Jacques Huyghe

List of Publications by Year
in descending order

		126708	143772
112	3,661	33	57
papers	citations	h-index	g-index

114	114	114	2440
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A three-dimensional mechano-electrochemical material model of mechanosensing hydrogels. Materials and Design, 2021, 198, 109340.	3.3	6
2	The strain-generated electrical potential in cartilaginous tissues: a role for piezoelectricity. Biophysical Reviews, 2021, 13, 91-100.	1.5	13
3	The Importance of the Mixing Energy in Ionized Superabsorbent Polymer Swelling Models. Polymers, 2020, 12, 609.	2.0	10
4	Comparing mixed hybrid finite element method with standard FEM in swelling simulations involving extremely large deformations. Computational Mechanics, 2020, 66, 287-309.	2.2	4
5	A strain induced softening and hardening constitutive model for superabsorbent polymers undergoing finite deformation. International Journal of Engineering Science, 2020, 154, 103346.	2.7	3
6	Piezoelectricity in the Intervertebral disc. Journal of Biomechanics, 2020, 102, 109622.	0.9	11
7	Chemically Responsive Hydrogel Deformation Mechanics: A Review. Molecules, 2019, 24, 3521.	1.7	26
8	Effects of Intrinsic Properties on Fracture Nucleation and Propagation in Swelling Hydrogels. Polymers, 2019, 11, 926.	2.0	3
9	Coupled Processes in Charged Porous Media: From Theory to Applications. Transport in Porous Media, 2019, 130, 183-214.	1.2	14
10	A mixed hybrid finite element framework for the simulation of swelling ionized hydrogels. Computational Mechanics, 2019, 63, 835-852.	2.2	13
11	A three-dimensional transient mixed hybrid finite element model for superabsorbent polymers with strain-dependent permeability. Soft Matter, 2018, 14, 3834-3848.	1.2	22
12	On the numerical simulation of crack interaction in hydraulic fracturing. Computational Geosciences, 2018, 22, 423-437.	1.2	8
13	Reply to the Comments on â€œBridging Effective Stress and Soil Water Retention Equations in Deforming Unsaturated Porous Media: A Thermodynamic Approachâ€â€"by Nasser Khalili and Arman Khoshghalb. Transport in Porous Media, 2018, 122, 521-526.	1.2	1
14	Swelling Driven Crack Propagation in Large Deformation in Ionized Hydrogel. Journal of Applied Mechanics, Transactions ASME, 2018, 85, .	1.1	8
15	Isogeometric Analysis of a Multiphase Porous Media Model for Concrete. Journal of Engineering Mechanics - ASCE, 2018, 144, .	1.6	6
16	On the Physics Underlying Longitudinal Capillary Recruitment. Advances in Experimental Medicine and Biology, 2018, 1097, 191-200.	0.8	0
17	Swelling-Driven Crack Propagation in Large Deformation in Ionized Hydrogel. Journal of Applied Mechanics, Transactions ASME, 2018, 85, .	1.1	2
18	An investigation of the step-wise propagation of a mode-II fracture in a poroelastic medium. Mechanics Research Communications, 2017, 80, 10-15.	1.0	12

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19	Bridging Effective Stress and Soil Water Retention Equations in Deforming Unsaturated Porous Media: A Thermodynamic Approach. Transport in Porous Media, 2017, 117, 349-365.	1.2	14
20	Swelling Driven Cracking in Large Deformation in Porous Media. , 2017, , .		1
21	Interaction between crack tip advancement and fluid flow in fracturing saturated porous media. Mechanics Research Communications, 2017, 80, 24-37.	1.0	30
22	A Full 3D Mixed Hybrid Finite Element Model of Superabsorbent Polymers. , 2017, , .		0
23	Convection associated with exclusion zone formation in colloidal suspensions. Soft Matter, 2016, 12, 1127-1132.	1.2	23
24	A computational spinal motion segment model incorporating a matrix composition-based model of the intervertebral disc. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 54, 194-204.	1.5	30
25	2D Mixed Hybrid FEM of Lanir Model. Procedia IUTAM, 2015, 12, 93-104.	1.2	1
26	The enhanced local pressure model for the accurate analysis of fluid pressure driven fracture in porous materials. Computer Methods in Applied Mechanics and Engineering, 2015, 286, 293-312.	3.4	63
27	A Partition of Unity-Based Model for Crack Nucleation and Propagation in Porous Media, Including Orthotropic Materials. Transport in Porous Media, 2015, 106, 505-522.	1.2	12
28	Poroelastic modeling of the intervertebral disc: A path toward integrated studies of tissue biophysics and organ degeneration. MRS Bulletin, 2015, 40, 324-332.	1.7	19
29	1D Measurement of Sodium Ion Flow in Hydrogel After a Bath Concentration Jump. Annals of Biomedical Engineering, 2015, 43, 1706-1711.	1.3	1
30	Ageing and degenerative changes of the intervertebral disc and their impact on spinal flexibility. European Spine Journal, 2014, 23 Suppl 3, S324-32.	1.0	73
31	Long-range repulsion of colloids driven by ion exchange and diffusiophoresis. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 6554-6559.	3.3	107
32	Intervertebral disc creep behavior assessment through an open source finite element solver. Journal of Biomechanics, 2014, 47, 297-301.	0.9	21
33	Mode I crack propagation in hydrogels is step wise. Engineering Fracture Mechanics, 2013, 97, 72-79.	2.0	37
34	Confined compression and torsion experiments on a pHEMA gel in various bath concentrations. Biomechanics and Modeling in Mechanobiology, 2013, 12, 617-626.	1.4	14
35	Nucleation and Mixed Mode Crack Propagation in a Porous Material. , 2013, , .		0
36	A large deformation formulation for fluid flow in a progressively fracturing porous material. Computer Methods in Applied Mechanics and Engineering, 2013, 256, 29-37.	3.4	39

