

Kai Uwe Bletzinger

List of Publications by Year in descending order

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137
papers

5,342
citations

136950

32
h-index

88630

70
g-index

145
all docs

145
docs citations

145
times ranked

2247
citing authors

#	ARTICLE	IF	CITATIONS
1	Isogeometric shell analysis with Kirchhoff–Love elements. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2009, 198, 3902-3914.	6.6	766
2	The bending strip method for isogeometric analysis of Kirchhoff–Love shell structures comprised of multiple patches. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2010, 199, 2403-2416.	6.6	419
3	3D simulation of wind turbine rotors at full scale. Part II: Fluid–structure interaction modeling with composite blades. <i>International Journal for Numerical Methods in Fluids</i> , 2011, 65, 236-253.	1.6	379
4	A unified approach for shear-locking-free triangular and rectangular shell finite elements. <i>Computers and Structures</i> , 2000, 75, 321-334.	4.4	348
5	Rotation free isogeometric thin shell analysis using PHT-splines. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2011, 200, 3410-3424.	6.6	335
6	Analysis in computer aided design: Nonlinear isogeometric B-Rep analysis of shell structures. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2015, 284, 401-457.	6.6	175
7	A Nitsche-type formulation and comparison of the most common domain decomposition methods in isogeometric analysis. <i>International Journal for Numerical Methods in Engineering</i> , 2014, 97, 473-504.	2.8	143
8	Computational methods for form finding and optimization of shells and membranes. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2005, 194, 3438-3452.	6.6	137
9	Structural optimization and form finding of light weight structures. <i>Computers and Structures</i> , 2001, 79, 2053-2062.	4.4	130
10	Isogeometric analysis of trimmed NURBS geometries. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2012, 241-244, 93-111.	6.6	123
11	Isogeometric shape optimization of shells using semi-analytical sensitivity analysis and sensitivity weighting. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2014, 274, 148-167.	6.6	123
12	A General Finite Element Approach to the form Finding of Tensile Structures by the Updated Reference Strategy. <i>International Journal of Space Structures</i> , 1999, 14, 131-145.	0.3	107
13	Optimal shapes of mechanically motivated surfaces. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2010, 199, 324-333.	6.6	97
14	Nonlinear isogeometric spatial Bernoulli beam. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2016, 303, 101-127.	6.6	95
15	Isogeometric Kirchhoff–Love shell formulations for biological membranes. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2015, 293, 328-347.	6.6	89
16	The Vertex Morphing method for node-based shape optimization. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2014, 268, 494-513.	6.6	73
17	Stress-adapted numerical form finding of pre-stressed surfaces by the updated reference strategy. <i>International Journal for Numerical Methods in Engineering</i> , 2005, 64, 143-166.	2.8	70
18	The discrete strain gap method and membrane locking. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2005, 194, 2444-2463.	6.6	64

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19	Efficient modeling in shape optimal design. Computing Systems in Engineering: an International Journal, 1991, 2, 483-495.	0.5	63
20	Interface Jacobian-based Co-Simulation. International Journal for Numerical Methods in Engineering, 2014, 98, 418-444.	2.8	61
21	A consistent frame for sensitivity filtering and the vertex assigned morphing of optimal shape. Structural and Multidisciplinary Optimization, 2014, 49, 873-895.	3.5	60
22	Bridge flutter derivatives based on computed, validated pressure fields. Journal of Wind Engineering and Industrial Aerodynamics, 2012, 104-106, 141-151.	3.9	56
23	A wrinkling model based on material modification for isotropic and orthotropic membranes. Computer Methods in Applied Mechanics and Engineering, 2008, 197, 773-788.	6.6	53
24	Integrated design and analysis of structural membranes using the Isogeometric B-Rep Analysis. Computer Methods in Applied Mechanics and Engineering, 2016, 303, 312-340.	6.6	53
25	Validation of the computational fluid-structure interaction simulation at real-scale tests of a flexible 29m umbrella in natural wind flow. Journal of Wind Engineering and Industrial Aerodynamics, 2011, 99, 400-413.	3.9	50
26	Regularization of shape optimization problems using FE-based parametrization. Structural and Multidisciplinary Optimization, 2013, 47, 507-521.	3.5	50
27	Explicit dynamic isogeometric B-Rep analysis of penalty-coupled trimmed NURBS shells. Computer Methods in Applied Mechanics and Engineering, 2019, 351, 891-927.	6.6	46
28	Shape optimization of shell structures. Revue Europeenne Des Elements, 1993, 2, 377-398.	0.1	43
29	Form finding of shells by structural optimization. Engineering With Computers, 1993, 9, 27-35.	6.1	41
30	Realization of an integrated structural design process: analysis-suitable geometric modelling and isogeometric analysis. Computing and Visualization in Science, 2010, 13, 315-330.	1.2	41
31	A framework for stabilized partitioned analysis of thin membrane-wind interaction. International Journal for Numerical Methods in Fluids, 2007, 54, 945-963.	1.6	38
32	Approximation of derivatives in semi-analytical structural optimization. Computers and Structures, 2008, 86, 1404-1416.	4.4	33
33	Shape optimization of thin walled structures governed by geometrically nonlinear mechanics. Computer Methods in Applied Mechanics and Engineering, 2012, 237-240, 107-117.	6.6	32
34	Shape optimization of buckling sensitive structures. Computing Systems in Engineering: an International Journal, 1994, 5, 65-75.	0.5	30
35	Embedded structural entities in NURBS-based isogeometric analysis. Computer Methods in Applied Mechanics and Engineering, 2017, 325, 198-218.	6.6	30
36	Parameter free shape and thickness optimisation considering stress response. Structural and Multidisciplinary Optimization, 2012, 45, 801-814.	3.5	29

