Markus KÃ¤stner

List of Publications by Year
in descending order

103 papers	**1,580** citations	257450 **24** h-index	330143 **37** g-index
109 all docs	**109** docs citations	**109** times ranked	**1060** citing authors

#	Article	IF	Citations
1	A numerical study on magnetostrictive phenomena in magnetorheological elastomers. Computational Materials Science, 2016, 124, 364-374.	3.0	105
2	Phase-field modelling of interface failure in brittle materials. Computer Methods in Applied Mechanics and Engineering, 2019, 346, 25-42.	6.6	90
3	A nonlinear fractional viscoelastic material model for polymers. Computational Materials Science, 2011, 50, 2938-2949.	3.0	84
4	An efficient phase-field model for fatigue fracture in ductile materials. Engineering Fracture Mechanics, 2020, 224, 106807.	4.3	75
5	Bézier extraction and adaptive refinement of truncated hierarchical NURBS. Computer Methods in Applied Mechanics and Engineering, 2016, 305, 316-339.	6.6	74
6	A convergence study of phase-field models for brittle fracture. Engineering Fracture Mechanics, 2017, 184, 307-318.	4.3	58
7	Inelastic material behavior of polymers â€" Experimental characterization, formulation and implementation of a material model. Mechanics of Materials, 2012, 52, 40-57.	3.2	55
8	Microscale modeling and simulation of magnetorheological elastomers at finite strains: A study on the influence of mechanical preloads. International Journal of Solids and Structures, 2016, 102-103, 286-296.	2.7	55
9	Isogeometric analysis of the Cahnâ€"Hilliard equation â€" a convergence study. Journal of Computational Physics, 2016, 305, 360-371.	3.8	48
10	XFEM modeling and homogenization of magnetoactive composites. Acta Mechanica, 2013, 224, 2453-2469.	2.1	46
11	Theoretical models for magneto-sensitive elastomers: A comparison between continuum and dipole approaches. Physical Review E, 2017, 95, 042501.	2.1	46
12	Phase-field modeling of crack branching and deflection in heterogeneous media. Engineering Fracture Mechanics, 2020, 232, 107004.	4.3	46
13	Projection and transfer operators in adaptive isogeometric analysis with hierarchical B-splines. Computer Methods in Applied Mechanics and Engineering, 2018, 334, 313-336.	6.6	44
14	Simulation of self-piercing rivetting processes in fibre reinforced polymers: Material modelling and parameter identification. Journal of Materials Processing Technology, 2017, 241, 164-177.	6.3	40
15	A Selection of Benchmark Problems in Solid Mechanics and Applied Mathematics. Archives of Computational Methods in Engineering, 2021, 28, 713-751.	10.2	36
16	On the numerical handling of fractional viscoelastic material models in a FE analysis. Computational Mechanics, 2013, 51, 999-1012.	4.0	35
17	Adaptive mesh refinement strategies in isogeometric analysisâ€" A computational comparison. Computer Methods in Applied Mechanics and Engineering, 2017, 316, 424-448.	6.6	34
18	A macroscopic model for magnetorheological elastomers based on microscopic simulations. International Journal of Solids and Structures, 2020, 193-194, 200-212.	2.7	33

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19	Reversible magnetomechanical collapse: virtual touching and detachment of rigid inclusions in a soft elastic matrix. Soft Matter, 2018, 14, 6809-6821.	2.7	32
20	Microscale simulation of adhesive and cohesive failure in rough interfaces. Engineering Fracture Mechanics, 2017, 178, 416-432.	4.3	31
21	Experimental characterisation and numerical modelling of cutting processes in viscoelastic solids. Journal of Food Engineering, 2016, 191, 1-9.	5.2	28
22	Two- and three-dimensional modeling approaches in magneto-mechanics: a quantitative comparison. Archive of Applied Mechanics, 2019, 89, 47-62.	2.2	26
23	Higher–order extended FEM for weak discontinuities – level set representation, quadrature and application to magneto–mechanical problems. International Journal for Numerical Methods in Engineering, 2013, 93, 1403-1424.	2.8	25
24	Automated constitutive modeling of isotropic hyperelasticity based on artificial neural networks. Computational Mechanics, 2022, 69, 213-232.	4.0	25
25	A unified phase-field model of fracture in viscoelastic materials. Continuum Mechanics and Thermodynamics, 2021, 33, 1907-1929.	2.2	21
26	Descriptor-based reconstruction of three-dimensional microstructures through gradient-based optimization. Acta Materialia, 2022, 227, 117667.	7.9	21
27	On the Design, Characterization and Simulation of Hybrid Metal-Composite Interfaces. Applied Composite Materials, 2017, 24, 251-269.	2.5	19
28	Phase-field modelling for fatigue crack growth under laser shock peening-induced residual stresses. Archive of Applied Mechanics, 2021, 91, 3709-3723.	2.2	19
29	Combined molecular dynamics and phase-field modelling of crack propagation in defective graphene. Computational Materials Science, 2019, 163, 117-126.	3.0	16
30	Reconstructing random heterogeneous media through differentiable optimization. Computational Materials Science, 2021, 196, 110455.	3.0	16
31	Magneto-Mechanical Coupling in Magneto-Active Elastomers. Materials, 2021, 14, 434.	2.9	16
32	Advancing Towards Polyurethane–Based Magnetorheological Composites. Advanced Engineering Materials, 2014, 16, 1270-1275.	3.5	14
33	A hybrid IGAFEM/IGABEM formulation for two-dimensional stationary magnetic and magneto-mechanical field problems. Computer Methods in Applied Mechanics and Engineering, 2014, 273, 161-180.	6.6	14
34	A numerically efficient phase–field model for fatigue fracture – 1D analysis. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800207.	0.2	14
35	Anisotropic and rate-dependent mechanical properties of 3D printed polyamide 12 - A comparison between selective laser sintering and multi jet fusion. Results in Materials, 2021, 11, 100213.	1.8	14
36	Additive manufacturing applications of phase–field–based topology optimization using adaptive isogeometric analysis. GAMM Mitteilungen, 2021, 44, e202100013.	5.5	13

