Christian Miehe

List of Publications by Year
in descending order

129 papers	8,934 citations	66343 42 h-index	40979 93 g-index
138 all docs	138 docs citations	138 times ranked	3267 citing authors

#	ARTICLE	IF	CITATIONS
1	A modified Gurson-type plasticity model at finite strains: formulation, numerical analysis and phase-field coupling. Computational Mechanics, 2018, 62, 815-833.	4.0	92
2	A three‐scale compressible microsphere model for hyperelastic materials. International Journal for Numerical Methods in Engineering, 2018, 116, 412-433.	2.8	11
3	Coupled thermomechanical response of gradient plasticity. International Journal of Plasticity, 2017, 91, 1-24.	8.8	38
4	A minimization principle for deformation-diffusion processes in polymeric hydrogels: Constitutive modeling and FE implementation. International Journal of Solids and Structures, 2017, 121, 257-274.	2.7	23
5	Phase‐field modeling of ductile fracture at finite strains: A robust variational‐based numerical implementation of a gradient‐extended theory by micromorphic regularization. International Journal for Numerical Methods in Engineering, 2017, 111, 816-863.	2.8	68
6	Minimization and saddle-point principles for the phase-field modeling of fracture in hydrogels. Computational Materials Science, 2017, 138, 474-485.	3.0	18
7	Hydraulic fracture in poro-hydro-elastic media. Mechanics Research Communications, 2017, 80, 69-83.	1.8	45
8	A Large-Deformation Phase-Field Approach for the Modeling of Magneto-Sensitive Elastomers. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 569-570.	0.2	0
9	Phase Field Modeling of Ductile Fracture in Soil Mechanics. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 383-384.	0.2	6
10	Variational framework for phase field modeling of ductile fracture in porous solids at finite strains. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 279-280.	0.2	1
11	An Affine Micro-Sphere Model for Strain-Induced Crystallization in Rubbery Polymers. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 439-440.	0.2	0
12	A multiscale view on shape effects in the computational characterization of magnetorheological elastomers. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 383-384.	0.2	0
13	Homogenization in micro-magneto-mechanics. Computational Mechanics, 2016, 58, 151-169.	4.0	23
14	Phase field modeling of ductile fracture at finite strains: A variational gradient-extended plasticity-damage theory. International Journal of Plasticity, 2016, 84, 1-32.	8.8	258
15	Phase field modeling of fracture in porous plasticity: A variational gradient-extended Eulerian framework for the macroscopic analysis of ductile failure. Computer Methods in Applied Mechanics and Engineering, 2016, 312, 3-50.	6.6	66
16	A Phase‐Field Model of Ductile Fracture at Finite Strains. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 181-182.	0.2	1
17	An anisotropic phase‐field model for transversely isotropic barium titanate with bounded moduli. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 467-468.	0.2	0
18	A Magneto‐Mechanically Coupled Phase‐Field Model at Large Deformation. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 489-490.	0.2	0