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37	Validation of an Open Source Finite Element Biphasic Poroelastic Model. Application to the Intervertebral Disc Biomechanics. , 2013, , .		3
38	Two-Dimensional Mode I Crack Propagation in Saturated Ionized Porous Media Using Partition of Unity Finite Elements. Journal of Applied Mechanics, Transactions ASME, 2013, 80, .	1.1	18
39	Biomechanical Behavior of a Biomimetic Artificial Intervertebral Disc. Spine, 2012, 37, E367-E373.	1.0	18
40	Design of next generation total disk replacements. Journal of Biomechanics, 2012, 45, 134-140.	0.9	30
41	3D non-affine finite strains measured in isolated bovine annulus fibrosus tissue samples. Biomechanics and Modeling in Mechanobiology, 2012, 11, 161-170.	1.4	21
42	Singularity solution of Lanirâ€™s osmoelasticity: verification of discontinuity simulations in soft tissues. Biomechanics and Modeling in Mechanobiology, 2011, 10, 845-865.	1.4	0
43	Propagating Cracks in Saturated Ionized Porous Media. Lecture Notes in Applied and Computational Mechanics, 2011, , 425-442.	2.0	6
44	A two-scale approach for propagating cracks in a fluid-saturated porous material. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012044.	0.3	3
45	A biochemical/biophysical 3D FE intervertebral disc model. Biomechanics and Modeling in Mechanobiology, 2010, 9, 641-650.	1.4	42
46	Biaxial testing of canine annulus fibrosus tissue under changing salt concentrations. Anais Da Academia Brasileira De Ciencias, 2010, 82, 145-151.	0.3	2
47	Reply to Discussion: â€œOn the Thermodynamical Admissibility of the Triphasic Theory of Charged Hydrated Tissuesâ€•(Mow, V. C., Lai, W. M., Setton, L. A., Gu, W., Yao, H., and Lu, X. L., 2009, ASME J.) Tj ETQq1 1 0.784314 rgBT /Overl	0.6	3
48	On the Thermodynamical Admissibility of the Triphasic Theory of Charged Hydrated Tissues. Journal of Biomechanical Engineering, 2009, 131, 044504.	0.6	24
49	Experimental and model determination of human intervertebral disc osmoviscoelasticity. Journal of Orthopaedic Research, 2008, 26, 1141-1146.	1.2	35
50	Poromechanics of Compressible Charged Porous Media Using the Theory of Mixtures. Journal of Biomechanical Engineering, 2007, 129, 776.	0.6	21
51	Analytical Solution of a Pressure Transmission Experiment on Shale Using Electrochemomechanical Theory. Journal of Engineering Mechanics - ASCE, 2007, 133, 994-1002.	1.6	5
52	Mathematical modelling and numerical solution of swelling of cartilaginous tissues. Part I: Modelling of incompressible charged porous media. ESAIM: Mathematical Modelling and Numerical Analysis, 2007, 41, 661-678.	0.8	11
53	Mathematical modelling and numerical solution of swelling of cartilaginous tissues. Part II: Mixed-hybrid finite element solution. ESAIM: Mathematical Modelling and Numerical Analysis, 2007, 41, 679-712.	0.8	13
54	Are disc pressure, stress, and osmolarity affected by intra- and extrafibrillar fluid exchange?. Journal of Orthopaedic Research, 2007, 25, 1317-1324.	1.2	36

