

David Smith

List of Publications by Year in descending order

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118
papers

4,067
citations

117571

34
h-index

138417

58
g-index

119
all docs

119
docs citations

119
times ranked

3759
citing authors

#	ARTICLE	IF	CITATIONS
1	Model structure and control of bone remodeling: A theoretical study. <i>Bone</i> , 2008, 43, 249-263.	1.4	237
2	Intrarenal oxygenation: unique challenges and the biophysical basis of homeostasis. <i>American Journal of Physiology - Renal Physiology</i> , 2008, 295, F1259-F1270.	1.3	235
3	Haemodynamic influences on kidney oxygenation: Clinical implications of integrative physiology. <i>Clinical and Experimental Pharmacology and Physiology</i> , 2013, 40, 106-122.	0.9	209
4	Patterns of Plasma Corticotropin-Releasing Hormone, Progesterone, Estradiol, and Estrinol Change and the Onset of Human Labor. <i>Journal of Clinical Endocrinology and Metabolism</i> , 2009, 94, 2066-2074.	1.8	173
5	Finite element formulation and algorithms for unsaturated soils. Part I: Theory. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2003, 27, 745-765.	1.7	164
6	Microscopic effects on chloride diffusivity of cement pastes—a scale-transition analysis. <i>Cement and Concrete Research</i> , 2004, 34, 2251-2260.	4.6	125
7	Role of Voltage-Dependent Modulation of Store Ca ²⁺ Release in Synchronization of Ca ²⁺ Oscillations. <i>Biophysical Journal</i> , 2006, 90, 1-23.	0.2	109
8	Theoretical investigation of the role of the RANK/RANKL/OPG system in bone remodeling. <i>Journal of Theoretical Biology</i> , 2010, 262, 306-316.	0.8	102
9	Programmable mechanical stimulation influences tendon homeostasis in a bioreactor system. <i>Biotechnology and Bioengineering</i> , 2013, 110, 1495-1507.	1.7	99
10	Wnt Signalling Pathway Parameters for Mammalian Cells. <i>PLoS ONE</i> , 2012, 7, e31882.	1.1	99
11	Solute transport through a deforming porous medium. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2002, 26, 683-717.	1.7	91
12	Bioreactor Design for Tendon/Ligament Engineering. <i>Tissue Engineering - Part B: Reviews</i> , 2013, 19, 133-146.	2.5	79
13	Expansive Soil Test Site Near Newcastle. <i>Journal of Geotechnical and Geoenvironmental Engineering - ASCE</i> , 2004, 130, 686-695.	1.5	78
14	Finite element formulation and algorithms for unsaturated soils. Part II: Verification and application. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2003, 27, 767-790.	1.7	69
15	Renal haemodynamics and oxygenation during and after cardiac surgery and cardiopulmonary bypass. <i>Acta Physiologica</i> , 2018, 222, e12995.	1.8	69
16	One-dimensional contaminant transport through a deforming porous medium: theory and a solution for a quasi-steady-state problem. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2000, 24, 693-722.	1.7	68
17	Green's functions for a fully coupled thermoporoelastic material. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 1993, 17, 139-163.	1.7	59
18	The effect of cyclic deformation and solute binding on solute transport in cartilage. <i>Archives of Biochemistry and Biophysics</i> , 2007, 457, 47-56.	1.4	54

