Alexander E Ehret

List of Publications by Year
in descending order

66 papers	1,935 citations	201575 27 h-index	265120 42 g-index
68 all docs	68 docs citations	68 times ranked	2033 citing authors

#	Article	IF	Citations
1	Confocal reference free traction force microscopy. Nature Communications, 2016, 7, 12814.	5.8	109
2	A polyconvex hyperelastic model for fiber-reinforced materials in application to soft tissues. Journal of Materials Science, 2007, 42, 8853-8863.	1.7	98
3	Modeling of anisotropic softening phenomena: Application to soft biological tissues. International Journal of Plasticity, 2009, 25, 901-919.	4.1	91
4	Numerical integration on the sphere and its effect on the material symmetry of constitutive equationsâ€"A comparative study. International Journal for Numerical Methods in Engineering, 2010, 81, 189-206.	1.5	84
5	A continuum constitutive model for the active behaviour of skeletal muscle. Journal of the Mechanics and Physics of Solids, 2011, 59, 625-636.	2.3	79
6	Mechanical biocompatibility of highly deformable biomedical materials. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 48, 100-124.	1.5	78
7	On the anisotropy of skeletal muscle tissue under compression. Acta Biomaterialia, 2014, 10, 3225-3234.	4.1	77
8	Experimental and theoretical analyses of the age-dependent large-strain behavior of Sylgard 184 (10:1) silicone elastomer. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 60, 425-437.	1.5	75
9	Inverse poroelasticity as a fundamental mechanism in biomechanics and mechanobiology. Nature Communications, 2017, 8, 1002.	5.8	69
10	Recent advances in mechanical characterisation of biofilm and their significance for material modelling. Critical Reviews in Biotechnology, 2013, 33, 145-171.	5.1	68
11	A polyconvex anisotropic strainâ€"energy function for soft collagenous tissues. Biomechanics and Modeling in Mechanobiology, 2006, 5, 17-26.	1.4	57
12	Compressive properties of passive skeletal muscleâ€"The impact of precise sample geometry on parameter identification in inverse finite element analysis. Journal of Biomechanics, 2012, 45, 2673-2679.	0.9	56
13	Deformation mechanisms of human amnion: Quantitative studies based on second harmonic generation microscopy. Journal of Biomechanics, 2015, 48, 1606-1613.	0.9	53
14	The suture retention test, revisited and revised. Journal of the Mechanical Behavior of Biomedical Materials, 2018, 77, 711-717.	1.5	50
15	On the large strain deformation behavior of silicone-based elastomers for biomedical applications. Polymer Testing, 2017, 58, 189-198.	2.3	46
16	On a molecular statistical basis for Ogden's model of rubber elasticity. Journal of the Mechanics and Physics of Solids, 2015, 78, 249-268.	2.3	45
17	Correlating diameter, mechanical and structural properties of poly(l-lactide) fibres from needleless electrospinning. Acta Biomaterialia, 2018, 81, 169-183.	4.1	43
18	Time-dependent mechanical behavior of human amnion: Macroscopic and microscopic characterization. Acta Biomaterialia, 2015, 11, 314-323.	4.1	42

#	Article	IF	Citations
19	Tear resistance of soft collagenous tissues. Nature Communications, 2019, 10, 792.	5.8	40
20	A 3D computational model of electrospun networks and its application to inform a reduced modelling approach. International Journal of Solids and Structures, 2019, 158, 76-89.	1.3	39
21	A Full-Network Rubber Elasticity Model based on Analytical Integration. Mathematics and Mechanics of Solids, 2010, 15, 655-671.	1.5	36
22	A discrete network model to represent the deformation behavior of human amnion. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 58, 45-56.	1.5	36
23	Tissue-scale anisotropy and compressibility of tendon in semi-confined compression tests. Journal of Biomechanics, 2015, 48, 1092-1098.	0.9	34
24	A novel experimental procedure based on pure shear testing of dermatome-cut samples applied to porcine skin. Biomechanics and Modeling in Mechanobiology, 2011, 10, 651-661.	1.4	33
25	A 2.5D approach to the mechanics of electrospun fibre mats. Soft Matter, 2017, 13, 6407-6421.	1.2	32
26	Random auxetics from buckling fibre networks. Nature Communications, 2019, 10, 4863.	5.8	31
27	Factors affecting the mechanical behavior of collagen hydrogels for skin tissue engineering. Journal of the Mechanical Behavior of Biomedical Materials, 2017, 69, 85-97.	1.5	30
28	On a staggered iFEM approach to account for friction in compression testing of soft materials. Journal of the Mechanical Behavior of Biomedical Materials, 2013, 27, 204-213.	1.5	29
29	On the cyclic deformation behavior, fracture properties and cytotoxicity of silicone-based elastomers for biomedical applications. Polymer Testing, 2017, 60, 117-123.	2.3	24
30	Microstructure based prediction of the deformation behavior of soft collagenous membranes. Soft Matter, 2017, 13, 5107-5116.	1.2	23
31	Modelling mechanical characteristics of microbial biofilms by network theory. Journal of the Royal Society Interface, 2013, 10, 20120676.	1.5	21
32	Chemomechanical models for soft tissues based on the reconciliation of porous media and swelling polymer theories. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2018, 98, 2135-2154.	0.9	20
33	A model for the compressible, viscoelastic behavior of human amnion addressing tissue variability through a single parameter. Biomechanics and Modeling in Mechanobiology, 2016, 15, 1005-1017.	1.4	19
34	Predicting the macroscopic response of electrospun membranes based on microstructure and single fibre properties. Journal of the Mechanical Behavior of Biomedical Materials, 2020, 104, 103634.	1.5	19
35	Mechanical Characteristics of Bovine Glisson's Capsule as a Model Tissue for Soft Collagenous Membranes. Journal of Biomechanical Engineering, 2016, 138, .	0.6	18
36	Long-term mechanical behaviour of skeletal muscle tissue in semi-confined compression experiments. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 63, 115-124.	1.5	18

