Mikhail Itskov

List of Publications by Year in Descending Order

This document has been generated based on the publications and citations recorded by exaly.com. For the latest version of this publication list, visit the link given above.
The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

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	Computational design of biopolymer aerogels and predictive modelling of their nanostructure and mechanical behaviour. *Scientific Reports*, **2021**, 11, 10198	4.9	4
125	Constitutive artificial neural networks: A fast and general approach to predictive data-driven constitutive modeling by deep learning. *Journal of Computational Physics*, **2021**, 429, 110010	4.1	17
124	A generalized tube model of rubber elasticity. *Soft Matter*, **2021**, 17, 1675-1684	3.6	8
123	Modeling the microstructure of biopolymer aerogels using Voronoi tessellation method. *Proceedings in Applied Mathematics and Mechanics*, **2021**, 20, e202000102	0.2	
122	Modeling and Simulation of the Aggregation and the Structural and Mechanical Properties of Silica Aerogels. *Journal of Physical Chemistry B*, **2021**, 125, 1944-1950	3.4	10
121	Analysis of the fractal properties of silica aerogels using diffusion-limited aggregation. *Proceedings in Applied Mathematics and Mechanics*, **2021**, 20, e202000099	0.2	0
120	Automatic differentiation of strain-energy functions in the context of user-defined materials for the FEM. *Proceedings in Applied Mathematics and Mechanics*, **2021**, 20, e202000050	0.2	
119	Machine learning-based structure-property predictions in silica aerogels. *Soft Matter*, **2021**, 17, 7350-7358	3.6	0
118	Microstructural and mechanical characterization of carbon aerogels: An in-situ and digital image correlation-based study. *Journal of Non-Crystalline Solids*, **2020**, 529, 119568	3.9	6
117	Stability Studies of Starch Aerogel Formulations for Biomedical Applications. *Biomacromolecules*, **2020**, 21, 5336-5344	6.9	4
116	Temperature-Dependent Stiffening and Inelastic Behavior of Newly Synthesized Fiber-Reinforced Super Flexible Silica Aerogels. *Materials*, **2019**, 12,	3.5	1
115	Mechanics of biopolymer aerogels based on microstructures generated from 2-d Voronoi tessellations. *Journal of Supercritical Fluids*, **2019**, 151, 24-29	4.2	9
114	A generalized inelastic modeling concept for soft fibrous tissues. *GAMM Mitteilungen*, **2019**, 42, e201900008	2.3	0
113	Towards Patient-Specific Computational Modelling of Articular Cartilage on the Basis of Advanced Multiparametric MRI Techniques. *Scientific Reports*, **2019**, 9, 7172	4.9	9
112	A Multiaxial Theory of Double Network Hydrogels. *Macromolecules*, **2019**, 52, 5937-5947	5.5	15
111	Towards deep learned constitutive models based on two-dimensional strain fields. *Proceedings in Applied Mathematics and Mechanics*, **2019**, 19, e201900159	0.2	
110	Tensor Algebra and Tensor Analysis for Engineers. *Mathematical Engineering*, **2019**,	0.8	9

