G Wayne Brodland

List of Publications by Year
in descending order

70 papers	2,974 citations	172443 29 h-index	175241 52 g-index
71 all docs	71 docs citations	71 times ranked	2812 citing authors

#	Article	IF	Citations
1	Forces driving epithelial wound healing. Nature Physics, 2014, 10, 683-690.	16.7	326
2	The Differential Interfacial Tension Hypothesis (DITH): A Comprehensive Theory for the Self-Rearrangement of Embryonic Cells and Tissues. Journal of Biomechanical Engineering, 2002, 124, 188-197.	1.3	221
3	Control of the Mitotic Cleavage Plane by Local Epithelial Topology. Cell, 2011, 144, 427-438.	28.9	173
4	How computational models can help unlock biological systems. Seminars in Cell and Developmental Biology, 2015, 47-48, 62-73.	5.0	171
5	Video force microscopy reveals the mechanics of ventral furrow invagination in Drosophila. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 22111-22116.	7.1	155
6	Biaxial mechanical testing of human sclera. Journal of Biomechanics, 2010, 43, 1696-1701.	2.1	114
7	High strain rate compressive properties of bovine muscle tissue determined using a split Hopkinson bar apparatus. Journal of Biomechanics, 2006, 39, 1852-1858.	2.1	104
8	CellFIT: A Cellular Force-Inference Toolkit Using Curvilinear Cell Boundaries. PLoS ONE, 2014, 9, e99116.	2.5	94
9	Cell-Level Finite Element Studies of Viscous Cells in Planar Aggregates. Journal of Biomechanical Engineering, 2000, 122, 394-401.	1.3	93
10	Computational modeling of cell sorting, tissue engulfment, and related phenomena: A review. Applied Mechanics Reviews, 2004, 57, 47-76.	10.1	80
11	Tensile properties of embryonic epithelia measured using a novel instrument. Journal of Biomechanics, 2005, 38, 2087-2094.	2.1	80
12	Combining Laser Microsurgery and Finite Element Modeling to Assess Cell-Level Epithelial Mechanics. Biophysical Journal, 2009, 97, 3075-3085.	0.5	80
13	The Mechanics of Heterotypic Cell Aggregates: Insights From Computer Simulations. Journal of Biomechanical Engineering, 2000, 122, 402-407.	1.3	68
14	Strain Uniformity in Biaxial Specimens is Highly Sensitive to Attachment Details. Journal of Biomechanical Engineering, 2009, 131, 091003.	1.3	67
15	Multi-scale finite element modeling allows the mechanics of amphibian neurulation to be elucidated. Physical Biology, 2008, 5, 015003.	1.8	63
16	The cytoskeletal mechanics of brain morphogenesis. Cell Biophysics, 1987, 11, 177-238.	0.4	60
17	Interstitial fluid osmolarity modulates the action of differential tissue surface tension in progenitor cell segregation during gastrulation. Development (Cambridge), 2017, 144, 1798-1806.	2.5	60
18	Coordination of Receptor Tyrosine Kinase Signaling and Interfacial Tension Dynamics Drives Radial Intercalation and Tube Elongation. Developmental Cell, 2018, 45, 67-82.e6.	7.0	59