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19	Spatio-temporal structure of cell distribution in cortical Bone Multicellular Units: A mathematical model. <i>Bone</i> , 2011, 48, 918-926.	1.4	54
20	Maternal plasma corticotropin-releasing hormone trajectories vary depending on the cause of preterm delivery. <i>American Journal of Obstetrics and Gynecology</i> , 2002, 186, 257-260.	0.7	52
21	What Makes the Kidney Susceptible to Hypoxia?. <i>Anatomical Record</i> , 2020, 303, 2544-2552.	0.8	52
22	Time Evolution of Deformation in a Human Cartilage Under Cyclic Loading. <i>Annals of Biomedical Engineering</i> , 2015, 43, 1166-1177.	1.3	51
23	A Theoretical Model of Slow Wave Regulation Using Voltage-Dependent Synthesis of Inositol 1,4,5-Trisphosphate. <i>Biophysical Journal</i> , 2002, 83, 1877-1890.	0.2	48
24	Predicting Knee Osteoarthritis. <i>Annals of Biomedical Engineering</i> , 2016, 44, 222-233.	1.3	47
25	A mathematical model of diffusional shunting of oxygen from arteries to veins in the kidney. <i>American Journal of Physiology - Renal Physiology</i> , 2011, 300, F1339-F1352.	1.3	46
26	Urinary oxygen tension: a clinical window on the health of the renal medulla?. <i>American Journal of Physiology - Regulatory Integrative and Comparative Physiology</i> , 2014, 306, R45-R50.	0.9	46
27	The influence of advective transport on coupled chemical and mechanical consolidation of clays. <i>Mechanics of Materials</i> , 2004, 36, 467-486.	1.7	45
28	Theoretical Analysis of Anion Exclusion and Diffusive Transport Through Platy-Clay Soils. <i>Transport in Porous Media</i> , 2004, 57, 251-277.	1.2	44
29	Mathematical modeling of postmenopausal osteoporosis and its treatment by the anti-catabolic drug denosumab. <i>International Journal for Numerical Methods in Biomedical Engineering</i> , 2014, 30, 1-27.	1.0	44
30	Cyclic mechanical stimulation rescues achilles tendon from degeneration in a bioreactor system. <i>Journal of Orthopaedic Research</i> , 2015, 33, 1888-1896.	1.2	44
31	No flow through the vitreous humor: How strong is the evidence?. <i>Progress in Retinal and Eye Research</i> , 2020, 78, 100845.	7.3	44
32	Modelling the anabolic response of bone using a cell population model. <i>Journal of Theoretical Biology</i> , 2012, 307, 42-52.	0.8	43
33	Theoretical investigation of the effects of consolidation on contaminant transport through clay barriers. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2009, 33, 95-116.	1.7	37
34	Computational Modeling of Interactions between Multiple Myeloma and the Bone Microenvironment. <i>PLoS ONE</i> , 2011, 6, e27494.	1.1	37
35	The spatio-temporal mechanical environment of healthy and injured human cartilage during sustained activity and its role in cartilage damage. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2017, 74, 1-10.	1.5	37
36	On the role of diffusible binding partners in modulating the transport and concentration of proteins in tissues. <i>Journal of Theoretical Biology</i> , 2010, 263, 20-29.	0.8	36