#	Publication	IF	Cites
109	An analysis on the shear modulus of the modified Jeffreys model. *Applied Mathematics and Computation*, **2019**, 346, 649-665	2.7	
108	Electroelasticity of dielectric elastomers based on molecular chain statistics. *Mathematics and Mechanics of Solids*, **2019**, 24, 862-873	2.3	6
107	Analytical network-averaging of the tube model: Strain-induced crystallization in natural rubber. *Journal of the Mechanics and Physics of Solids*, **2018**, 116, 350-369	5	20
106	Fatigue of soft fibrous tissues: Multi-scale mechanics and constitutive modeling. *Acta Biomaterialia*, **2018**, 71, 398-410	10.8	13
105	An averaging based hyperelastic modeling and experimental analysis of non-crimp fabrics. *International Journal of Solids and Structures*, **2018**, 154, 43-54	3.1	6
104	Fracture of silica aerogels: An all-atom simulation study. *Journal of Non-Crystalline Solids*, **2018**, 498, 125-129	3.1	27
103	Analytical network-averaging of the tube model: Mechanically induced chemiluminescence in elastomers. *International Journal of Plasticity*, **2018**, 102, 1-15	7.6	7
102	A microcell-based constitutive modeling of cellulose aerogels under tension. *Acta Mechanica*, **2018**, 229, 585-593	2.1	9
101	Experimental Investigation of Viscoelastic Characteristics of Rubber-Cord Composites Considering the Process of Their Self-Heating. *Strength of Materials*, **2018**, 50, 841-851	0.6	6
100	A micromechanical model of filled elastomers based on the directional hydrodynamic strain amplification factor. *Proceedings in Applied Mathematics and Mechanics*, **2018**, 18, e201800324	0.2	
99	Comparative study of worm-like chain models for collagen molecules. *Proceedings in Applied Mathematics and Mechanics*, **2018**, 18, e201800111	0.2	
98	Worm-like chain model extensions for highly stretched tropocollagen molecules. *Journal of Biomechanics*, **2018**, 80, 129-135	2.9	10
97	Correlating Synthesis Parameters to Morphological Entities: Predictive Modeling of Biopolymer Aerogels. *Materials*, **2018**, 11,	3.5	17
96	Mechanics of Nanostructured Porous Silica Aerogel Resulting from Molecular Dynamics Simulations. *Journal of Physical Chemistry B*, **2017**, 121, 5660-5668	3.4	48
95	The three-dimensional structure of flexible resorcinol-formaldehyde aerogels investigated by means of holotomography. *Journal of Sol-Gel Science and Technology*, **2017**, 84, 391-399	2.3	7
94	An averaging based tube model for deformation induced anisotropic stress softening of filled elastomers. *International Journal of Plasticity*, **2017**, 90, 96-115	7.6	24
93	T2 MR imaging vs. computational modeling of human articular cartilage tissue functionality. *Journal of the Mechanical Behavior of Biomedical Materials*, **2017**, 74, 477-487	4.1	18
92	An explanation of damage and failure in cellulose aerogels: modeling approach. *Proceedings in Applied Mathematics and Mechanics*, **2017**, 17, 457-458	0.2	

91	A physically motivated model based on the strain amplification in filled elastomers. *Proceedings in Applied Mathematics and Mechanics*, **2017**, 17, 411-412	0.2	1
90	Emergence of aortic aneurysms due to failure of adhesive bonds between proteoglycans. *Proceedings in Applied Mathematics and Mechanics*, **2017**, 17, 193-194	0.2	
89	Micromechanical model for isolated polymer-colloid clusters under tension. *Physical Review E*, **2016**, 94, 042501	2.4	4
88	Modelling of hydrodynamic strain amplification in filled elastomers. *Proceedings in Applied Mathematics and Mechanics*, **2016**, 16, 315-316	0.2	1
87	Large strain constitutive modelling of cellulose aerogels. *Proceedings in Applied Mathematics and Mechanics*, **2016**, 16, 385-386	0.2	
86	Analytical network-averaging of the tube model:. *Journal of the Mechanics and Physics of Solids*, **2016**, 95, 254-269	5	41
85	A polyconvex anisotropic free energy function for electro- and magneto-rheological elastomers. *Mathematics and Mechanics of Solids*, **2016**, 21, 1126-1137	2.3	17
84	Constitutive modeling of carbon nanotube rubber composites on the basis of chain length statistics. *Composites Part B: Engineering*, **2016**, 90, 69-75	10	8
83	Multi-scale modeling of soft fibrous tissues based on proteoglycan mechanics. *Journal of Biomechanics*, **2016**, 49, 2349-57	2.9	12
82	Mechanics of collagen fibrils: A two-scale discrete damage model. *Journal of the Mechanical Behavior of Biomedical Materials*, **2016**, 58, 163-172	4.1	9
81	A rubber elasticity and softening model based on chain length statistics. *International Journal of Solids and Structures*, **2016**, 80, 512-519	3.1	24
80	Fatigue damage modeling of fibrous soft tissues. *Proceedings in Applied Mathematics and Mechanics*, **2016**, 16, 97-98	0.2	
79	Failure of adhesive bonds between proteoglycans causes viscoelasticity of soft tissues. *Proceedings in Applied Mathematics and Mechanics*, **2016**, 16, 87-88	0.2	
78	On the accuracy of numerical integration over the unit sphere applied to full network models. *Computational Mechanics*, **2016**, 57, 859-865	4	23
77	Micro-mechanical modelling of cellulose aerogels from molten salt hydrates. *Soft Matter*, **2016**, 12, 7079-88	3.3	38
76	A simple and accurate approximation of the inverse Langevin function. *Rheologica Acta*, **2015**, 54, 455-459	2.3	37
75	Tensor Algebra and Tensor Analysis for Engineers. *Mathematical Engineering*, **2015**,	0.8	8
74	Modeling of skin anisotropy directions for identifying stress free reference configuration of the female breast. *Proceedings in Applied Mathematics and Mechanics*, **2015**, 15, 97-98	0.2	