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19	Poiseuille–Type Fluid Transport in Poro–Elastic Solids at Fracture. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 149-150.	0.2	0
20	Minimization–and Saddle–Point–Based Modeling of Diffusion–Deformation–Processes in Hydrogels. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 307-308.	0.2	1
21	Variational Treatment and Stability Analysis of Coupled Electro–Mechanics. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 401-402.	0.2	1
22	Homogenization and multiscale stability analysis in finite magneto-electro-elasticity. Application to soft matter EE, ME and MEE composites. Computer Methods in Applied Mechanics and Engineering, 2016, 300, 294-346.	6.6	70
23	Phase-field modelling of ductile fracture: a variational gradient-extended plasticity-damage theory and its micromorphic regularization. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150170.	3.4	83
24	Multiplicative magneto-elasticity of magnetosensitive polymers incorporating micromechanically-based network kernels. International Journal of Engineering Science, 2016, 102, 93-119.	5.0	28
25	Phase field modeling of fracture in multi-physics problems. Part III. Crack driving forces in hydro-poro-elasticity and hydraulic fracturing of fluid-saturated porous media. Computer Methods in Applied Mechanics and Engineering, 2016, 304, 619-655.	6.6	289
26	A phase-field model for fracture in biological tissues. Biomechanics and Modeling in Mechanobiology, 2016, 15, 479-496.	2.8	72
27	Homogenization and multiscale stability analysis in finite magneto-electro-elasticity. GAMM Mitteilungen, 2015, 38, 313-343.	5.5	7
28	Variational Structural and Material Stability Analysis in Finite Electro-Magneto-Mechanics of Active Materials. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 7-10.	0.2	0
29	Rupture in soft biological tissues modeled by a phase-field method. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 103-104.	0.2	0
30	Phase-Field Modeling of Hydraulic Fracture. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 141-142.	0.2	2
31	Phase-Field Modeling of Fracture in Anisotropic Media. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 159-160.	0.2	8
32	Ductile failure with gradient plasticity coupled to the phase-field fracture at finite strains. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 271-272.	0.2	0
33	Computational Homogenization in Micro–Magneto–Elasticity. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 363-364.	0.2	3
34	Analysis of Micro- and Macro-Instability Phenomena in Computational Homogenization of Finite Electro-Statics. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 369-370.	0.2	0
35	Variational Formulation and Numerical Implementation of Diffusion in Hydrogels at Finite Strains. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 411-412.	0.2	0
36	Phase field modeling of fracture in multi-physics problems. Part II. Coupled brittle-to-ductile failure criteria and crack propagation in thermo-elastic–plastic solids. Computer Methods in Applied Mechanics and Engineering, 2015, 294, 486-522.	6.6	427

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37	Phase field modeling of fracture in multi-physics problems. Part I. Balance of crack surface and failure criteria for brittle crack propagation in thermo-elastic solids. Computer Methods in Applied Mechanics and Engineering, 2015, 294, 449-485.	6.6	435
38	Variational modeling and homogenization in dissipative magneto–mechanics. GAMM Mitteilungen, 2015, 38, 75-101.	5.5	7
39	Minimization principles for the coupled problem of Darcy–Biot-type fluid transport in porous media linked to phase field modeling of fracture. Journal of the Mechanics and Physics of Solids, 2015, 82, 186-217.	4.8	191
40	Computational electro-chemo-mechanics of lithium-ion battery electrodes at finite strains. Computational Mechanics, 2015, 55, 303-325.	4.0	35
41	Multiplicative electro-elasticity of electroactive polymers accounting for micromechanically-based network models. Computer Methods in Applied Mechanics and Engineering, 2015, 286, 394-421.	6.6	26
42	Phase field modeling of complex crack patterns in multi-physics problems. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 131-132.	0.2	0
43	Variational gradient plasticity at finite strains. Part II: Local–global updates and mixed finite elements for additive plasticity in the logarithmic strain space. Computer Methods in Applied Mechanics and Engineering, 2014, 268, 704-734.	6.6	37
44	Variational gradient plasticity at finite strains. Part I: Mixed potentials for the evolution and update problems of gradient-extended dissipative solids. Computer Methods in Applied Mechanics and Engineering, 2014, 268, 677-703.	6.6	48
45	Dissipative ferroelectricity at finite strains. Variational principles, constitutive assumptions and algorithms. International Journal of Engineering Science, 2014, 74, 162-189.	5.0	14
46	Phase field modeling of fracture in rubbery polymers. Part I: Finite elasticity coupled with brittle failure. Journal of the Mechanics and Physics of Solids, 2014, 65, 93-113.	4.8	179
47	Variational Phase Field Modeling of Fracture Caused by Fluid Transport in Poroelastic Solids. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 145-146.	0.2	1
48	Towards Phase Field Modeling of Ductile Fracture in Gradient–Extended Elastic–Plastic Solids. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 411-412.	0.2	28
49	Variational Based Stability Analysis in Coupled Electro-Mechanics at Finite Strains. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 483-484.	0.2	0
50	A Magneto-Visco-Elastic Model for Magnetorheological Elastomers. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 515-516.	0.2	1
51	Computational homogenization in dissipative electro-mechanics of functional materials. Computer Methods in Applied Mechanics and Engineering, 2013, 267, 487-510.	6.6	41
52	Coupled chemomechanics and phase field modeling of failure in electrode materials of Li-ion batteries. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 207-208.	0.2	0
53	On Configurational-Force-Driven Crack Propagation and Adaptive Mesh Refinement in Finite Inelasticity. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 77-78.	0.2	0
54	A Finite Deformation Microsphere Model for Magneto-Visco-Elastic Response in Magnetorheological Elastomers. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 197-198.	0.2	1