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19	The mechanics of cell sorting and envelopment. Journal of Biomechanics, 2000, 33, 845-851.	2.1	55
20	A cell-based constitutive model for embryonic epithelia and other planar aggregates of biological cells. International Journal of Plasticity, 2006, 22, 965-995.	8.8	51
21	A new cell-based FE model for the mechanics of embryonic epithelia. Computer Methods in Biomechanics and Biomedical Engineering, 2007, 10, 121-128.	1.6	51
22	Computer simulations of mitosis and interdependencies between mitosis orientation, cell shape and epithelia reshaping. Journal of Biomechanics, 2002, 35, 673-681.	2.1	44
23	DRhoGEF2 Regulates Cellular Tension and Cell Pulsations in the Amnioserosa during Drosophila Dorsal Closure. PLoS ONE, 2011, 6, e23964.	2.5	44
24	Measuring the Modulus of Silicone Hydrogel Contact Lenses. Optometry and Vision Science, 2012, 89, 1468-1476.	1.2	42
25	Inferring cellular forces from image stacks. Philosophical Transactions of the Royal Society B: Biological Sciences, 2017, 372, 20160261.	4.0	41
26	Furrowing surface contraction wave coincident with primary neural induction in amphibian embryos. Journal of Morphology, 1994, 219, 131-142.	1.2	39
27	Cell Sorting in Three Dimensions: Topology, Fluctuations, and Fluidlike Instabilities. Physical Review Letters, 2008, 101, 148105.	7.8	36
28	From genes to neural tube defects (NTDs): Insights from multiscale computational modeling. HFSP Journal, 2010, 4, 142-152.	2.5	32
29	Mechanical Effects of Cell Anisotropy on Epithelia. Computer Methods in Biomechanics and Biomedical Engineering, 2004, 7, 91-99.	1.6	31
30	Measurement of in vivo Stress Resultants in Neurulation-stage Amphibian Embryos. Annals of Biomedical Engineering, 2007, 35, 672-681.	2.5	30
31	Cellular interfacial and surface tensions determined from aggregate compression tests using a finite element model. HFSP Journal, 2009, 3, 273-281.	2.5	27
32	A Three-dimensional Finite Element Model for the Mechanics of Cell-Cell Interactions. Journal of Biomechanical Engineering, 2007, 129, 651.	1.3	26
33	The Mechanics of Metastasis: Insights from a Computational Model. PLoS ONE, 2012, 7, e44281.	2.5	24
34	Multiview Robotic Microscope Reveals the In-plane Kinematics of Amphibian Neurulation. Annals of Biomedical Engineering, 2005, 33, 821-828.	2.5	23
35	Mechanical determinants of epithelium thickness in early-stage embryos. Journal of the Mechanical Behavior of Biomedical Materials, 2009, 2, 494-501.	3.1	22
36	Novel lap test determines the mechanics of delamination between annular lamellae of the intervertebral disc. Journal of Biomechanics, 2011, 44, 97-102.	2.1	21

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37	Finite Element Methods for Developmental Biology. International Review of Cytology, 1994, 150, 95-118.	6.2	17
38	New information from cell aggregate compression tests and its implications for theories of cell sorting. Biorheology, 2003, 40, 273-7.	0.4	17
39	A Computer Model for Reshaping of Cells in Epithelia Due to In-plane Deformation and Annealing. Computer Methods in Biomechanics and Biomedical Engineering, 2003, 6, 89-98.	1.6	16
40	Lamellipodium-driven tissue reshaping: A parametric study. Computer Methods in Biomechanics and Biomedical Engineering, 2006, 9, 17-23.	1.6	16
41	Cinemechanometry (CMM): A Method to Determine the Forces that Drive Morphogenetic Movements from Time-Lapse Images. Annals of Biomedical Engineering, 2010, 38, 2937-2947.	2.5	16
42	Cytoskeletal mechanics of neurulation: insights obtained from computer simulations. Biochemistry and Cell Biology, 1995, 73, 545-553.	2.0	15
43	Practical aspects of the cellular force inference toolkit (CellFIT). Methods in Cell Biology, 2015, 125, 331-351.	1.1	15
44	ON SQUARE HOLES IN PENNATE DIATOMS. Diatom Research, 1990, 5, 409-413.	1.2	14
45	Non-straight cell edges are important to invasion and engulfment as demonstrated by cell mechanics model. Biomechanics and Modeling in Mechanobiology, 2016, 15, 405-418.	2.8	14
46	Modeling cell elongation during germ band retraction: cell autonomy versus applied anisotropic stress. New Journal of Physics, 2014, 16, 055003.	2.9	12
47	Highly non-linear deformation of uniformly-loaded circular plates. International Journal of Solids and Structures, 1988, 24, 351-362.	2.7	10
48	Fluid and Matrix Components of Polyurethane Foam Behavior Under Cyclic Compression. Journal of Engineering Materials and Technology, Transactions of the ASME, 1996, 118, 58-62.	1.4	10
49	Morphogenetic movements during axolotl neural tube formation tracked by digital imaging. Roux's Archives of Developmental Biology, 1996, 205, 311-318.	1.2	10
50	Estimating Interfacial Tension from the Shape Histories of Cells in Compressed Aggregates: A Computational Study. Annals of Biomedical Engineering, 2009, 37, 1019-1027.	2.5	10
51	Estimation of cellular fabric in embryonic epithelia. Computer Methods in Biomechanics and Biomedical Engineering, 2007, 10, 75-84.	1.6	9
52	Automated 3-D Reconstruction of the Surface of Live Early-Stage Amphibian Embryos. IEEE Transactions on Biomedical Engineering, 2005, 52, 1407-1414.	4.2	8
53	Assessing the mechanical energy costs of various tissue reshaping mechanisms. Biomechanics and Modeling in Mechanobiology, 2012, 11, 1137-1147.	2.8	8
54	Automated Detection of Mitosis in Embryonic Tissues. , 2007, , .		7