73	Extremal loading of soft fibrous tissues: multi-scale mechanics and constitutive modeling. *Proceedings in Applied Mathematics and Mechanics*, **2015**, 15, 99-100	0.2	
72	A micromechanical model for dynamic strain-induced crystallization in filled natural rubbers **2015**, 521-527		
71	A multi-scale time-dependent constitutive model of soft collagenous tissue. *Proceedings in Applied Mathematics and Mechanics*, **2015**, 15, 95-96	0.2	
70	Constitutive modeling of fiber-reinforced aerogels. *Proceedings in Applied Mathematics and Mechanics*, **2015**, 15, 347-348	0.2	1
69	Applications to Continuum Mechanics. *Mathematical Engineering*, **2015**, 191-212	0.8	4
68	A generalized network decomposition model for the quasi-static inelastic behavior of filled elastomers. *International Journal of Plasticity*, **2014**, 63, 94-109	7.6	38
67	Constitutive modeling of strain-induced crystallization in filled rubbers. *Physical Review E*, **2014**, 89, 022604	2.4	24
66	Micro-mechanical modeling of anisotropic inelastic response of soft tissues under supra-physiological loading. *Proceedings in Applied Mathematics and Mechanics*, **2014**, 14, 97-98	0.2	2
65	An experimental study towards micro-mechanical modeling of fiber-reinforced aerogels. *Proceedings in Applied Mathematics and Mechanics*, **2014**, 14, 393-394	0.2	1
64	Multi-scale modeling of double network hydrogels. *Proceedings in Applied Mathematics and Mechanics*, **2014**, 14, 391-392	0.2	
63	A simple algorithm for the fast calculation of higher order derivatives of the inverse function. *Applied Mathematics and Computation*, **2013**, 221, 833-838	2.7	16
62	Anisotropic Damage Phenomena in Filled Elastomers: Experimental Observation and Constitutive Modeling. *Key Engineering Materials*, **2013**, 577-578, 161-164	0.4	
61	Influence of differing material properties in media and adventitia on arterial adaptation--application to aneurysm formation and rupture. *Computer Methods in Biomechanics and Biomedical Engineering*, **2013**, 16, 33-53	2.1	17
60	Curves and Surfaces in Three-Dimensional Euclidean Space. *Mathematical Engineering*, **2013**, 63-83	0.8	
59	Tensor Algebra and Tensor Analysis for Engineers. *Mathematical Engineering*, **2013**,	0.8	25
58	Vectors and Tensors in a Finite-Dimensional Space. *Mathematical Engineering*, **2013**, 1-34	0.8	
57	Vector and Tensor Analysis in Euclidean Space. *Mathematical Engineering*, **2013**, 35-62	0.8	
56	Fourth-Order Tensors. *Mathematical Engineering*, **2013**, 107-119	0.8	

