

Mikhail Itskov

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126
papers

1,919
citations

25
h-index

40
g-index

150
ext. papers

2,222
ext. citations

2
avg, IF

5.52
L-index

#	Paper	IF	Citations
126	A class of orthotropic and transversely isotropic hyperelastic constitutive models based on a polyconvex strain energy function. <i>International Journal of Solids and Structures</i> , 2004 , 41, 3833-3848	3.1	143
125	A network evolution model for the anisotropic Mullins effect in carbon black filled rubbers. <i>International Journal of Solids and Structures</i> , 2009 , 46, 2967-2977	3.1	120
124	A polyconvex hyperelastic model for fiber-reinforced materials in application to soft tissues. <i>Journal of Materials Science</i> , 2007 , 42, 8853-8863	4.3	82
123	Modeling of anisotropic softening phenomena: Application to soft biological tissues. <i>International Journal of Plasticity</i> , 2009 , 25, 901-919	7.6	76
122	A continuum constitutive model for the active behaviour of skeletal muscle. <i>Journal of the Mechanics and Physics of Solids</i> , 2011 , 59, 625-636	5	67
121	On the theory of fourth-order tensors and their applications in computational mechanics. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2000 , 189, 419-438	5.7	61
120	Elastic constants and their admissible values for incompressible and slightly compressible anisotropic materials. <i>Acta Mechanica</i> , 2002 , 157, 81-96	2.1	58
119	Composite laminates: nonlinear interlaminar stress analysis by multi-layer shell elements. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2000 , 185, 367-397	5.7	55
118	A polyconvex anisotropic strain-energy function for soft collagenous tissues. <i>Biomechanics and Modeling in Mechanobiology</i> , 2006 , 5, 17-26	3.8	50
117	Mechanics of Nanostructured Porous Silica Aerogel Resulting from Molecular Dynamics Simulations. <i>Journal of Physical Chemistry B</i> , 2017 , 121, 5660-5668	3.4	48
116	Constitutive modeling of the Mullins effect and cyclic stress softening in filled elastomers. <i>Physical Review E</i> , 2013 , 88, 012602	2.4	46
115	Analytical network-averaging of the tube model. <i>Journal of the Mechanics and Physics of Solids</i> , 2016 , 95, 254-269	5	41
114	On the application of the additive decomposition of generalized strain measures in large strain plasticity. <i>Mechanics Research Communications</i> , 2004 , 31, 507-517	2.2	40
113	A generalized network decomposition model for the quasi-static inelastic behavior of filled elastomers. <i>International Journal of Plasticity</i> , 2014 , 63, 94-109	7.6	38
112	Micro-mechanical modelling of cellulose aerogels from molten salt hydrates. <i>Soft Matter</i> , 2016 , 12, 7079-7088	3.8	38
111	A simple and accurate approximation of the inverse Langevin function. <i>Rheologica Acta</i> , 2015 , 54, 455-459	2.3	37
110	Taylor expansion of the inverse function with application to the Langevin function. <i>Mathematics and Mechanics of Solids</i> , 2012 , 17, 693-701	2.3	37