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55	Deflection and Snapping of Ring-Loaded Spherical Caps. Journal of Applied Mechanics, Transactions ASME, 1989, 56, 127-132.	2.2	5
56	A Framework for Connecting Gene Expression to Morphogenetic Movements in Embryos. IEEE Transactions on Biomedical Engineering, 2011, 58, 3033-3036.	4.2	5
57	On the origins of the mitotic shift in proliferating cell layers. Theoretical Biology and Medical Modelling, 2014, 11, 26.	2.1	5
58	Elongated Cells Drive Morphogenesis in a Surface-Wrapped Finite-Element Model of Germband Retraction. Biophysical Journal, 2019, 117, 157-169.	0.5	5
59	Convergence Acceleration for Iterative Finite-Element Methods. Journal of Engineering Mechanics - ASCE, 1995, 121, 1-6.	2.9	4
60	Identifying Same-Cell Contours in Image Stacks: A Key Step in Making 3D Reconstructions. Annals of Biomedical Engineering, 2011, 39, 698-705.	2.5	4
61	Mechanics and Failure of Multilayer, Reinforced Membranes. Journal of Materials in Civil Engineering, 1993, 5, 293-307.	2.9	3
62	Large–Strain Analysis of Reinforced Membranes. Journal of Engineering Mechanics - ASCE, 1993, 119, 2461-2477.	2.9	2
63	A videofluoroscopy-based tracking algorithm for quantifying the time course of human intervertebral displacements. Computer Methods in Biomechanics and Biomedical Engineering, 2017, 20, 794-802.	1.6	2
64	Digital tracking algorithm reveals the influence of structural irregularities on joint movements in the human cervical spine. Clinical Biomechanics, 2018, 56, 11-17.	1.2	2
65	The Mechanics of Early Embryo Development: Insights from Finite Element Modeling. , 2006, , 459-469.		2
66	Analysis of strain averaged data from finite length gauges and predictions of peak strain for planar notch and fillet problems. Strain, 1988, 24, 147-152.	2.4	1
67	Detection of mitoses in embryonic epithelia using motion field analysis. Computer Methods in Biomechanics and Biomedical Engineering, 2009, 12, 151-163.	1.6	1
68	Detecting Mitoses in Time-Lapse Images of Embryonic Epithelia Using Intensity Analysis. Annals of Biomedical Engineering, 2009, 37, 2646-2655.	2.5	1
69	Design Expressions Based on a Finite Element Model of a Stiffened Cold-Formed Steel C-Section. Journal of Structural Engineering, 2004, 130, 708-714.	3.4	0
70	The mechanics of neurulation: Insights from a whole–embryo computational model. FASEB Journal, 2007, 21, A199.	0.5	0