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37	In-plane mesh regularization for node-based shape optimization problems. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2014, 275, 39-54.	6.6	29
38	Algorithmic Treatment of Shells and Free Form-Membranes in FSI. , 2006, , 336-355.		27
39	“Upgrading” membranes to shells”The CEG rotation free shell element and its application in structural analysis. <i>Finite Elements in Analysis and Design</i> , 2007, 44, 63-74.	3.2	27
40	Numerical studies on the instantaneous fluid-structure interaction of an air-inflated flexible membrane in turbulent flow. <i>Journal of Fluids and Structures</i> , 2018, 82, 577-609.	3.4	27
41	Extended method of moving asymptotes based on second-order information. <i>Structural Optimization</i> , 1993, 5, 175-183.	0.6	26
42	Assessment and improvement of mapping algorithms for non-matching meshes and geometries in computational FSI. <i>Computational Mechanics</i> , 2016, 57, 793-816.	4.0	25
43	Partitioned solution of an unsteady adjoint for strongly coupled fluid-structure interactions and application to parameter identification of a one-dimensional problem. <i>Structural and Multidisciplinary Optimization</i> , 2013, 47, 77-94.	3.5	24
44	Realization of CAD-integrated shell simulation based on isogeometric B-Rep analysis. <i>Advanced Modeling and Simulation in Engineering Sciences</i> , 2018, 5, .	1.7	24
45	Systematic evaluation of the interface description for fluid-structure interaction simulations using the isogeometric mortar-based mapping. <i>Journal of Fluids and Structures</i> , 2019, 86, 368-399.	3.4	24
46	Efficient sub-grid scale modeling of membrane wrinkling by a projection method. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2009, 198, 1097-1116.	6.6	20
47	TOWARDS GENERALIZED SHAPE AND TOPOLOGY OPTIMIZATION. <i>Engineering Optimization</i> , 1997, 29, 201-216.	2.6	19
48	A Finite Element Model for the Analysis of Wrinkled Membrane Structures. <i>International Journal of Space Structures</i> , 2003, 18, 1-14.	1.0	19
49	Numerical and analytical solutions with finite strains for circular inflated membranes considering pressure-volume coupling. <i>International Journal of Mechanical Sciences</i> , 2014, 82, 122-130.	6.7	19
50	Improving stability and accuracy of Reissner-Mindlin plate finite elements via algebraic subgrid scale stabilization. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2004, 193, 1517-1528.	6.6	17
51	Update scheme for sequential spatial correlation approximations in robust design optimisation. <i>Computers and Structures</i> , 2007, 85, 606-614.	4.4	17
52	High fidelity CFD-CSD aeroelastic analysis of slender bladed horizontal-axis wind turbine. <i>Journal of Physics: Conference Series</i> , 2016, 753, 042009.	0.4	17
53	Weak imposition of constraints for structural membranes in transient geometrically nonlinear isogeometric analysis of multipatch surfaces. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2019, 350, 938-994.	6.6	16
54	“Tracing” the Equilibrium “” Recent Advances in Numerical Form Finding. <i>International Journal of Space Structures</i> , 2010, 25, 107-116.	1.0	15