109	Computation of the exponential and other isotropic tensor functions and their derivatives. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2003 , 192, 3985-3999	5.7	36
108	A thermodynamically consistent phenomenological model of the anisotropic Mullins effect. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 2010 , 90, 370-386	1	35
107	Finite element formulation of the Ogden material model with application to rubber-like shells. <i>International Journal for Numerical Methods in Engineering</i> , 1998 , 42, 1279-1305	2.4	35
106	A closed-form representation for the derivative of non-symmetric tensor power series. <i>International Journal of Solids and Structures</i> , 2002 , 39, 5963-5978	3.1	35
105	A generalized orthotropic hyperelastic material model with application to incompressible shells. <i>International Journal for Numerical Methods in Engineering</i> , 2001 , 50, 1777-1799	2.4	31
104	A Full-Network Rubber Elasticity Model based on Analytical Integration. <i>Mathematics and Mechanics of Solids</i> , 2010 , 15, 655-671	2.3	29
103	Fracture of silica aerogels: An all-atom simulation study. <i>Journal of Non-Crystalline Solids</i> , 2018 , 498, 125-129	3.29	27
102	A novel experimental procedure based on pure shear testing of dermatome-cut samples applied to porcine skin. <i>Biomechanics and Modeling in Mechanobiology</i> , 2011 , 10, 651-61	3.8	27
101	Tensor Algebra and Tensor Analysis for Engineers. <i>Mathematical Engineering</i> , 2013 ,	0.8	25
100	Impact of transmural heterogeneities on arterial adaptation: application to aneurysm formation. <i>Biomechanics and Modeling in Mechanobiology</i> , 2010 , 9, 295-315	3.8	25
99	An averaging based tube model for deformation induced anisotropic stress softening of filled elastomers. <i>International Journal of Plasticity</i> , 2017 , 90, 96-115	7.6	24
98	A rubber elasticity and softening model based on chain length statistics. <i>International Journal of Solids and Structures</i> , 2016 , 80, 512-519	3.1	24
97	Constitutive modeling of strain-induced crystallization in filled rubbers. <i>Physical Review E</i> , 2014 , 89, 022604	2.4	24
96	Constitutive model and finite element formulation for large strain elasto-plastic analysis of shells. <i>Computational Mechanics</i> , 1999 , 23, 466-481	4	24
95	A constitutive model for orthotropic elasto-plasticity at large strains. <i>Archive of Applied Mechanics</i> , 2004 , 74, 75-91	2.2	23
94	Tensor Algebra and Tensor Analysis for Engineers 2009 ,		23
93	On the accuracy of numerical integration over the unit sphere applied to full network models. <i>Computational Mechanics</i> , 2016 , 57, 859-865	4	23
92	Consistent formulation of the growth process at the kinematic and constitutive level for soft tissues composed of multiple constituents. <i>Computer Methods in Biomechanics and Biomedical Engineering</i> , 2012 , 15, 547-61	2.1	21

91	Application of the Dunford-Taylor integral to isotropic tensor functions and their derivatives. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2003 , 459, 1449-1457 ^{2.4}	2.4	21
90	Analytical network-averaging of the tube model: Strain-induced crystallization in natural rubber. <i>Journal of the Mechanics and Physics of Solids</i> , 2018 , 116, 350-369	5	20
89	T2 MR imaging vs. computational modeling of human articular cartilage tissue functionality. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2017 , 74, 477-487	4.1	18
88	A polyconvex anisotropic free energy function for electro- and magneto-rheological elastomers. <i>Mathematics and Mechanics of Solids</i> , 2016 , 21, 1126-1137	2.3	17
87	Influence of differing material properties in media and adventitia on arterial adaptation--application to aneurysm formation and rupture. <i>Computer Methods in Biomechanics and Biomedical Engineering</i> , 2013 , 16, 33-53	2.1	17
86	Constitutive artificial neural networks: A fast and general approach to predictive data-driven constitutive modeling by deep learning. <i>Journal of Computational Physics</i> , 2021 , 429, 110010	4.1	17
85	Correlating Synthesis Parameters to Morphological Entities: Predictive Modeling of Biopolymer Aerogels. <i>Materials</i> , 2018 , 11,	3.5	17
84	A simple algorithm for the fast calculation of higher order derivatives of the inverse function. <i>Applied Mathematics and Computation</i> , 2013 , 221, 833-838	2.7	16
83	A Multiaxial Theory of Double Network Hydrogels. <i>Macromolecules</i> , 2019 , 52, 5937-5947	5.5	15
82	Fatigue of soft fibrous tissues: Multi-scale mechanics and constitutive modeling. <i>Acta Biomaterialia</i> , 2018 , 71, 398-410	10.8	13
81	Multi-scale modeling of soft fibrous tissues based on proteoglycan mechanics. <i>Journal of Biomechanics</i> , 2016 , 49, 2349-57	2.9	12
80	A Universal Model for the Elastic, Inelastic and Active Behaviour of Soft Biological Tissues. <i>GAMM Mitteilungen</i> , 2009 , 32, 221-236	1.8	12
79	Yield behavior of colloidal aggregates due to combined tensile-bending loads. <i>Physical Review E</i> , 2012 , 85, 051406	2.4	12
78	Network evolution model of anisotropic stress softening in filled rubber-like materials: Parameter identification and finite element implementation. <i>Journal of Mechanics of Materials and Structures</i> , 2012 , 7, 861-885	1.2	10
77	Modeling and Simulation of the Aggregation and the Structural and Mechanical Properties of Silica Aerogels. <i>Journal of Physical Chemistry B</i> , 2021 , 125, 1944-1950	3.4	10
76	Worm-like chain model extensions for highly stretched tropocollagen molecules. <i>Journal of Biomechanics</i> , 2018 , 80, 129-135	2.9	10
75	Mechanics of biopolymer aerogels based on microstructures generated from 2-d Voronoi tessellations. <i>Journal of Supercritical Fluids</i> , 2019 , 151, 24-29	4.2	9
74	Towards Patient-Specific Computational Modelling of Articular Cartilage on the Basis of Advanced Multiparametric MRI Techniques. <i>Scientific Reports</i> , 2019 , 9, 7172	4.9	9

