

Roland WÃ¼chner

List of Publications by Year in descending order

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105
papers

4,050
citations

218381

26
h-index

118652

62
g-index

110
all docs

110
docs citations

110
times ranked

1841
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.	3.4	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.	3.4	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.	0.9	379
4	Rotation free isogeometric thin shell analysis using PHT-splines. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2011, 200, 3410-3424.	3.4	335
5	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.	3.4	175
6	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.	1.5	143
7	Computational methods for form finding and optimization of shells and membranes. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2005, 194, 3438-3452.	3.4	137
8	Isogeometric analysis of trimmed NURBS geometries. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2012, 241-244, 93-111.	3.4	123
9	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.	3.4	123
10	Optimal shapes of mechanically motivated surfaces. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2010, 199, 324-333.	3.4	97
11	Nonlinear isogeometric spatial Bernoulli beam. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2016, 303, 101-127.	3.4	95
12	Fluid–structure interaction using a partitioned semi-implicit predictor–corrector coupling scheme for the application of large-eddy simulation. <i>Journal of Fluids and Structures</i> , 2012, 29, 107-130.	1.5	89
13	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.	1.5	70
14	Interface Jacobian–based Co–Simulation. <i>International Journal for Numerical Methods in Engineering</i> , 2014, 98, 418-444.	1.5	61
15	A wrinkling model based on material modification for isotropic and orthotropic membranes. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2008, 197, 773-788.	3.4	53
16	Flow past a cylinder with a flexible splitter plate: A complementary experimental–numerical investigation and a new FSI test case (FSI-Pfs-1a). <i>Computers and Fluids</i> , 2014, 99, 18-43.	1.3	53
17	Integrated design and analysis of structural membranes using the Isogeometric B-Rep Analysis. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2016, 303, 312-340.	3.4	53
18	Validation of the computational fluid–structure interaction simulation at real-scale tests of a flexible 29m umbrella in natural wind flow. <i>Journal of Wind Engineering and Industrial Aerodynamics</i> , 2011, 99, 400-413.	1.7	50

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19	Regularization of shape optimization problems using FE-based parametrization. Structural and Multidisciplinary Optimization, 2013, 47, 507-521.	1.7	50
20	Explicit dynamic isogeometric B-Rep analysis of penalty-coupled trimmed NURBS shells. Computer Methods in Applied Mechanics and Engineering, 2019, 351, 891-927.	3.4	46
21	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
22	A framework for stabilized partitioned analysis of thin membrane-wind interaction. International Journal for Numerical Methods in Fluids, 2007, 54, 945-963.	0.9	38
23	Embedded structural entities in NURBS-based isogeometric analysis. Computer Methods in Applied Mechanics and Engineering, 2017, 325, 198-218.	3.4	30
24	Aeroelastic analysis of 10 MW wind turbine using CFD-CSD explicit FSI-coupling approach. Journal of Fluids and Structures, 2019, 87, 354-377.	1.5	30
25	Numerical simulation of wind loads on a parabolic trough solar collector using lattice Boltzmann and finite element methods. Journal of Wind Engineering and Industrial Aerodynamics, 2015, 146, 185-194.	1.7	29
26	Algorithmic Treatment of Shells and Free Form-Membranes in FSI. , 2006, , 336-355.		27
27	“Upgrading” membranes to shells”The CEG rotation free shell element and its application in structural analysis. Finite Elements in Analysis and Design, 2007, 44, 63-74.	1.7	27
28	Numerical studies on the instantaneous fluid-structure interaction of an air-inflated flexible membrane in turbulent flow. Journal of Fluids and Structures, 2018, 82, 577-609.	1.5	27
29	Assessment and improvement of mapping algorithms for non-matching meshes and geometries in computational FSI. Computational Mechanics, 2016, 57, 793-816.	2.2	25
30	Partitioned solution of an unsteady adjoint for strongly coupled fluid-structure interactions and application to parameter identification of a one-dimensional problem. Structural and Multidisciplinary Optimization, 2013, 47, 77-94.	1.7	24
31	Realization of CAD-integrated shell simulation based on isogeometric B-Rep analysis. Advanced Modeling and Simulation in Engineering Sciences, 2018, 5, .	0.7	24
32	Systematic evaluation of the interface description for fluid-structure interaction simulations using the isogeometric mortar-based mapping. Journal of Fluids and Structures, 2019, 86, 368-399.	1.5	24
33	Efficient sub-grid scale modeling of membrane wrinkling by a projection method. Computer Methods in Applied Mechanics and Engineering, 2009, 198, 1097-1116.	3.4	20
34	High fidelity CFD-CSD aeroelastic analysis of slender bladed horizontal-axis wind turbine. Journal of Physics: Conference Series, 2016, 753, 042009.	0.3	17
35	Weak imposition of constraints for structural membranes in transient geometrically nonlinear isogeometric analysis on multipatch surfaces. Computer Methods in Applied Mechanics and Engineering, 2019, 350, 938-994.	3.4	16
36	Advances in the Form-finding of Structural Membranes. Procedia Engineering, 2016, 155, 332-341.	1.2	14