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55	Phase Field Modeling of Brittle and Ductile Fracture. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 533-536.	0.2	58
56	Mixed Variational Principles and Robust Finite Element Design of Gradient Plasticity at Finite Strains. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 173-174.	0.2	0
57	On Micromechanically-Based Approaches to Failure in Polymers. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 557-560.	0.2	2
58	A new continuum approach to the coupling of shear yielding and crazing with fracture in glassy polymers. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 337-338.	0.2	0
59	Variational Homogenization of Micro-Electro-Elasticity. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 27-30.	0.2	0
60	Variational Phase Field Modeling of Laminate Deformation Microstructure in Finite Gradient Crystal Plasticity. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 37-40.	0.2	7
61	Phase Field Modeling of Fracture in Plates and Shells. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 171-172.	0.2	38
62	A Phase Field Model for Ductile to Brittle Failure Mode Transition. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 173-174.	0.2	24
63	A Formulation of Finite Gradient Crystal Plasticity with Systematic Separation of Long- and Short-Range States. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 343-344.	0.2	1
64	A projection method for phase field models in micromagnetics. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 399-400.	0.2	2
65	Continuum phase field modeling of dynamic fracture: variational principles and staggered FE implementation. International Journal of Fracture, 2012, 178, 113-129.	2.2	184
66	A geometrically consistent incremental variational formulation for phase field models in micromagnetics. Computer Methods in Applied Mechanics and Engineering, 2012, 245-246, 331-347.	6.6	40
67	Mixed variational principles for the evolution problem of gradient–extended dissipative solids. GAMM Mitteilungen, 2012, 35, 8-25.	5.5	4
68	Effect of electric displacement saturation on the hysteretic behavior of ferroelectric ceramics and the initiation and propagation of cracks in piezoelectric ceramics. Journal of the Mechanics and Physics of Solids, 2012, 60, 882-903.	4.8	42
69	A micromechanically motivated diffusion-based transient network model and its incorporation into finite rubber viscoelasticity. Journal of the Mechanics and Physics of Solids, 2011, 59, 2134-2156.	4.8	104
70	An incremental variational formulation of dissipative magnetostriction at the macroscopic continuum level. International Journal of Solids and Structures, 2011, 48, 1846-1866.	2.7	53
71	A Phase Field Model for Three-Dimensional Dynamic Fracture and its Efficient Numerical Implementation. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 153-154.	0.2	2
72	A Regularized Sharp Interface Model for Martensitic Phase Transformations at Large Strains. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 383-384.	0.2	0

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73	Phase Field Modeling of Crack Propagation at Large Strains with Application to Rubbery Polymers. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 429-430.	0.2	5
74	A Geometrically Exact Incremental Variational Formulation for Phase Field Models in Micromagnetics. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 461-462.	0.2	1
75	Micro-Electro-Elastic Modeling of Electric Field- and Stress-Driven Domain Wall Motion. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 493-494.	0.2	0
76	Hybrid Micro‒Macro‒Modeling of Evolving Anisotropies and Length Scales in Finite Plasticity of Polycrystals. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 515-518.	0.2	2
77	Codf‒evolutions on polycrystalline orientation continua obtained by fast geometric estimates of plastic slip. International Journal for Numerical Methods in Engineering, 2011, 85, 1103-1139.	2.8	3
78	Coupled thermoviscoplasticity of glassy polymers in the logarithmic strain space based on the free volume theory. International Journal of Solids and Structures, 2011, 48, 1799-1817.	2.7	39
79	A multi-field incremental variational framework for gradient-extended standard dissipative solids. Journal of the Mechanics and Physics of Solids, 2011, 59, 898-923.	4.8	149
80	A phase field model for rate-independent crack propagation: Robust algorithmic implementation based on operator splits. Computer Methods in Applied Mechanics and Engineering, 2010, 199, 2765-2778.	6.6	1,724
81	A Thermodynamically‒Consistent Phase Field Model for Electromechanical Diffusive Crack Propagation. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 117-118.	0.2	0
82	A Hybrid Micro‒Macro‒Model for the Description of Evolving Anisotropy in Finite Polycrystal Plasticity. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 291-292.	0.2	1
83	Formulation and Numerical Implementation of Ferroelectrics at Large Strains. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 319-320.	0.2	0
84	Thermoviscoplasticity of Glassy Polymers in the Logarithmic Strain Space Based on the Free Volume Theory. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 321-322.	0.2	0
85	A Variational Homogenization Approach to Electromechanical Hystereses Caused by Domain Wall Movement. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 439-440.	0.2	0
86	A Regularized Sharp Interface Model for Phase Transformation Accounting for Prescribed Sharp Interface Kinetics. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 673-676.	0.2	9
87	Configurational‒Force‒Based Adaptive FE Solver for a Phase Field Model of Fracture. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 689-692.	0.2	11
88	On The Formulatio and Numerical Implementation of Dissipative Electro-Mechanics at Large Strains. Proceedings in Applied Mathematics and Mechanics, 2009, 9, 343-344.	0.2	4
89	A computational framework of three-dimensional configurational-force-driven brittle crack propagation. Computer Methods in Applied Mechanics and Engineering, 2009, 198, 1413-1428.	6.6	87
90	Theory and Numerics of Rate-Dependent Incremental Variational Formulations in Ferroelectricity. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10459-10460.	0.2	0