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37	XFEM Modeling of Interface Failure in Adhesively Bonded Fiber–Reinforced Polymers. Advanced Engineering Materials, 2016, 18, 417-426.	3.5	12
38	Phase-field modeling of fatigue crack growth during tooth flank fracture in case-hardened spur gears. International Journal of Fatigue, 2022, 163, 107091.	5.7	12
39	A numerical analysis of the fracture toughness in phase–field modelling of adhesive fracture. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 249-250.	0.2	11
40	Field-induced interactions in magneto-active elastomers - A comparison of experiments and simulations. Smart Materials and Structures, 2020, 29, 085026.	3.5	11
41	Modeling and simulation of interface failure in metal-composite hybrids. Composites Science and Technology, 2021, 214, 108965.	7.8	11
42	Elastic deformations in semi-dilute Ni nanorod/hydrogel composites. Archive of Applied Mechanics, 2019, 89, 119-132.	2.2	10
43	Phase-field modeling of fracture in heterogeneous materials: jump conditions, convergence and crack propagation. Archive of Applied Mechanics, 2021, 91, 579-596.	2.2	10
44	Multi-scale structuring for thermoplastic-metal contour joints of hollow profiles. Production Engineering, 2018, 12, 229-238.	2.3	9
45	XFEM Modelling of Inelastic Material Behaviour and Interface Failure in Textile-Reinforced Composites. , 2013, 2, 43-51.		8
46	Accessing pore microstructure–property relationships for additively manufactured materials. GAMM Mitteilungen, 2021, 44, e202100012.	5.5	8
47	Phase-Field Modelling of Damage and Fracture—Convergence and Local Mesh Refinement. Advanced Structured Materials, 2016, , 307-324.	0.5	7
48	A diffuse modeling approach for embedded interfaces in linear elasticity. GAMM Mitteilungen, 2020, 43, e202000001.	5.5	7
49	Phase–field modeling of brittle fracture along the thickness direction of plates and shells. International Journal for Numerical Methods in Engineering, 2022, 123, 4094-4118.	2.8	7
50	Fatigue analysis of rolled components considering transient cyclic material behaviour and residual stresses. Production Engineering, 2019, 13, 189-200.	2.3	6
51	Experimental Characterization and Simulation of the Mechanical Behavior of an Epoxy Adhesive. , 2013, 2, 234-242.		5
52	Phase–field modelling of fracture in heterogeneous materials. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800082.	0.2	4
53	Consideration of cyclic hardening and residual stresses in fatigue life calculations with the local strain approach. Archive of Applied Mechanics, 2021, 91, 3693-3707.	2.2	4
54	Forming-induced residual stresses: experiment, modeling, simulation. Archive of Applied Mechanics, 2021, 91, 3463-3464.	2.2	4

