.1	50
17	Computational model of the mechanoelectrophysiological coupling in axons with application to neuromodulation. Physical Review E, 2019, 99, 032406.	0.8	46
18	A computational model coupling mechanics and electrophysiology in spinal cord injury. Biomechanics and Modeling in Mechanobiology, 2014, 13, 883-896.	1.4	44

#	Article	IF	Citations
19	A continuum mechanics constitutive framework for transverse isotropic soft tissues. Journal of the Mechanics and Physics of Solids, 2018, 112, 209-224.	2.3	44
20	Continuum modeling of a neuronal cell under blast loading. Acta Biomaterialia, 2012, 8, 3360-3371.	4.1	37
21	An XFEM/CZM implementation for massively parallel simulations of composites fracture. Composite Structures, 2015, 125, 542-557.	3.1	36
22	Two mechanisms regulate directional cell growth in Arabidopsis lateral roots. ELife, 2019, 8, .	2.8	29
23	Alya: Computational Solid Mechanics for Supercomputers. Archives of Computational Methods in Engineering, 2015, 22, 557-576.	6.0	28
24	Growth, collapse, and stalling in a mechanical model for neurite motility. Physical Review E, 2016, 93, 032410.	0.8	28
25	A thermodynamically consistent constitutive model for diffusion-assisted plasticity in Ni-based superalloys. International Journal of Plasticity, 2018, 105, 74-98.	4.1	28
26	Extracting continuum-like deformation and stress from molecular dynamics simulations. Computer Methods in Applied Mechanics and Engineering, 2015, 283, 1010-1031.	3.4	27
27	Cognition based bTBI mechanistic criteria; a tool for preventive and therapeutic innovations. Scientific Reports, 2018, 8, 10273.	1.6	25
28	Continuum modeling of dislocation starvation and subsequent nucleation in nano-pillar compressions. Scripta Materialia, 2012, 66, 93-96.	2.6	23
29	Response of Single Cells to Shock Waves and Numerically Optimized Waveforms for Cancer Therapy. Biophysical Journal, 2018, 114, 1433-1439.	0.2	22
30	Continuum mechanical modeling of axonal growth. Computer Methods in Applied Mechanics and Engineering, 2017, 314, 147-163.	3.4	21
31	3D finite element formulation for mechanicalâ€"electrophysiological coupling in axonopathy. Computer Methods in Applied Mechanics and Engineering, 2019, 346, 1025-1050.	3.4	21
32	Neurite, a Finite Difference Large Scale Parallel Program for the Simulation of Electrical Signal Propagation in Neurites under Mechanical Loading. PLoS ONE, 2015, 10, e0116532.	1.1	19
33	Energy based mechano-electrophysiological model of CNS damage at the tissue scale. Journal of the Mechanics and Physics of Solids, 2019, 125, 22-37.	2.3	18
34	Shock attenuation of PMMA sandwich panels filled with soda-lime glass beads: AÂfluid-structure interaction continuum model simulation. International Journal of Impact Engineering, 2012, 47, 48-59.	2.4	16
35	Grain size gradient length scale in ballistic properties optimization of functionally graded nanocrystalline steel plates. Scripta Materialia, 2013, 69, 773-776.	2.6	16
36	A continuum model describing the reverse grain-size dependence of the strength of nanocrystalline metals. Philosophical Magazine, 2007, 87, 2541-2559.	0.7	14