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91	A rate-dependent incremental variational formulation of ferroelectricity. , 2008, , .		0
92	On multiscale FE analyses of heterogeneous structures: from homogenization to multigrid solvers. International Journal for Numerical Methods in Engineering, 2007, 71, 1135-1180.	2.8	99
93	A robust algorithm for configurational-force-driven brittle crack propagation with R-adaptive mesh alignment. International Journal for Numerical Methods in Engineering, 2007, 72, 127-155.	2.8	128
94	Rate-dependent incremental variational formulation of ferroelectricity. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 4070013-4070014.	0.2	0
95	On the modeling of thermo–electro–magneto–mechanical solids at finite strains. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 4070025-4070026.	0.2	4
96	A computational framework of configurational-force-driven brittle fracture based on incremental energy minimization. International Journal of Fracture, 2007, 145, 245-259.	2.2	54
97	Microstructure Development in Standard Dissipative Solids Based on Energy Minimization. GAMM Mitteilungen, 2006, 29, 247-272.	5.5	1
98	Multilevel FEM for Heterogeneous Structures: From Homogenization to Multigrid Solvers. , 2006, , 361-397.		2
99	Analytical and Numerical Methods for Finite-Strain Elastoplasticity. , 2006, , 491-529.		4
100	A micro–macro approach to rubber-like materials. Part II: The micro-sphere model of finite rubber viscoelasticity. Journal of the Mechanics and Physics of Solids, 2005, 53, 2231-2258.	4.8	163
101	A micro–macro approach to rubber-like materials. Part III: The micro-sphere model of anisotropic Mullins-type damage. Journal of the Mechanics and Physics of Solids, 2005, 53, 2259-2283.	4.8	149
102	Material Forces in Standard Dissipative Solids obtained from an Incremental Variational Formulation. Proceedings in Applied Mathematics and Mechanics, 2004, 4, 274-275.	0.2	1
103	Macroscopic finite element analyses of discretematerials based on directly evaluated micro-macro transitions. Proceedings in Applied Mathematics and Mechanics, 2004, 4, 306-307.	0.2	0
104	Parameter-identification of macroscopic material models based on virtual testing of given material mesostructures. Proceedings in Applied Mathematics and Mechanics, 2004, 4, 412-413.	0.2	1
105	Anisotropic elastic-plastic analysis of shells at large strains. A comparison of multiplicative and additive approaches to enhanced finite element design and constitutive modelling. International Journal for Numerical Methods in Engineering, 2004, 61, 2067-2113.	2.8	31
106	Anisotropic finite elastoplastic analysis of shells: simulation of earing in deep-drawing of single- and polycrystalline sheets by Taylor-type micro-to-macro transitions. Computer Methods in Applied Mechanics and Engineering, 2004, 193, 25-57.	6.6	26
107	A framework for micro–macro transitions in periodic particle aggregates of granular materials. Computer Methods in Applied Mechanics and Engineering, 2004, 193, 225-256.	6.6	67
108	Analysis of microstructure development in shearbands by energy relaxation of incremental stress potentials: Large-strain theory for standard dissipative solids. International Journal for Numerical Methods in Engineering, 2003, 58, 1-41.	2.8	50