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55	Virtual Testing of Geometrically Imperfect Additively Manufactured Lattice Structures. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000090.	0.2	4
56	Multiscale modeling and simulation of magneto-active elastomers based on experimental data. ChemistrySelect, 2023, 8, 1-31.	1.5	4
57	Phase‐field modelling and simulation of fracture in viscoelastic materials. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	4
58	Modelling the material behaviour of magnetorheological fluids under shear deformation. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 415-416.	0.2	3
59	Modeling and Simulation of Hysteresis Effects in Magnetorheological Elastomers. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800319.	0.2	3
60	Determination of the Entire Stent Surface Area by a New Analytical Method. Materials, 2020, 13, 5633.	2.9	3
61	Thermo‐mechanical modeling of the temperature dependent forming behavior of thermoplastic prepregs. Engineering Reports, 2022, 4, e12373.	1.7	3
62	Thermodynamically consistent constitutive modeling of isotropic hyperelasticity based on artificial neural networks. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	3
63	A Virtual Sensing approach for approximating nonlinear dynamical systems using LSTM networks. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	3
64	Influence of the nonlinear matrix material behaviour on the effective properties of textile-reinforced thermoplastics. Proceedings in Applied Mathematics and Mechanics, 2009, 9, 341-342.	0.2	2
65	Multiscale Modelling of the Effective Viscoplastic Material Behaviour of Textile-Reinforced Polymers Using XFEM. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 297-298.	0.2	2
66	A material model of nonlinear fractional viscoelasticity. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 411-412.	0.2	2
67	Analytic and numeric solution of a magneto-mechanical inclusion problem. Archive of Applied Mechanics, 2015, 85, 1483-1497.	2.2	2
68	Microscale Modeling and Simulation of Magnetorheological Elastomers. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 27-30.	0.2	2
69	A quantitative comparison of two‐and three‐dimensional modeling approaches for magnetorheological elastomers. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800179.	0.2	2
70	Damage evolution in fiber reinforced polymer‐metal joints – modeling and simulation. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800449.	0.2	2
71	Virtual testing of additively manufactured grid structures. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900330.	0.2	2
72	Numerical analysis of the thermally induced damage in remote laser cut carbon fibre reinforced polymers. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900505.	0.2	2

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73	Development of a Macro–Model for Magnetorheological Elastomers based on Microscopic Simulations. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900288.	0.2	2
74	Influence of CT image processing on the predicted impact of pores on fatigue of additively manufactured Ti6Al4V and AlSi10Mg. GAMM Mitteilungen, 0, , .	5.5	2
75	Computation of the effective nonlinear material behaviour of composites using X-FEM - Analysis of the matrix material behaviour. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10429-10430.	0.2	1
76	Modeling of failure in rough interfaces. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 525-526.	0.2	1
77	Modeling and simulation of magnetorheological elastomers: A comparison of continuum and dipole approaches. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 527-528.	0.2	1
78	Application of µCT for the Determination of Total Surface Area of Stents. , 2019, , .		1
79	Efficient phase–field modelling of fatigue crack propagation. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900229.	0.2	1
80	Experimental characterization and modeling of the material behavior of an epoxy system. SN Applied Sciences, 2020, 2, 1.	2.9	1
81	Analysis of the remote laser cutting process induced damage in carbon fibre reinforced polymers with cutting process simulations. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000098.	0.2	1
82	Micromechanical analysis of failure in fiber reinforced polymer–metal structures. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000235.	0.2	1
83	Phase–Field Simulation of Crack Propagation at Adhesive Interfaces in Brittle Materials. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000211.	0.2	1
84	Benchmark for the Coupled Magneto-Mechanical Boundary Value Problem in Magneto-Active Elastomers. Materials, 2021, 14, 2380.	2.9	1
85	XFEM modeling of inelastic material behavior of composite. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 149-150.	0.2	0
86	XFEM-modelling of stationary magnetic and coupled magneto-mechanical boundary value problems. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 405-406.	0.2	0
87	Modeling of microscopic failure in heterogeneous materials. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 1035-1036.	0.2	0
88	Numerical study of adhesive and cohesive failure of structured interfaces. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 597-598.	0.2	0
89	Adaptive isogeometric discretizations for diffuse modeling of discontinuities. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900421.	0.2	0
90	Thermo–Mechanical Modeling of Pre–Consolidated Fiber–Reinforced Plastics for the Simulation of Thermoforming Processes. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900338.	0.2	0

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91	An Adaptive Isogeometric Phase‐Field Model for Topology Optimization. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000218.	0.2	0
92	Modeling and Simulation of the Thermo‐Mechanically Induced Fracture Behavior of an Epoxy System in Electric Traction Machines. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000043.	0.2	0
93	A macroscopic model for magneto‐active elastomers based on microscopic simulations. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000208.	0.2	0
94	Particle Interactions in Magneto‐Active Elastomers: Experiments and Simulations. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000277.	0.2	0
95	Preface on mechanics of additive manufacturing—Part I. GAMM Mitteilungen, 2021, 44, e202100016.	5.5	0
96	Extension of the local strain approach to transient material behavior and residual stresses. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000311.	0.2	0
97	Jump conditions in phase‐field modeling of interface fracture. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000055.	0.2	0
98	Parameter study on a phase‐field model for fatigue fracture. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000280.	0.2	0
99	Preface on mechanics of additive manufacturing—Part II. GAMM Mitteilungen, 2021, 44, e202100020.	5.5	0
100	Prediction of the anisotropic crack resistance of heterogeneous microstructures using a crack phase‐field model. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	0
101	Simulation of fatigue crack growth in residual‐stress‐afflicted specimen with a phase‐field model. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	0
102	Virtual testing of as‐designed additively manufactured lattice structures. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	0
103	Analysis of the remote laser cutting process induced damage in carbon fibre reinforced polymers. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	0