73	Mechanics of collagen fibrils: A two-scale discrete damage model. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2016 , 58, 163-172	4.1	9
72	Tensor Algebra and Tensor Analysis for Engineers. <i>Mathematical Engineering</i> , 2019 ,	0.8	9
71	A microcell-based constitutive modeling of cellulose aerogels under tension. <i>Acta Mechanica</i> , 2018 , 229, 585-593	2.1	9
70	Tensor Algebra and Tensor Analysis for Engineers. <i>Mathematical Engineering</i> , 2015 ,	0.8	8
69	Constitutive modeling of carbon nanotube rubber composites on the basis of chain length statistics. <i>Composites Part B: Engineering</i> , 2016 , 90, 69-75	10	8
68	A generalized tube model of rubber elasticity. <i>Soft Matter</i> , 2021 , 17, 1675-1684	3.6	8
67	The three-dimensional structure of flexible resorcinol-formaldehyde aerogels investigated by means of holotomography. <i>Journal of Sol-Gel Science and Technology</i> , 2017 , 84, 391-399	2.3	7
66	Porcine dermis in uniaxial cyclic loading: Sample preparation, experimental results and modeling. <i>Journal of Mechanics of Materials and Structures</i> , 2011 , 6, 1125-1135	1.2	7
65	Analytical network-averaging of the tube model: Mechanically induced chemiluminescence in elastomers. <i>International Journal of Plasticity</i> , 2018 , 102, 1-15	7.6	7
64	An averaging based hyperelastic modeling and experimental analysis of non-crimp fabrics. <i>International Journal of Solids and Structures</i> , 2018 , 154, 43-54	3.1	6
63	Microstructural and mechanical characterization of carbon aerogels: An in-situ and digital image correlation-based study. <i>Journal of Non-Crystalline Solids</i> , 2020 , 529, 119568	3.9	6
62	Electroelasticity of dielectric elastomers based on molecular chain statistics. <i>Mathematics and Mechanics of Solids</i> , 2019 , 24, 862-873	2.3	6
61	Experimental Investigation of Viscoelastic Characteristics of Rubber-Cord Composites Considering the Process of Their Self-Heating. <i>Strength of Materials</i> , 2018 , 50, 841-851	0.6	6
60	Micromechanical model for isolated polymer-colloid clusters under tension. <i>Physical Review E</i> , 2016 , 94, 042501	2.4	4
59	Applications to Continuum Mechanics. <i>Mathematical Engineering</i> , 2015 , 191-212	0.8	4
58	Stability Studies of Starch Aerogel Formulations for Biomedical Applications. <i>Biomacromolecules</i> , 2020 , 21, 5336-5344	6.9	4
57	Computational design of biopolymer aerogels and predictive modelling of their nanostructure and mechanical behaviour. <i>Scientific Reports</i> , 2021 , 11, 10198	4.9	4
56	Numerical Simulation of Anisotropy Directions in Soft Tissues and in Particular in Skin. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2013 , 13, 57-58	0.2	3