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37	IGF UPTAKE WITH COMPETITIVE BINDING IN ARTICULAR CARTILAGE. <i>Journal of Biological Systems</i> , 2008, 16, 175-195.	0.5	35
38	Solute transport in cartilage undergoing cyclic deformation. <i>Computer Methods in Biomechanics and Biomedical Engineering</i> , 2007, 10, 265-278.	0.9	34
39	Diffusive oxygen shunting between vessels in the preglomerular renal vasculature: anatomic observations and computational modeling. <i>American Journal of Physiology - Renal Physiology</i> , 2012, 303, F605-F618.	1.3	34
40	Bladder urine oxygen tension for assessing renal medullary oxygenation in rabbits: experimental and modeling studies. <i>American Journal of Physiology - Regulatory Integrative and Comparative Physiology</i> , 2016, 311, R532-R544.	0.9	33
41	Accounting for oxygen in the renal cortex: a computational study of factors that predispose the cortex to hypoxia. <i>American Journal of Physiology - Renal Physiology</i> , 2017, 313, F218-F236.	1.3	33
42	METHODS FOR STUDYING THE PHYSIOLOGY OF KIDNEY OXYGENATION. <i>Clinical and Experimental Pharmacology and Physiology</i> , 2008, 35, 1405-1412.	0.9	32
43	Colon Cryptogenesis: Asymmetric Budding. <i>PLoS ONE</i> , 2013, 8, e78519.	1.1	32
44	Modeling the Insulin-Like Growth Factor System in Articular Cartilage. <i>PLoS ONE</i> , 2013, 8, e66870.	1.1	30
45	Human Uterine Wall Tension Trajectories and the Onset of Parturition. <i>PLoS ONE</i> , 2010, 5, e11037.	1.1	28
46	Discrete Element Framework for Modelling Extracellular Matrix, Deformable Cells and Subcellular Components. <i>PLoS Computational Biology</i> , 2015, 11, e1004544.	1.5	28
47	A conceptual framework for computational models of Achilles tendon homeostasis. <i>Wiley Interdisciplinary Reviews: Systems Biology and Medicine</i> , 2013, 5, 523-538.	6.6	27
48	Vascular geometry and oxygen diffusion in the vicinity of artery-vein pairs in the kidney. <i>American Journal of Physiology - Renal Physiology</i> , 2014, 307, F1111-F1122.	1.3	27
49	Modeling IL-1 induced degradation of articular cartilage. <i>Archives of Biochemistry and Biophysics</i> , 2016, 594, 37-53.	1.4	27
50	A coupled contact model of cartilage lubrication in the mixed-mode regime under static compression. <i>Tribology International</i> , 2020, 145, 106185.	3.0	27
51	BOUNDARY ELEMENT ANALYSIS OF LINEAR THERMOELASTIC CONSOLIDATION. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 1996, 20, 457-488.	1.7	26
52	Numerical study of boundary conditions for solute transport through a porous medium. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2001, 25, 629-650.	1.7	26
53	Modelling the Behaviour of Ligaments: A Technical Note. <i>Computer Methods in Biomechanics and Biomedical Engineering</i> , 2004, 7, 33-42.	0.9	25
54	Modeling the Sorption of Fluoride onto Alumina. <i>Journal of Environmental Engineering, ASCE</i> , 2006, 132, 229-246.	0.7	24

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55	Investigation of bone resorption within a cortical basic multicellular unit using a lattice-based computational model. <i>Bone</i> , 2012, 50, 378-389.	1.4	24
56	Bone refilling in cortical basic multicellular units: insights into tetracycline double labelling from a computational model. <i>Biomechanics and Modeling in Mechanobiology</i> , 2014, 13, 185-203.	1.4	24
57	Boundary integral analysis of transient thermoelasticity. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 1989, 13, 283-302.	1.7	23
58	Cell Organisation in the Colonic Crypt: A Theoretical Comparison of the Pedigree and Niche Concepts. <i>PLoS ONE</i> , 2013, 8, e73204.	1.1	22
59	Analysis of Wnt signaling β -catenin spatial dynamics in HEK293T cells. <i>BMC Systems Biology</i> , 2014, 8, 44.	3.0	22
60	The investigation of fluid flow in cartilage contact gap. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2019, 95, 153-164.	1.5	22
61	A model of oxygen transport in the rat renal medulla. <i>American Journal of Physiology - Renal Physiology</i> , 2018, 315, F1787-F1811.	1.3	21
62	A pseudo-three-dimensional model for quantification of oxygen diffusion from preglomerular arteries to renal tissue and renal venous blood. <i>American Journal of Physiology - Renal Physiology</i> , 2017, 313, F237-F253.	1.3	20
63	Diffusive shunting of gases and other molecules in the renal vasculature: physiological and evolutionary significance. <i>American Journal of Physiology - Regulatory Integrative and Comparative Physiology</i> , 2016, 311, R797-R810.	0.9	17
64	Numerical estimation of effective diffusion coefficients for charged porous materials based on micro-scale analyses. <i>Computers and Geotechnics</i> , 2010, 37, 280-287.	2.3	16
65	Investigation of role of cartilage surface polymer brush border in lubrication of biological joints. <i>Friction</i> , 2022, 10, 110-127.	3.4	16
66	Numerical Analysis of Neutron Moisture Probe Measurements. <i>International Journal of Geomechanics</i> , 2003, 3, 11-20.	1.3	15
67	A functional connectome: regulation of Wnt/TCF-dependent transcription by pairs of pathway activators. <i>Molecular Cancer</i> , 2015, 14, 206.	7.9	15
68	2D Finite Element Analysis of Multicomponent Contaminant Transport Through Soils. <i>International Journal of Geomechanics</i> , 2002, 2, 113-134.	1.3	14
69	Use of In Situ Air Flow Measurements to Study Permeability in Cracked Clay Soils. <i>Journal of Geotechnical and Geoenvironmental Engineering - ASCE</i> , 2007, 133, 1577-1586.	1.5	14
70	Investigation of Donnan equilibrium in charged porous materials—a scale transition analysis. <i>Transport in Porous Media</i> , 2007, 69, 215-237.	1.2	14
71	Computational model for the analysis of cartilage and cartilage tissue constructs. <i>Journal of Tissue Engineering and Regenerative Medicine</i> , 2016, 10, 334-347.	1.3	14
72	Adaptive Remodeling of Achilles Tendon: A Multi-scale Computational Model. <i>PLoS Computational Biology</i> , 2016, 12, e1005106.	1.5	14