55	Eigenvalue Problem and Spectral Decomposition of Second-Order Tensors. *Mathematical Engineering*, **2013**, 85-106	0.8	
54	Analysis of Tensor Functions. *Mathematical Engineering*, **2013**, 121-153	0.8	
53	Analytic Tensor Functions. *Mathematical Engineering*, **2013**, 155-175	0.8	
52	Applications to Continuum Mechanics. *Mathematical Engineering*, **2013**, 177-195	0.8	1
51	Constitutive modeling of the Mullins effect and cyclic stress softening in filled elastomers. *Physical Review E*, **2013**, 88, 012602	2.4	46
50	Constitutive modeling of cyclic stress softening in filled elastomers. *Proceedings in Applied Mathematics and Mechanics*, **2013**, 13, 143-144	0.2	1
49	Numerical Simulation of Anisotropy Directions in Soft Tissues and in Particular in Skin. *Proceedings in Applied Mathematics and Mechanics*, **2013**, 13, 57-58	0.2	3
48	Network evolution model of anisotropic stress softening in filled rubber-like materials: Parameter identification and finite element implementation. *Journal of Mechanics of Materials and Structures*, **2012**, 7, 861-885	1.2	10
47	Network evolution model: thermodynamics consistency, parameter identification and finite element implementation. *Proceedings in Applied Mathematics and Mechanics*, **2012**, 12, 267-268	0.2	
46	Influence of nano-particle interactions on the mechanical behavior of colloidal structures in polymeric solutions. *Proceedings in Applied Mathematics and Mechanics*, **2012**, 12, 269-270	0.2	
45	Consistent formulation of the growth process at the kinematic and constitutive level for soft tissues composed of multiple constituents. *Computer Methods in Biomechanics and Biomedical Engineering*, **2012**, 15, 547-61	2.1	21
44	Taylor expansion of the inverse function with application to the Langevin function. *Mathematics and Mechanics of Solids*, **2012**, 17, 693-701	2.3	37
43	Yield behavior of colloidal aggregates due to combined tensile-bending loads. *Physical Review E*, **2012**, 85, 051406	2.4	12
42	Porcine dermis in uniaxial cyclic loading: Sample preparation, experimental results and modeling. *Journal of Mechanics of Materials and Structures*, **2011**, 6, 1125-1135	1.2	7
41	A novel experimental procedure based on pure shear testing of dermatome-cut samples applied to porcine skin. *Biomechanics and Modeling in Mechanobiology*, **2011**, 10, 651-61	3.8	27
40	Micro-mechanical study of interactions between polymers and filler aggregates. *Proceedings in Applied Mathematics and Mechanics*, **2011**, 11, 363-364	0.2	
39	Modeling of strain-induced crystallization in natural rubbers. *Proceedings in Applied Mathematics and Mechanics*, **2011**, 11, 423-424	0.2	1
38	A continuum constitutive model for the active behaviour of skeletal muscle. *Journal of the Mechanics and Physics of Solids*, **2011**, 59, 625-636	5	67

37	A Full-Network Rubber Elasticity Model based on Analytical Integration. *Mathematics and Mechanics of Solids*, **2010**, 15, 655-671	2.3	29
36	Impact of transmural heterogeneities on arterial adaptation: application to aneurysm formation. *Biomechanics and Modeling in Mechanobiology*, **2010**, 9, 295-315	3.8	25
35	A thermodynamically consistent phenomenological model of the anisotropic Mullins effect. *ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik*, **2010**, 90, 370-386	1	35
34	Influence of Medial and Adventitial Layer on Arterial Adaptation. *Proceedings in Applied Mathematics and Mechanics*, **2010**, 10, 89-90	0.2	
33	Microstructural changes of filled rubber-like materials under cyclic loading. *Proceedings in Applied Mathematics and Mechanics*, **2010**, 10, 289-290	0.2	2
32	Micro-Mechanical Modelling of Anisotropic Time-Dependent Healing Effects in Rubber-like Materials. *Proceedings in Applied Mathematics and Mechanics*, **2010**, 10, 341-342	0.2	
31	A Universal Model for the Elastic, Inelastic and Active Behaviour of Soft Biological Tissues. *GAMM Mitteilungen*, **2009**, 32, 221-236	1.8	12
30	3D modelling of arterial growth for adaptation to hypertension Ⅼthe influence of transmural changes in the mechanical environment. *Proceedings in Applied Mathematics and Mechanics*, **2009**, 9, 71-74	0.2	1
29	An anisotropic viscoelastic model for collagenous soft tissues at large strains Ⅼcomputational aspects. *Proceedings in Applied Mathematics and Mechanics*, **2009**, 9, 161-162	0.2	
28	Non-linear elastic behavior of filler aggregates. *Proceedings in Applied Mathematics and Mechanics*, **2009**, 9, 349-350	0.2	1
27	Modeling of anisotropic softening phenomena: Application to soft biological tissues. *International Journal of Plasticity*, **2009**, 25, 901-919	7.6	76
26	A network evolution model for the anisotropic Mullins effect in carbon black filled rubbers. *International Journal of Solids and Structures*, **2009**, 46, 2967-2977	3.1	120
25	Non-linear elastic behavior of carbon black filler aggregates in rubber-like elastomers **2009**, 489-494		3
24	Tensor Algebra and Tensor Analysis for Engineers **2009**,		23
23	A microstructurally motivated anisotropic viscoelastic model for soft tissues. *Proceedings in Applied Mathematics and Mechanics*, **2008**, 8, 10171-10172	0.2	1
22	A network evolution model for the anisotropic Mullins effect. *Proceedings in Applied Mathematics and Mechanics*, **2008**, 8, 10993-10994	0.2	
21	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	
20	A polyconvex hyperelastic model for fiber-reinforced materials in application to soft tissues. *Journal of Materials Science*, **2007**, 42, 8853-8863	4.3	82