55	Non-linear elastic behavior of carbon black filler aggregates in rubber-like elastomers 2009 , 489-494		3
54	Micro-mechanical modeling of anisotropic inelastic response of soft tissues under supra-physiological loading. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2014 , 14, 97-98	0.2	2
53	Microstructural changes of filled rubber-like materials under cyclic loading. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2010 , 10, 289-290	0.2	2
52	Temperature-Dependent Stiffening and Inelastic Behavior of Newly Synthesized Fiber-Reinforced Super Flexible Silica Aerogels. <i>Materials</i> , 2019 , 12,	3.5	1
51	Modelling of hydrodynamic strain amplification in filled elastomers. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2016 , 16, 315-316	0.2	1
50	A physically motivated model based on the strain amplification in filled elastomers. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2017 , 17, 411-412	0.2	1
49	Constitutive modeling of fiber-reinforced aerogels. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2015 , 15, 347-348	0.2	1
48	An experimental study towards micro-mechanical modeling of fiber-reinforced aerogels. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2014 , 14, 393-394	0.2	1
47	Applications to Continuum Mechanics. <i>Mathematical Engineering</i> , 2013 , 177-195	0.8	1
46	Constitutive modeling of cyclic stress softening in filled elastomers. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2013 , 13, 143-144	0.2	1
45	Modeling of strain-induced crystallization in natural rubbers. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2011 , 11, 423-424	0.2	1
44	3D modelling of arterial growth for adaptation to hypertension [The influence of transmural changes in the mechanical environment. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2009 , 9, 71-74	0.2	1
43	Non-linear elastic behavior of filler aggregates. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2009 , 9, 349-350	0.2	1
42	Finite-Elemente-Analyse gummiartiger inkompressibler Elastomere unter großen Verzerrungen und Kontaktwechselwirkungen. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 1997 , 77, 585-594	1	1
41	A microstructurally motivated anisotropic viscoelastic model for soft tissues. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2008 , 8, 10171-10172	0.2	1
40	A generalized polyconvex hyperelastic model for anisotropic solids. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2006 , 6, 367-368	0.2	1
39	A generalized inelastic modeling concept for soft fibrous tissues. <i>GAMM Mitteilungen</i> , 2019 , 42, e201900084	0.4	0
38	Analysis of the fractal properties of silica aerogels using diffusion-limited aggregation. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2021 , 20, e202000099	0.2	0