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109	A two-scale finite element relaxation analysis of shear bands in non-convex inelastic solids: small-strain theory for standard dissipative materials. Computer Methods in Applied Mechanics and Engineering, 2003, 192, 473-508.	6.6	31
110	Computational micro-to-macro transitions for discretized micro-structures of heterogeneous materials at finite strains based on the minimization of averaged incremental energy. Computer Methods in Applied Mechanics and Engineering, 2003, 192, 559-591.	6.6	235
111	Stability Problems of Micro-to-Macro Transitions in Finite Plasticity. Proceedings in Applied Mathematics and Mechanics, 2003, 3, 200-201.	0.2	0
112	Coupling of Homogenization Techniques with Multigrid Solvers for Unstructured Meshes. Lecture Notes in Applied and Computational Mechanics, 2003, , 67-72.	2.2	1
113	Computational Homogenization of Materials with Microstructures Based on Incremental Variational Formulations. Lecture Notes in Applied and Computational Mechanics, 2003, , 111-122.	2.2	0
114	Strain-driven homogenization of inelastic microstructures and composites based on an incremental variational formulation. International Journal for Numerical Methods in Engineering, 2002, 55, 1285-1322.	2.8	310
115	Computational micro-to-macro transitions of discretized microstructures undergoing small strains. Archive of Applied Mechanics, 2002, 72, 300-317.	2.2	418
116	Computational homogenization analysis in finite elasticity: material and structural instabilities on the micro- and macro-scales of periodic composites and their interaction. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 4971-5005.	6.6	160
117	A multi-variant martensitic phase transformation model: formulation and numerical implementation. Computer Methods in Applied Mechanics and Engineering, 2001, 191, 215-238.	6.6	118
118	A comparative study of stress update algorithms for rate-independent and rate-dependent crystal plasticity. International Journal for Numerical Methods in Engineering, 2001, 50, 273-298.	2.8	104
119	Energy and momentum conserving elastodynamics of a non-linear brick-type mixed finite shell element. International Journal for Numerical Methods in Engineering, 2001, 50, 1801-1823.	2.8	20
120	Algorithms for computation of stresses and elasticity moduli in terms of Seth-Hill's family of generalized strain tensors. Communications in Numerical Methods in Engineering, 2001, 17, 337-353.	1.3	103
121	Computational homogenization analysis in finite plasticity Simulation of texture development in polycrystalline materials. Computer Methods in Applied Mechanics and Engineering, 1999, 171, 387-418.	6.6	533
122	Computational micro–macro transitions and overall moduli in the analysis of polycrystals at large strains. Computational Materials Science, 1999, 16, 372-382.	3.0	222
123	A constitutive frame of elastoplasticity at large strains based on the notion of a plastic metric. International Journal of Solids and Structures, 1998, 35, 3859-3897.	2.7	98
124	A theoretical and computational model for isotropic elastoplastic stress analysis in shells at large strains. Computer Methods in Applied Mechanics and Engineering, 1998, 155, 193-233.	6.6	116
125	A formulation of finite elastoplasticity based on dual co- and contra-variant eigenvector triads normalized with respect to a plastic metric. Computer Methods in Applied Mechanics and Engineering, 1998, 159, 223-260.	6.6	60
126	Numerical computation of algorithmic (consistent) tangent moduli in large-strain computational inelasticity. Computer Methods in Applied Mechanics and Engineering, 1996, 134, 223-240.	6.6	239

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127	Fast transient dynamic plane stress analysis of orthotropic Hill-type solids at finite elastoplastic strains. International Journal of Solids and Structures, 1996, 33, 1543-1562.	2.7	9
128	A regularized dual mixed element for plane elasticity implementation and performance of the BDM element. Computer Methods in Applied Mechanics and Engineering, 1995, 121, 201-209.	6.6	19
129	On the representation of Prandtl-Reuss tensors within the framework of multiplicative elastoplasticity. International Journal of Plasticity, 1994, 10, 609-621.	8.8	65