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55	Advances in the Form-finding of Structural Membranes. Procedia Engineering, 2016, 155, 332-341.	1.2	14
56	Fully coupled co-simulation of a wind turbine emergency brake maneuver. Journal of Wind Engineering and Industrial Aerodynamics, 2015, 144, 134-145.	3.9	13
57	Improved semi-analytical sensitivity analysis using a secant stiffness matrix for geometric nonlinear shape optimization. Computers and Structures, 2015, 146, 143-151.	4.4	13
58	A consistent formulation for imposing packaging constraints in shape optimization using Vertex Morphing parametrization. Structural and Multidisciplinary Optimization, 2017, 56, 1507-1519.	3.5	12
59	Efficient adjoint sensitivity analysis of isotropic hardening elastoplasticity via load steps reduction approximation. Computer Methods in Applied Mechanics and Engineering, 2017, 325, 612-644.	6.6	12
60	Material model based on NURBS response surfaces. Applied Mathematical Modelling, 2017, 51, 574-586.	4.2	12
61	Introducing Cutting Patterns in Form Finding and Structural Analysis. Computational Methods in Applied Sciences (Springer), 2008, , 69-84.	0.3	12
62	Weak coupling of nonlinear isogeometric spatial Bernoulli beams. Computer Methods in Applied Mechanics and Engineering, 2020, 361, 112747.	6.6	11
63	CAD-Integrated Parametric Lightweight Design With Isogeometric B-Rep Analysis. Frontiers in Built Environment, 2020, 6, .	2.3	11
64	A priori penalty factor determination for (trimmed) NURBS-based shells with Dirichlet and coupling constraints in isogeometric analysis. Computer Methods in Applied Mechanics and Engineering, 2021, 377, 113688.	6.6	11
65	A numerical investigation of combined waveâ€“current loads on tidal stream generators. Ocean Engineering, 2013, 72, 416-428.	4.3	10
66	Parameter free structural optimization applied to the shape optimization of smart structures. Finite Elements in Analysis and Design, 2016, 111, 33-45.	3.2	10
67	Aeroelastic simulation of the wind-excited torsional vibration of a parabolic trough solar collector. Journal of Wind Engineering and Industrial Aerodynamics, 2017, 165, 67-78.	3.9	10
68	Damage Detection at a Reinforced Concrete Specimen with Coda Wave Interferometry. Materials, 2021, 14, 5013.	2.9	10
69	Domain Decomposition Methods and Kirchhoff-Love Shell Multipatch Coupling in Isogeometric Analysis. Lecture Notes in Computational Science and Engineering, 2015, , 73-101.	0.3	10
70	Fluid-Structure Interaction in the Context of Shape Optimization and Computational Wind Engineering. Lecture Notes in Computational Science and Engineering, 2011, , 351-381.	0.3	10
71	Virtual Design Methodology for Lightweight Structures â€” Aerodynamic Response of Membrane Structures. International Journal of Space Structures, 2009, 24, 211-221.	1.0	9
72	Entwurf und Berechnung von gekrÃ¼mmten Betonfertigbauteilen mit CADâ€“basierten Verfahren. Beton- Und Stahlbetonbau, 2013, 108, 783-791.	0.4	9

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73	Partitioned simulation strategies for fluid-structure-control interaction problems by Gauss-Seidel formulations. <i>Advanced Modeling and Simulation in Engineering Sciences</i> , 2018, 5, .	1.7	8
74	Shape optimization of shells and locking. <i>Computers and Structures</i> , 2004, 82, 2551-2561.	4.4	7
75	A multiply-partitioned methodology for fully-coupled computational wind-structure interaction simulation considering the inclusion of arbitrary added mass dampers. <i>Journal of Wind Engineering and Industrial Aerodynamics</i> , 2018, 177, 117-135.	3.9	7
76	Numerical Methods for the Design and Analysis of Hybrid Structures. <i>International Journal of Space Structures</i> , 2013, 28, 149-160.	1.0	6
77	Complementary numerical-experimental benchmarking for shape optimization and validation of structures subjected to wave and current forces. <i>Computers and Fluids</i> , 2015, 118, 69-88.	2.5	6
78	A complementary study of analytical and computational fluid-structure interaction. <i>Computational Mechanics</i> , 2015, 55, 345-357.	4.0	6
79	Fluid-Structure interaction analysis and performance evaluation of a membrane blade. <i>Journal of Physics: Conference Series</i> , 2016, 753, 102009.	0.4	6
80	IIoT-based Fatigue Life Indication using Augmented Reality. , 2019, , .		6
81	A Virtual Free Surface (VFS) model for efficient wave-current CFD simulation of fully submerged structures. <i>Coastal Engineering</i> , 2014, 89, 85-98.	4.0	5
82	Innovative CAD-integrated Isogeometric Simulation of Sliding Edge Cables in Lightweight Structures. <i>Journal of the International Association for Shell and Spatial Structures</i> , 2018, 59, 251-258.	0.3	5
83	A modified search direction method for inequality constrained optimization problems using the singular-value decomposition of normalized response gradients. <i>Structural and Multidisciplinary Optimization</i> , 2019, 60, 2305-2323.	3.5	5
84	Vertex assigned morphing for parameter free shape optimization of 3-dimensional solid structures. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2019, 353, 86-106.	6.6	5
85	Relaxed gradient projection algorithm for constrained node-based shape optimization. <i>Structural and Multidisciplinary Optimization</i> , 2021, 63, 1633-1651.	3.5	5
86	Efficient computation of nonlinear isogeometric elements using the adjoint method and algorithmic differentiation. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2021, 381, 113817.	6.6	5
87	Partitioned Strong Coupling of Discrete Elements with Large Deformation Structural Finite Elements to Model Impact on Highly Flexible Tension Structures. <i>Advances in Civil Engineering</i> , 2020, 2020, 1-28.	0.7	5
88	Multi-fidelity fluid-structure interaction analysis of a membrane blade concept in non-rotating, uniform flow condition. <i>Wind Energy Science</i> , 2016, 1, 255-269.	3.3	5
89	Supporting conceptual decisions in structural design. <i>Computing Systems in Engineering: an International Journal</i> , 1993, 4, 223-234.	0.5	4
90	Shape optimization of a bow. <i>Structural and Multidisciplinary Optimization</i> , 2004, 28, 73.	3.5	4