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37	Nonconforming Dirichlet boundary conditions in implicit material point method by means of penalty augmentation. <i>Acta Geotechnica</i> , 2021, 16, 2315-2335.	2.9	14
38	Fully coupled co-simulation of a wind turbine emergency brake maneuver. <i>Journal of Wind Engineering and Industrial Aerodynamics</i> , 2015, 144, 134-145.	1.7	13
39	Distillation of the material point method cell crossing error leading to a novel quadrature-based C 0 remedy. <i>International Journal for Numerical Methods in Engineering</i> , 2021, 122, 1513-1537.	1.5	12
40	Introducing Cutting Patterns in Form Finding and Structural Analysis. <i>Computational Methods in Applied Sciences (Springer)</i> , 2008, , 69-84.	0.1	12
41	Weak coupling of nonlinear isogeometric spatial Bernoulli beams. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 361, 112747.	3.4	11
42	An embedded Finite Element framework for the resolution of strongly coupled Fluid-Structure Interaction problems. Application to volumetric and membrane-like structures. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 368, 113179.	3.4	11
43	CAD-Integrated Parametric Lightweight Design With Isogeometric B-Rep Analysis. <i>Frontiers in Built Environment</i> , 2020, 6, .	1.2	11
44	A priori penalty factor determination for (trimmed) NURBS-based shells with Dirichlet and coupling constraints in isogeometric analysis. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2021, 377, 113688.	3.4	11
45	A numerical investigation of combined wave-current loads on tidal stream generators. <i>Ocean Engineering</i> , 2013, 72, 416-428.	1.9	10
46	Aeroelastic simulation of the wind-excited torsional vibration of a parabolic trough solar collector. <i>Journal of Wind Engineering and Industrial Aerodynamics</i> , 2017, 165, 67-78.	1.7	10
47	Damage Detection at a Reinforced Concrete Specimen with Coda Wave Interferometry. <i>Materials</i> , 2021, 14, 5013.	1.3	10
48	Domain Decomposition Methods and Kirchhoff-Love Shell Multipatch Coupling in Isogeometric Analysis. <i>Lecture Notes in Computational Science and Engineering</i> , 2015, , 73-101.	0.1	10
49	Fluid-Structure Interaction in the Context of Shape Optimization and Computational Wind Engineering. <i>Lecture Notes in Computational Science and Engineering</i> , 2011, , 351-381.	0.1	10
50	Entwurf und Berechnung von gekrümmten Betonfertigbauteilen mit CAD-basierten Verfahren. <i>Beton-Und Stahlbetonbau</i> , 2013, 108, 783-791.	0.4	9
51	Partitioned simulation strategies for fluid-structure-control interaction problems by Gauss-Seidel formulations. <i>Advanced Modeling and Simulation in Engineering Sciences</i> , 2018, 5, .	0.7	8
52	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.	1.7	7
53	A robust algorithm for implicit description of immersed geometries within a background mesh. <i>Advanced Modeling and Simulation in Engineering Sciences</i> , 2018, 5, .	0.7	7
54	Numerical Methods for the Design and Analysis of Hybrid Structures. <i>International Journal of Space Structures</i> , 2013, 28, 149-160.	0.3	6

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55	Complementary numericalâ€“experimental benchmarking for shape optimization and validation of structures subjected to wave and current forces. <i>Computers and Fluids</i> , 2015, 118, 69-88.	1.3	6
56	A complementary study of analytical and computational fluid-structure interaction. <i>Computational Mechanics</i> , 2015, 55, 345-357.	2.2	6
57	Fluid-Structure interaction analysis and performance evaluation of a membrane blade. <i>Journal of Physics: Conference Series</i> , 2016, 753, 102009.	0.3	6
58	IIoT-based Fatigue Life Indication using Augmented Reality. , 2019, , .		6
59	Advanced Modeling and Simulation of Rockfall Attenuator Barriers Via Partitioned DEM-FEM Coupling. <i>Frontiers in Built Environment</i> , 2021, 7, .	1.2	6
60	A Virtual Free Surface (VFS) model for efficient waveâ€“current CFD simulation of fully submerged structures. <i>Coastal Engineering</i> , 2014, 89, 85-98.	1.7	5
61	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
62	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.	1.7	5
63	A cut finite element method for the solution of the full-potential equation with an embedded wake. <i>Computational Mechanics</i> , 2019, 63, 821-833.	2.2	5
64	Monolithic and partitioned approaches to determine static deformation of membrane structures due to ponding. <i>Computers and Structures</i> , 2021, 244, 106419.	2.4	5
65	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.	3.4	5
66	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.	0.4	5
67	Multi-fidelity fluidâ€“structure interaction analysis of a membrane blade concept in non-rotating, uniform flow condition. <i>Wind Energy Science</i> , 2016, 1, 255-269.	1.2	5
68	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
69	Aerodynamic analysis of a generic wing featuring an elasto-flexible lifting surface. <i>Advances in Aerodynamics</i> , 2019, 1, .	1.3	4
70	Non-conforming FEM-FEM coupling approaches and their application to dynamic structural analysis. <i>Engineering Structures</i> , 2021, 241, 112342.	2.6	4
71	Monitoring of wind effects on a wind-sensitive hybrid structure with single-layer cable-net curtain walls under Typhoon Muifa. <i>Journal of Building Engineering</i> , 2021, 44, 102960.	1.6	4
72	Numerical investigations of a membrane morphing wind turbine blade under gust conditions. <i>Journal of Wind Engineering and Industrial Aerodynamics</i> , 2022, 224, 104921.	1.7	4