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55	Mechanisms that play a role in the maintenance of the calcium gradient in the epidermis. Skin Research and Technology, 2007, 13, 369-376.	0.8	16
56	Depth-dependent Compressive Equilibrium Properties of Articular Cartilage Explained by its Composition. Biomechanics and Modeling in Mechanobiology, 2007, 6, 43-53.	1.4	145
57	3D Finite Strains in Bovine Annulus Fibrosus Tissue. , 2007, , .		0
58	Influence of Osmotic Pressure Changes on the Opening of Existing Cracks in 2 Intervertebral Disc Models. Spine, 2006, 31, 1783-1788.	1.0	39
59	Point of View: Response. Spine, 2006, 31, E527.	1.0	1
60	Osmoviscoelastic finite element model of the intervertebral disc. European Spine Journal, 2006, 15, 361-371.	1.0	76
61	A composition-based cartilage model for the assessment of compositional changes during cartilage damage and adaptation. Osteoarthritis and Cartilage, 2006, 14, 554-560.	0.6	95
62	A Comparison Between Mechano-Electrochemical and Biphasic Swelling Theories for Soft Hydrated Tissues. Journal of Biomechanical Engineering, 2005, 127, 158-165.	0.6	116
63	Measurements of Deformations and Electrical Potentials in a Charged Porous Medium. , 2005, , 133-139.		1
64	Fluid Flow in the Self-Optimised Structure of Compact Bone. , 2005, , 299-305.		0
65	Do osmotic forces play a role in the uptake of water by human skin?. Skin Research and Technology, 2004, 10, 109-112.	0.8	7
66	Swelling media: concepts and applications. , 2004, , 57-124.		3
67	Fluid-solid mixtures and electrochemomechanics: the simplicity of Lagrangian mixture theory. Computational and Applied Mathematics, 2004, 23, .	1.0	1
68	Uniaxial tensile testing of canine annulus fibrosus tissue under changing salt concentrations. Biorheology, 2004, 41, 255-61.	1.2	6
69	Finite Element Model of Mechanically Induced Collagen Fiber Synthesis and Degradation in the Aortic Valve. Annals of Biomedical Engineering, 2003, 31, 1040-1053.	1.3	40
70	Title is missing!. Transport in Porous Media, 2003, 50, 111-126.	1.2	28
71	Triphasic FE Modeling of the Skin Water Barrier. Transport in Porous Media, 2003, 50, 93-109.	1.2	15
72	Preface on Physicochemical and Electromechanical Interactions in Porous Media. Transport in Porous Media, 2003, 50, 1-3.	1.2	1

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73	An ionised/non-ionised dual porosity model of intervertebral disc tissue. Biomechanics and Modeling in Mechanobiology, 2003, 2, 3-19.	1.4	65
74	3D FE implementation of an incompressible quadriphasic mixture model. International Journal for Numerical Methods in Engineering, 2003, 57, 1243-1258.	1.5	63
75	Mixed finite element modelling of cartilaginous tissues. Mathematics and Computers in Simulation, 2003, 61, 549-560.	2.4	25
76	Remodelling of continuously distributed collagen fibres in soft connective tissues. Journal of Biomechanics, 2003, 36, 1151-1158.	0.9	90
77	Computational Analyses of Mechanically Induced Collagen Fiber Remodeling in the Aortic Heart Valve. Journal of Biomechanical Engineering, 2003, 125, 549-557.	0.6	89
78	Numerical simulation of deformations and electrical potentials in a cartilage substitute. Biorheology, 2003, 40, 123-31.	1.2	15
79	Estimation of the poroelastic parameters of cortical bone. Journal of Biomechanics, 2002, 35, 829-835.	0.9	188
80	A Case for Strain-Induced Fluid Flow as a Regulator of BMU-Coupling and Osteonal Alignment. Journal of Bone and Mineral Research, 2002, 17, 2021-2029.	3.1	101
81	Experimental measurement of electrical conductivity and electro-osmotic permeability of ionised porous media. , 2002, , 295-313.		3
82	Measuring principles of frictional coefficients in cartilaginous tissues and its substitutes. Biorheology, 2002, 39, 47-53.	1.2	5
83	Spatial interaction between tissue pressure and skeletal muscle perfusion during contraction. Journal of Biomechanics, 2001, 34, 631-637.	0.9	16
84	Porous Medium Mechanics and the Skin Barrier. Solid Mechanics and Its Applications, 2001, , 287-292.	0.1	0
85	Requirements for an artificial intervertebral disc. International Journal of Artificial Organs, 2001, 24, 311-21.	0.7	9
86	Thermo-Chemo-Electro-Mechanical Formulation of Saturated Charged Porous Solids. Transport in Porous Media, 1999, 34, 129-141.	1.2	74
87	Thermo-Chemo-Electro-Mechanical Formulation of Saturated Charged Porous Solids. , 1999, , 129-141.		6
88	Mechanical blood-tissue interaction in contracting muscles. Journal of Biomechanics, 1998, 31, 401-409.	0.9	25
89	Partition and Diffusion of Sodium and Chloride Ions in Soft Charged Foam: The Effect of External Salt Concentration and Mechanical Deformation. Tissue Engineering, 1998, 4, 365-378.	4.9	17
90	Nonhomogeneous Permeability of Canine Anulus Fibrosus. Spine, 1997, 22, 7-16.	1.0	36