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91	Shape optimisation in the design of thin-walled shells as components of aerospace structures. <i>Aeronautical Journal</i> , 2012, 116, 793-814.	1.6	4
92	Frame structural sizing and topological optimization via a parallel implementation of a modified particle Swarm algorithm. <i>KSCE Journal of Civil Engineering</i> , 2013, 17, 1359-1370.	1.9	4
93	Damping of unwanted turbulence in waveâ€‘current experiments. <i>Coastal Engineering</i> , 2015, 96, 38-48.	4.0	4
94	Assessment and practical application of mapping algorithms for beam elements in computational FSI. <i>European Journal of Computational Mechanics</i> , 2016, 25, 417-445.	0.6	4
95	Realization of a Framework for Simulation-Based Large-Scale Shape Optimization Using Vertex Morphing. <i>Journal of Optimization Theory and Applications</i> , 2021, 189, 164-189.	1.5	4
96	Numerical investigations of a membrane morphing wind turbine blade under gust conditions. <i>Journal of Wind Engineering and Industrial Aerodynamics</i> , 2022, 224, 104921.	3.9	4
97	Comparison and combination of experience-based parametrization with Vertex Morphing in aerodynamic shape optimization of a forward-swept wing aircraft. , 2016, , .		3
98	Variation of Reference Strategy - A Novel Approach for Generating Optimized Cutting Patterns of Membrane Structures. <i>Procedia Engineering</i> , 2016, 155, 131-141.	1.2	3
99	Computational Closedâ€‘Loop Control of Fluidâ€‘structure Interaction (FSCI) for Lightweight Structures. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2016, 16, 15-18.	0.2	3
100	Material Model Based on Response Surfaces of NURBS Applied to Isotropic and Orthotropic Materials. <i>Advanced Structured Materials</i> , 2016, , 353-373.	0.5	3
101	Nitsche's method for formâ€‘finding of multipatch isogeometric membrane analysis. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2018, 18, e201800106.	0.2	3
102	SensitivitÄtsanalyse mit verallgemeinerten Einflussfunktionen zur Tragwerksbewertung bei Modellparametervariationen/Sensitivity analysis with generalized influence functions for the treatment of model parameter variations in structural analysis. <i>Bauingenieur</i> , 2021, 96, 191-200.	0.1	3
103	Numerical analysis of an elasto-flexible membrane blade using steady-state fluidâ€‘structure interaction simulations. <i>Journal of Fluids and Structures</i> , 2021, 106, 103355.	3.4	3
104	Towards a computational engineering tool for structural sensitivity analysis based on the method of influence functions. <i>Engineering Structures</i> , 2022, 265, 114402.	5.3	3
105	Plateau regularization method for structural shape optimization and geometric mesh control. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2008, 8, 10359-10360.	0.2	2
106	Towards shape optimization of steady-state fluid-structure interaction problems using vertex morphing. , 2015, , .		2
107	Computational Cutting Pattern Generation Using Isogeometric B-Rep Analysis. <i>Procedia Engineering</i> , 2016, 155, 249-255.	1.2	2
108	Aerodynamic Shape Optimization Progress on ADODG Benchmark Problems Using the elsA Software. , 2017, , .		2