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73	A fully coupled poroelastic reactive-transport model of cartilage. MCB Molecular and Cellular Biomechanics, 2008, 5, 133-53.	0.3	14
74	Predicting tenocyte expression profiles and average molecular concentrations in Achilles tendon ECM from tissue strain and fiber damage. Biomechanics and Modeling in Mechanobiology, 2017, 16, 1329-1348.	1.4	13
75	Analysis of the critical determinants of renal medullary oxygenation. American Journal of Physiology - Renal Physiology, 2019, 317, F1483-F1502.	1.3	13
76	Renal oxygenation: From data to insight. Acta Physiologica, 2020, 228, e13450.	1.8	13
77	Electrodifusive Transport in Charged Porous Media: From the Particle-Level Scale to the Macroscopic Scale Using Volume Averaging. Journal of Porous Media, 2009, 12, 101-118.	1.0	13
78	On strain and stress in living cells. Journal of the Mechanics and Physics of Solids, 2014, 71, 239-252.	2.3	12
79	Solution of the unsaturated soil moisture equation using repeated transforms. International Journal for Numerical and Analytical Methods in Geomechanics, 2001, 25, 1501-1524.	1.7	11
80	The indirect estimation of saturated hydraulic conductivity of soils, using measurements of gas permeability. I. Laboratory testing with dry granular soils. Soil Research, 2006, 44, 719.	0.6	11
81	Letter to the editor: "The plausibility of arterial-to-venous oxygen shunting in the kidney: it all depends on radial geometry" American Journal of Physiology - Renal Physiology, 2015, 309, F179-F180.	1.3	11
82	Micro-computed tomographic analysis of the radial geometry of intrarenal artery-vein pairs in rats and rabbits: Comparison with light microscopy. Clinical and Experimental Pharmacology and Physiology, 2017, 44, 1241-1253.	0.9	11
83	Systems Based Study of the Therapeutic Potential of Small Charged Molecules for the Inhibition of IL-1 Mediated Cartilage Degradation. PLoS ONE, 2016, 11, e0168047.	1.1	11
84	The analysis of pollutant migration through soil with linear hereditary time-dependent sorption. International Journal for Numerical and Analytical Methods in Geomechanics, 1993, 17, 255-274.	1.7	10
85	Coupled multi-ion electrodiffusion analysis for clay soils. Canadian Geotechnical Journal, 2004, 41, 287-298.	1.4	10
86	Articular Cartilage Dynamics. , 2019, , .		10
87	Electro-difusive transport in macroscopic porous media: Estimation of effective transport properties using numerical upscaling. Computers and Geotechnics, 2013, 48, 283-292.	2.3	9
88	Analytic solutions to the advective contaminant transport equation with non-linear sorption. International Journal for Numerical and Analytical Methods in Geomechanics, 1999, 23, 853-879.	1.7	8
89	Numerical particle-scale study of swelling pressure in clays. KSCE Journal of Civil Engineering, 2009, 13, 273-279.	0.9	8
90	Controlling seepage in discrete particle simulations of biological systems. Computer Methods in Biomechanics and Biomedical Engineering, 2016, 19, 1160-1170.	0.9	8