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91	Finite-element simulation of blood perfusion in muscle tissue during compression and sustained contraction. American Journal of Physiology - Heart and Circulatory Physiology, 1997, 273, H1587-H1594.	1.5	9
92	Finite element analysis of blood flow through biological tissue. International Journal of Engineering Science, 1997, 35, 375-385.	2.7	39
93	Quadriphasic mechanics of swelling incompressible porous media. International Journal of Engineering Science, 1997, 35, 793-802.	2.7	296
94	A FINITE ELEMENT MIXTURE MODEL FOR HIERARCHICAL POROUS MEDIA. International Journal for Numerical Methods in Engineering, 1997, 40, 193-210.	1.5	36
95	A validation of the quadriphasic mixture theory for intervertebral disc tissue. International Journal of Engineering Science, 1997, 35, 1419-1429.	2.7	109
96	Regional wall mechanics in the ischemic left ventricle: numerical modeling and dog experiments. American Journal of Physiology - Heart and Circulatory Physiology, 1996, 270, H398-H410.	1.5	34
97	Poroelasticity of saturated solids with an application to blood perfusion. International Journal of Engineering Science, 1996, 34, 1019-1031.	2.7	31
98	Strain distribution on rat medial gastrocnemius (MG) during passive stretch. Journal of Biomechanics, 1996, 29, 1069-1074.	0.9	30
99	A 3-D Finite Element Model of Blood Perfused Rat Gastrocnemius Medialis Muscle. European Journal of Morphology, 1996, 34, 19-24.	1.4	9
100	Confined Compression of Canine Annulus Fibrosus Under Chemical and Mechanical Loading. Journal of Biomechanical Engineering, 1995, 117, 390-396.	0.6	52
101	Finite deformation theory of hierarchically arranged porous solidsâ€"I. Balance of mass and momentum. International Journal of Engineering Science, 1995, 33, 1861-1871.	2.7	26
102	Finite deformation theory of hierarchically arranged porous solidsâ€"II. Constitutive behaviour. International Journal of Engineering Science, 1995, 33, 1873-1886.	2.7	25
103	Triphasic finite element model for swelling porous media. International Journal for Numerical Methods in Fluids, 1995, 20, 1039-1046.	0.9	31
104	Influence of endocardial-epicardial crossover of muscle fibers on left ventricular wall mechanics. Journal of Biomechanics, 1994, 27, 941-951.	0.9	103
105	Osmotic Prestressing of a Spinal Motion Segment. , 1993, , 321-330.		0
106	Porous medium finite element model of the beating left ventricle. American Journal of Physiology - Heart and Circulatory Physiology, 1992, 262, H1256-H1267.	1.5	69
107	Dependence of local left ventricular wall mechanics on myocardial fiber orientation: A model study. Journal of Biomechanics, 1992, 25, 1129-1140.	0.9	207
108	A two-phase finite element model of the diastolic left ventricle. Journal of Biomechanics, 1991, 24, 527-538.	0.9	70

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109	The constitutive behaviour of passive heart muscle tissue: A quasi-linear viscoelastic formulation. Journal of Biomechanics, 1991, 24, 841-849.	0.9	79
110	Low Reynolds number steady state flow through a branching network of rigid vessels: II. A finite element mixture model. Biorheology, 1989, 26, 73-84.	1.2	19
111	Low Reynolds number steady state flow through a branching network of rigid vessels: I. A mixture theory. Biorheology, 1989, 26, 55-71.	1.2	29
112	Lâ€type <scp>Voltageâ€Gated</scp> calcium channels partly mediate Mechanotransduction in the intervertebral disc. JOR Spine, 0, , .	1.5	1