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109	Node-Based Shape Optimization and Mechanical Test Validation of Complex Metal Components and Support Structures, Manufactured by Laser Powder Bed Fusion. Lecture Notes in Networks and Systems, 2021, , 10-17.	0.7	2
110	Influence of DE-cluster refinement on numerical analysis of rockfall experiments. Computational Particle Mechanics, 0, , 1.	3.0	2
111	Form-Finding of Architectural Membranes in a CAD-Environment Using the AiCAD-Concept. , 2015, , 65-74.		2
112	Investigating the Vibration Mitigation Efficiency of Tuned Sloshing Dampers Using a Two-Fluid CFD Approach. Applied Sciences (Switzerland), 2022, 12, 7033.	2.5	2
113	Filtering and Regularization Shape Optimization Techniques for Preliminary Design. , 2005, , .		1
114	Innovative Shape Optimisation in Vehicle Design. ATZ Worldwide, 2012, 114, 20-23.	0.1	1
115	Investigation of Prestress-Dependent Aerodynamic Performance of a Double Membrane Sailing. Journal of Aircraft, 2017, 54, 980-994.	2.4	1
116	Coupled simulations involving light-weight structures within turbulent flows: FSI strategy and non-matching interface treatment for isogeometric b-rep analysis. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800107.	0.2	1
117	Remaining Useful Life Estimation for Unknown Motors Using a Hybrid Modeling Approach. , 2019, , .		1
118	An isogeometric b-rep mortar-based mapping method for non-matching grids in fluid-structure interaction. Advanced Modeling and Simulation in Engineering Sciences, 2021, 8, .	1.7	1
119	Optimization of Nonlinear Structures based on Object-Oriented Parallel Programming. , 0, , .		1
120	Analysis of Free Form Membranes Subject to Wind Using FSI. Computational Methods in Applied Sciences (Springer), 2008, , 141-161.	0.3	1
121	Development of a high-fidelity partitioned Fluid-Structure Interaction model of an Omega-shaped Coriolis Mass Meter and comparison with experimental data. Journal of Fluids and Structures, 2022, 110, 103510.	3.4	1
122	An integrated approach to determine parameters of a 3D volcano model by using InSAR data with metamodel technique. , 2010, , .		0
123	Design of Lightweight Composite Structures: A Parameter Free Structural Optimization Approach. Key Engineering Materials, 2012, 504-506, 1391-1396.	0.4	0
124	Efficient Design of Large Lightweight Composite Structures: A Parameter Free Optimization Approach. , 2012, , .		0
125	A Reduced Modeling Methodology for Efficient Ocean Wave CFD Simulation of Fully Submerged Structures. , 2013, , .		0
126	Treating Non-conforming Sensitivity Fields by Mortar Mapping and Vertex Morphing for Multi-disciplinary Shape Optimization. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2018, , 135-154.	0.3	0

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127	Stabilization of a Time-Dependent Discrete Adjoint Solver for Chaotic Incompressible Flows. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800124.	0.2	0
128	Multilevel Monte Carlo Method for Stochastic Analysis of Fluid-Structure Interaction. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800148.	0.2	0
129	Health indication of electric motors using a hybrid modeling approach. TM Technisches Messen, 2019, 86, 640-650.	0.7	0
130	A partitioned scheme for adjoint shape sensitivity analysis of fluid-structure interactions involving non-matching meshes. Optimization Methods and Software, 2020, , 1-31.	2.4	0
131	On the significance of locking on shape optimization of shells. , 2003, , 2229-2232.		0
132	Free Shape Optimal Design of Structures. , 2011, , 25-37.		0
133	Aktuelle Entwicklungen und Herausforderungen der Bauinformatik/Advances and Challenges of Computing in Civil Engineering. Bauingenieur, 2015, 90, 320-329.	0.1	0
134	Lift Force Reduction by Means of a Diffuser for Gravity Base Foundations in Waves and Currents. International Journal of Offshore and Polar Engineering, 2015, 25, 127-133.	0.8	0
135	Load step reduction for adjoint sensitivity analysis of finite strain elastoplasticity. Structural and Multidisciplinary Optimization, 2022, 65, 1.	3.5	0
136	Computational Sensitivity Analysis for Construction Stage Models. IABSE Symposium Report, 2022, , .	0.0	0
137	Damage detection in concrete with coda wave interferometry using a 60 kHz ultrasonic signal. IABSE Symposium Report, 2022, , .	0.0	0