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37	On the defect tolerance of fetal membranes. Interface Focus, 2019, 9, 20190010.	1.5	18
38	Myocardial material parameter estimation: a comparison of invariant based orthotropic constitutive equations. Computer Methods in Biomechanics and Biomedical Engineering, 2009, 12, 283-295.	0.9	17
39	A new approach to the simulation of microbial biofilms by a theory of fluid-like pressure-restricted finite growth. Computer Methods in Applied Mechanics and Engineering, 2014, 272, 271-289.	3.4	16
40	Risky interpretations across the length scales: continuum vs. discrete models for soft tissue mechanobiology. Biomechanics and Modeling in Mechanobiology, 2022, 21, 433-454.	1.4	16
41	The multiscale stiffness of electrospun substrates and aspects of their mechanical biocompatibility. Acta Biomaterialia, 2019, 84, 146-158.	4.1	14
42	3D finite element models from serial section histology of skeletal muscle tissue â€" The role of micro-architecture on mechanical behaviour. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 113, 104109.	1.5	13
43	A Universal Model for the Elastic, Inelastic and Active Behaviour of Soft Biological Tissues. GAMM Mitteilungen, 2009, 32, 221-236.	2.7	12
44	Direct measurement of the direction-dependent mechanical behaviour of skeletal muscle extracellular matrix. Acta Biomaterialia, 2021, 122, 249-262.	4.1	12
45	Factors influencing the determination of cell traction forces. PLoS ONE, 2017, 12, e0172927.	1.1	12
46	Porcine dermis in uniaxial cyclic loading: Sample preparation, experimental results and modeling. Journal of Mechanics of Materials and Structures, 2011, 6, 1125-1135.	0.4	11
47	The effect of clamping conditions on tearing energy estimation for highly stretchable materials. Engineering Fracture Mechanics, 2018, 188, 300-308.	2.0	11
48	Constitutive modelling of fibre networks with stretch distributions. Part I: Theory and illustration. Journal of the Mechanics and Physics of Solids, 2022, 167, 104960.	2.3	10
49	Predicting muscle tissue response from calibrated component models and histology-based finite element models. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 117, 104375.	1.5	8
50	Visco- and poroelastic contributions of the zona pellucida to the mechanical response of oocytes. Biomechanics and Modeling in Mechanobiology, 2021, 20, 751-765.	1.4	7
51	An Invariant-Based Ogden-Type Model for Incompressible Isotropic Hyperelastic Materials. Journal of Elasticity, 2016, 125, 63-71.	0.9	6
52	On multiscale tension-compression asymmetry in skeletal muscle. Acta Biomaterialia, 2022, 144, 210-220.	4.1	5
53	Invariants for Rari- and Multi-Constant Theories with Generalization to Anisotropy in Biological Tissues. Journal of Elasticity, 2018, 133, 119-127.	0.9	4
54	A Viscoelastic Anisotropic Model for Soft Collageneous Tissues Based on Distributed Fiberâ€"Matrix Units. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2010, , 55-65.	0.1	3

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55	Biâ€phasic theory vs. volumetric viscoelasticity for modelling the behaviour of thin collagenous membranes. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 107-108.	0.2	3
56	A continuum model for free growth in living materials. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 123-124.	0.2	2
57	A microstructurally motivated anisotropic viscoelastic model for soft tissues. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10171-10172.	0.2	1
58	A network model for the EPS matrix of microbial biofilms. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 125-126.	0.2	1
59	Non-affine strain measures for continuum models of network materials. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 435-436.	0.2	1
60	On the homogeneity and isotropy of planar long fibre network computational models. SN Applied Sciences, 2020, 2, 1.	1.5	1
61	Tailoring the multiscale architecture of electrospun membranes to promote 3D cellular infiltration. Materials Science and Engineering C, 2021, 130, 112427.	3.8	1
62	Modeling dissipative effects in anisotropic materials by means of evolving generalized structural tensors. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 4060047-4060048.	0.2	0
63	An anisotropic viscoelastic model for collagenous soft tissues at large strains - Computational aspects. Proceedings in Applied Mathematics and Mechanics, 2009, 9, 161-162.	0.2	0
64	Analytical Integration on the Sphere and its Application to Full-Network Models in Rubber Elasticity. , 2010, , .		0
65	Mechanics of biological membranes. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 58, 1.	1.5	0
66	Recent topics in biomechanics and mechanobiology. GAMM Mitteilungen, 2019, 42, e201900017.	2.7	0