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91	Three-dimensional morphometric analysis of the renal vasculature. American Journal of Physiology - Renal Physiology, 2018, 314, F715-F725.	1.3	8
92	A mathematical model for targeting chemicals to tissues by exploiting complex degradation. Biology Direct, 2011, 6, 46.	1.9	7
93	A cardiovascular model for renal perfusion during cardiopulmonary bypass surgery. Computers in Biology and Medicine, 2020, 119, 103676.	3.9	7
94	A Probabilistic Failure Risk Approach to The Problem of Articular Cartilage Lubrication. Computer Methods and Programs in Biomedicine, 2021, 203, 106053.	2.6	7
95	Bone Balance within a Cortical BMU: Local Controls of Bone Resorption and Formation. PLoS ONE, 2012, 7, e40268.	1.1	6
96	Short-term consolidation of articular cartilage in the long-term context of osteoarthritis. Journal of Theoretical Biology, 2015, 368, 102-112.	0.8	6
97	Estimating outflow facility through pressure dependent pathways of the human eye. PLoS ONE, 2017, 12, e0188769.	1.1	6
98	Predicting oxygen tension along the ureter. American Journal of Physiology - Renal Physiology, 2021, 321, F527-F547.	1.3	6
99	Numerical modelling of competitive components transport with non-linear adsorption. International Journal for Numerical and Analytical Methods in Geomechanics, 2000, 24, 47-71.	1.7	5
100	Stimulation of erythropoietin release by hypoxia and hypoxemia: similar but different. Kidney International, 2019, 95, 23-25.	2.6	5
101	Two-scale model for electro-diffusive transport through charged porous materials. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012112.	0.3	4
102	Hypoxia as a Biomarker of Kidney Disease. , 2016, , 83-105.		4
103	Estimating three-dimensional outflow and pressure gradients within the human eye. PLoS ONE, 2019, 14, e0214961.	1.1	4
104	Decontamination of a polluted aquifer using an interception/sorption trench: dispersion-advection analysis with linear hereditary sorption. Computers and Geotechnics, 1993, 15, 163-186.	2.3	3
105	Effect of collagen length distribution and timing for repair on the active TGF- β^2 concentration in tendon. Connective Tissue Research, 2018, 59, 396-409.	1.1	3
106	Estimating vertical and lateral pressures in periodically structured montmorillonite clay particles. Anais Da Academia Brasileira De Ciencias, 2010, 82, 13-24.	0.3	2
107	Computer Simulation-Based Modeling of the Pharmaceutical Intervention of Postmenopausal Osteoporosis by Denosumab. , 2012, , .		2
108	Solute Transport Through a Deforming Porous Medium. , 2001, , 783-788.		1

#	ARTICLE	IF	CITATIONS
109	Discussion of "Parametric Study of One-Dimensional Solute Transport in Deformable Porous Media" by Akram N. Alshawabkeh and Nima Rahbar. Journal of Geotechnical and Geoenvironmental Engineering - ASCE, 2008, 134, 414-416.	1.5	1
110	Theoretical analysis of the spatio-temporal structure of bone multicellular units. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012132.	0.3	1
111	A programmable generic smart battery management system. , 2014, , .		1
112	Hypoxia as a Biomarker of Kidney Disease. , 2015, , 1-23.		1
113	Using Numerical Model to Predict Hydrocephalus Based on MRI Images. , 2007, , .		0
114	Computer Visualisation of Interrelationships Between Multiple Variables Across Human Pregnancy. , 2007, , .		0
115	Coupled Mechanical Consolidation and Contaminant Transport Modelling of Composite Barrier Systems: A Parametric Sensitivity Analysis. , 2008, , .		0
116	Modeling of electro-diffusive ion transport through charged porous materials using a multiscale iterative approach. , 2010, , .		0
117	Efficient solution methods for modelling slowly evolving mechanical phenomena in cells and tissues using the discrete element method. Engineering Analysis With Boundary Elements, 2019, 100, 175-184.	2.0	0
118	Estimating outflow facility parameters for the human eye using hypotensive pressure-time data. PLoS ONE, 2020, 15, e0238146.	1.1	0