19	A generalized polyconvex hyperelastic model for anisotropic solids. *Proceedings in Applied Mathematics and Mechanics*, **2006**, 6, 367-368	0.2	1
18	A polyconvex anisotropic strain-energy function for soft collagenous tissues. *Biomechanics and Modeling in Mechanobiology*, **2006**, 5, 17-26	3.8	50
17	On the applicability of generalized strain measures in large strain plasticity **2005**, 101-113		
16	A constitutive model for orthotropic elasto-plasticity at large strains. *Archive of Applied Mechanics*, **2004**, 74, 75-91	2.2	23
15	Konstitutive Modellierung der Anisotropie in kalandrierten Gummib. *Proceedings in Applied Mathematics and Mechanics*, **2004**, 4, 185-186	0.2	
14	On the application of the additive decomposition of generalized strain measures in large strain plasticity. *Mechanics Research Communications*, **2004**, 31, 507-517	2.2	40
13	A class of orthotropic and transversely isotropic hyperelastic constitutive models based on a polyconvex strain energy function. *International Journal of Solids and Structures*, **2004**, 41, 3833-3848	3.1	143
12	Comments on Exact expansions of arbitrary tensor functions F(A) and their derivatives [Int. J. Solids Struct. 41 (2004) 337349]. *International Journal of Solids and Structures*, **2004**, 41, 4261-4262	3.1	
11	Computation of the exponential and other isotropic tensor functions and their derivatives. *Computer Methods in Applied Mechanics and Engineering*, **2003**, 192, 3985-3999	5.7	36
10	Application of the Dunford-Taylor integral to isotropic tensor functions and their derivatives. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2003**, 459, 1449-1457	2.4	21
9	Elastic constants and their admissible values for incompressible and slightly compressible anisotropic materials. *Acta Mechanica*, **2002**, 157, 81-96	2.1	58
8	A closed-form representation for the derivative of non-symmetric tensor power series. *International Journal of Solids and Structures*, **2002**, 39, 5963-5978	3.1	35
7	A generalized orthotropic hyperelastic material model with application to incompressible shells. *International Journal for Numerical Methods in Engineering*, **2001**, 50, 1777-1799	2.4	31
6	On the theory of fourth-order tensors and their applications in computational mechanics. *Computer Methods in Applied Mechanics and Engineering*, **2000**, 189, 419-438	5.7	61
5	Composite laminates: nonlinear interlaminar stress analysis by multi-layer shell elements. *Computer Methods in Applied Mechanics and Engineering*, **2000**, 185, 367-397	5.7	55
4	Constitutive model and finite element formulation for large strain elasto-plastic analysis of shells. *Computational Mechanics*, **1999**, 23, 466-481	4	24
3	Finite element formulation of the Ogden material model with application to rubber-like shells. *International Journal for Numerical Methods in Engineering*, **1998**, 42, 1279-1305	2.4	35
2	Finite-Elemente-Analyse gummiartiger inkompressibler Elastomere unter großen Verzerrungen und Kontaktwechselwirkungen. *ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik*, **1997**, 77, 585-594	1	1

LIST OF PUBLICATIONS

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