37	Machine learning-based structure-property predictions in silica aerogels. <i>Soft Matter</i> , 2021 , 17, 7350-7358	0.2
36	Large strain constitutive modelling of cellulose aerogels. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2016 , 16, 385-386	0.2
35	Anisotropic Damage Phenomena in Filled Elastomers: Experimental Observation and Constitutive Modeling. <i>Key Engineering Materials</i> , 2013 , 577-578, 161-164	0.4
34	Curves and Surfaces in Three-Dimensional Euclidean Space. <i>Mathematical Engineering</i> , 2013 , 63-83	0.8
33	An explanation of damage and failure in cellulose aerogels: modeling approach. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2017 , 17, 457-458	0.2
32	Emergence of aortic aneurysms due to failure of adhesive bonds between proteoglycans. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2017 , 17, 193-194	0.2
31	Modeling of skin anisotropy directions for identifying stress free reference configuration of the female breast. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2015 , 15, 97-98	0.2
30	Extremal loading of soft fibrous tissues: multi-scale mechanics and constitutive modeling. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2015 , 15, 99-100	0.2
29	A micromechanical model for dynamic strain-induced crystallization in filled natural rubbers 2015 , 521-527	
28	A multi-scale time-dependent constitutive model of soft collagenous tissue. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2015 , 15, 95-96	0.2
27	Multi-scale modeling of double network hydrogels. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2014 , 14, 391-392	0.2
26	Network evolution model: thermodynamics consistency, parameter identification and finite element implementation. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2012 , 12, 267-268	0.2
25	Influence of nano-particle interactions on the mechanical behavior of colloidal structures in polymeric solutions. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2012 , 12, 269-270	0.2
24	Vectors and Tensors in a Finite-Dimensional Space. <i>Mathematical Engineering</i> , 2013 , 1-34	0.8
23	Vector and Tensor Analysis in Euclidean Space. <i>Mathematical Engineering</i> , 2013 , 35-62	0.8
22	Fourth-Order Tensors. <i>Mathematical Engineering</i> , 2013 , 107-119	0.8
21	Eigenvalue Problem and Spectral Decomposition of Second-Order Tensors. <i>Mathematical Engineering</i> , 2013 , 85-106	0.8
20	Analysis of Tensor Functions. <i>Mathematical Engineering</i> , 2013 , 121-153	0.8

19	Analytic Tensor Functions. <i>Mathematical Engineering</i> , 2013 , 155-175	0.8
18	Micro-mechanical study of interactions between polymers and filler aggregates. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2011 , 11, 363-364	0.2
17	An anisotropic viscoelastic model for collagenous soft tissues at large strains [Computational aspects. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2009 , 9, 161-162	0.2
16	Influence of Medial and Adventitial Layer on Arterial Adaptation. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2010 , 10, 89-90	0.2
15	Micro-Mechanical Modelling of Anisotropic Time-Dependent Healing Effects in Rubber-like Materials. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2010 , 10, 341-342	0.2
14	Modeling dissipative effects in anisotropic materials by means of evolving generalized structural tensors. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2007 , 7, 4060047-4060048	0.2
13	A network evolution model for the anisotropic Mullins effect. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2008 , 8, 10993-10994	0.2
12	On the applicability of generalized strain measures in large strain plasticity 2005 , 101-113	
11	Konstitutive Modellierung der Anisotropie in kalandrierten Gummib. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2004 , 4, 185-186	0.2
10	Comments on [Exact expansions of arbitrary tensor functions $F(A)$ and their derivatives [Int. J. Solids Struct. 41 (2004) 337B49]. <i>International Journal of Solids and Structures</i> , 2004 , 41, 4261-4262	3.1
9	Fatigue damage modeling of fibrous soft tissues. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2016 , 16, 97-98	0.2
8	Failure of adhesive bonds between proteoglycans causes viscoelasticity of soft tissues. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2016 , 16, 87-88	0.2
7	Towards deep learned constitutive models based on two-dimensional strain fields. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2019 , 19, e201900159	0.2
6	An analysis on the shear modulus of the modified Jeffreys model. <i>Applied Mathematics and Computation</i> , 2019 , 346, 649-665	2.7
5	Modeling the microstructure of biopolymer aerogels using Voronoi tessellation method. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2021 , 20, e202000102	0.2
4	A micromechanical model of filled elastomers based on the directional hydrodynamic strain amplification factor. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2018 , 18, e201800324	0.2
3	Comparative study of worm-like chain models for collagen molecules. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2018 , 18, e201800111	0.2
2	Automatic differentiation of strain-energy functions in the context of user-defined materials for the FEM. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2021 , 20, e202000050	0.2

- 1 An amended approximation of the non-Gaussian probability distribution function. *Mathematics and Mechanics of Solids*, 108128652210835 2.3