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73	Computational Closed-Loop Control of Fluid-Structure Interaction (FSCI) for Lightweight Structures. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 15-18.	0.2	3
74	Nitsche's method for form-finding of multipatch isogeometric membrane analysis. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800106.	0.2	3
75	Aerodynamic Characteristics of an Elasto-Flexible Membrane Wing based on Experimental and Numerical Investigations. , 2018, ,		3
76	Sensitivitätsanalyse mit verallgemeinerten Einflussfunktionen zur Tragwerksbewertung bei Modellparametervariationen/Sensitivity analysis with generalized influence functions for the treatment of model parameter variations in structural analysis. Bauingenieur, 2021, 96, 191-200.	0.1	3
77	Numerical analysis of an elasto-flexible membrane blade using steady-state fluid-structure interaction simulations. Journal of Fluids and Structures, 2021, 106, 103355.	1.5	3
78	Towards a computational engineering tool for structural sensitivity analysis based on the method of influence functions. Engineering Structures, 2022, 265, 114402.	2.6	3
79	Plateau regularization method for structural shape optimization and geometric mesh control. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10359-10360.	0.2	2
80	Coupled Simulations Involving Lightweight Structures within Turbulent Flows: A Complementary Experimental and Numerical Application. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800030.	0.2	2
81	Influence of DE-cluster refinement on numerical analysis of rockfall experiments. Computational Particle Mechanics, 0, , 1.	1.5	2
82	Form-Finding of Architectural Membranes in a CAD-Environment Using the AiCAD-Concept. , 2015, , 65-74.		2
83	Aeroelastic Simulations Based on High-Fidelity CFD and CSD Models. , 2021, , 1-76.		2
84	High-fidelity aeroelastic analyses of wind turbines in complex terrain: fluid-structure interaction and aerodynamic modeling. Wind Energy Science, 2022, 7, 1421-1439.	1.2	2
85	Investigation of Prestress-Dependent Aerodynamic Performance of a Double Membrane Sailwing. Journal of Aircraft, 2017, 54, 980-994.	1.7	1
86	Coupled simulations involving lightweight 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
87	Remaining Useful Life Estimation for Unknown Motors Using a Hybrid Modeling Approach. , 2019, ,		1
88	A time averaged steady state method for the Navier-Stokes equations. International Journal for Numerical Methods in Fluids, 2021, 93, 2023-2064.	0.9	1
89	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, ,	0.7	1
90	Analysis of Free Form Membranes Subject to Wind Using FSI. Computational Methods in Applied Sciences (Springer), 2008, , 141-161.	0.1	1

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91	Numerical Investigations of an Elasto-Flexible Membrane Airfoil Compared to Experiments. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2018, , 421-431.	0.2	1
92	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.	1.5	1
93	A Reduced Modeling Methodology for Efficient Ocean Wave CFD Simulation of Fully Submerged Structures. , 2013, , .		0
94	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.	0.2	0
95	Stabilization of a Time-Dependent Discrete Adjoint Solver for Chaotic Incompressible Flows. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800124.	0.2	0
96	Aeroelastic analysis of membrane blade via panel-BEM coupling. Journal of Physics: Conference Series, 2018, 1037, 062011.	0.3	0
97	Multilevel Monte Carlo Method for Stochastic Analysis of Fluid-Structure Interaction. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800148.	0.2	0
98	Health indication of electric motors using a hybrid modeling approach. TM Technisches Messen, 2019, 86, 640-650.	0.3	0
99	A partitioned scheme for adjoint shape sensitivity analysis of fluid-structure interactions involving non-matching meshes. Optimization Methods and Software, 2020, , 1-31.	1.6	0
100	PARTITIONED SOLUTION OF THE UNSTEADY ADJOINT EQUATIONS FOR THE ONE-DIMENSIONAL FLOW IN A FLEXIBLE TUBE. , 0, , .		0
101	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.	0.3	0
102	Equilibrium Consistent Anisotropic Stress Fields in Membrane Design. , 2005, , 143-151.		0
103	Numerical simulation of wind-structure interaction for thin shells and membranes. , 2006, , 421-421.		0
104	Finite Element based Simulation, Design and Control of Adaptive Lightweight Structures. , 0, , .		0
105	Damage detection in concrete with coda wave interferometry using a 60 kHz ultrasonic signal. IABSE Symposium Report, 2022, , .	0.0	0