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37	A new strain rate dependent continuum framework for Mg alloys. Computational Materials Science, 2016, 115, 41-50.	1.4	14
38	Molecular dynamics simulations of heterogeneous cell membranes in response to uniaxial membrane stretches at high loading rates. Scientific Reports, 2017, 7, 8316.	1.6	14
39	A continuum model of nanocrystalline metals under shock loading. Modelling and Simulation in Materials Science and Engineering, 2009, 17, 025001.	0.8	12
40	A two-scale model predicting the mechanical behavior of nanocrystalline solids. Journal of the Mechanics and Physics of Solids, 2013, 61, 1895-1914.	2.3	12
41	Ion current and action potential alterations in peripheral neurons subject to uniaxial strain. Journal of Neuroscience Research, 2019, 97, 744-751.	1.3	12
42	Action potential alterations induced by single F11 neuronal cell loading. Progress in Biophysics and Molecular Biology, 2021, 162, 141-153.	1.4	12
43	Molecular dynamics simulation of cell membrane pore sealing. Extreme Mechanics Letters, 2019, 27, 83-93.	2.0	11
44	Medical imaging based in silico head model for ischaemic stroke simulation. Journal of the Mechanical Behavior of Biomedical Materials, 2020, 101, 103442.	1.5	9
45	Engineering a uniaxial substrate-stretching device for simultaneous electrophysiological measurements and imaging of strained peripheral neurons. Medical Engineering and Physics, 2019, 67, 1-10.	0.8	8
46	Machine learning based multiscale calibration of mesoscopic constitutive models for composite materials: application to brain white matter. Computational Mechanics, 2021, 67, 1629-1643.	2.2	8
47	SoftFEM: The Soft Finite Element Method. International Journal for Numerical Methods in Engineering, 2019, 118, 606-630.	1.5	7
48	Multiscale computational modeling of deformation mechanics and intergranular fracture in nanocrystalline copper. Computational Materials Science, 2014, 90, 253-264.	1.4	6
49	3D multicellular model of shock wave-cell interaction. Acta Biomaterialia, 2018, 77, 282-291.	4.1	6
50	A Machine Learning Enhanced Mechanistic Simulation Framework for Functional Deficit Prediction in TBI. Frontiers in Bioengineering and Biotechnology, 2021, 9, 587082.	2.0	6
51	Model calibration using a parallel differential evolution algorithm in computational neuroscience: Simulation of stretch induced nerve deficit. Journal of Computational Science, 2020, 39, 101053.	1.5	5
52	Datasets for multi-scale diffraction analysis (synchrotron XRD and EBSD) of twinning-detwinning during tensile-compressive deformation of AZ31B magnesium alloy samples. Data in Brief, 2019, 26, 104423.	0.5	4
53	Continuum modeling of {10á¿™2} twinning in a Mg-3%Al-1%Zn rolled sheet. Revista De Metalurgia, 2010, 46, 133-137.	0.1	4
54	Effect of Hydrostatic Pressure on the 3D Porosity Distribution and Mechanical Behavior of a High Pressure Die Cast Mg AZ91 Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2015, 46, 4056-4069.	1.1	3

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55	White matter tract transcranial ultrasound stimulation, a computational study. Computers in Biology and Medicine, 2022, 140, 105094.	3.9	3
56	Voltage-Driven Alterations to Neuron Viscoelasticity. Bioelectricity, 2022, 4, 31-38.	0.6	3
57	Continuum modeling of the reverse Hallâ€"Petch effect in nanocrystalline metals under uniaxial tension: how many grains in a finite element model?. Philosophical Magazine Letters, 2011, 91, 599-609.	0.5	2
58	Single cell electrophysiological alterations under dynamic loading at ultrasonic frequencies. Brain Multiphysics, 2021, 2, 100031.	0.8	2
59	A Framework for Low-Intensity Low-Frequency Ultrasound Neuromodulation Sonication Parameter Identification from Micromechanical Flexoelectricity Modelling. Ultrasound in Medicine and Biology, 2021, 47, 1985-1991.	0.7	2
60	Ionic current enhancement through localised membrane geometrical deformation. Extreme Mechanics Letters, 2019, 29, 100469.	2.0	1
61	A modular nonlinear stochastic finite element formulation for uncertainty estimation. Computer Methods in Applied Mechanics and Engineering, 2022, 396, 115044.	3.4	1