

Alexander DÃ¼ster

List of Publications by Year in descending order

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138
papers

3,763
citations

147726

31
h-index

143943

57
g-index

151
all docs

151
docs citations

151
times ranked

1381
citing authors

#	ARTICLE	IF	CITATIONS
1	Finite cell method. Computational Mechanics, 2007, 41, 121-133.	2.2	410
2	The finite cell method for three-dimensional problems of solid mechanics. Computer Methods in Applied Mechanics and Engineering, 2008, 197, 3768-3782.	3.4	369
3	The p-version of the finite element method for three-dimensional curved thin walled structures. International Journal for Numerical Methods in Engineering, 2001, 52, 673-703.	1.5	166
4	Geometric modeling, isogeometric analysis and the finite cell method. Computer Methods in Applied Mechanics and Engineering, 2012, 249-252, 104-115.	3.4	147
5	Small and large deformation analysis with the p- and B-spline versions of the Finite Cell Method. Computational Mechanics, 2012, 50, 445-478.	2.2	145
6	The adaptive finite cell method for geometrically nonlinear problems of solid mechanics. International Journal for Numerical Methods in Engineering, 2012, 89, 1171-1202.	1.5	94
7	PERFORMANCE OF DIFFERENT INTEGRATION SCHEMES IN FACING DISCONTINUITIES IN THE FINITE CELL METHOD. International Journal of Computational Methods, 2013, 10, 1350002.	0.8	85
8	p-FEM applied to finite isotropic hyperelastic bodies. Computer Methods in Applied Mechanics and Engineering, 2003, 192, 5147-5166.	3.4	82
9	Numerical homogenization of heterogeneous and cellular materials utilizing the finite cell method. Computational Mechanics, 2012, 50, 413-431.	2.2	76
10	Numerical integration of discontinuities on arbitrary domains based on moment fitting. Computational Mechanics, 2016, 57, 979-999.	2.2	76
11	Numerical analysis of Lamb waves using the finite and spectral cell methods. International Journal for Numerical Methods in Engineering, 2014, 99, 26-53.	1.5	74
12	Topology optimization using the finite cell method. Optimization and Engineering, 2012, 13, 57-78.	1.3	70
13	An efficient integration technique for the voxel-based finite cell method. International Journal for Numerical Methods in Engineering, 2012, 91, 457-471.	1.5	65
14	Local enrichment of the finite cell method for problems with material interfaces. Computational Mechanics, 2013, 52, 741-762.	2.2	63
15	Finite and spectral cell method for wave propagation in heterogeneous materials. Computational Mechanics, 2014, 54, 661-675.	2.2	63
16	Theoretical and Numerical Investigation of the Finite Cell Method. Journal of Scientific Computing, 2015, 65, 1039-1064.	1.1	61
17	Fixed-grid fluid-structure interaction in two dimensions based on a partitioned Lattice Boltzmann and p-FEM approach. International Journal for Numerical Methods in Engineering, 2009, 79, 817-845.	1.5	60
18	High order finite elements for shells. Computer Methods in Applied Mechanics and Engineering, 2005, 194, 2494-2512.	3.4	59

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19	Shell Finite Cell Method: A high order fictitious domain approach for thin-walled structures. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2011, 200, 3200-3209.	3.4	59
20	Accelerated staggered coupling schemes for problems of thermoelasticity at finite strains. <i>Computers and Mathematics With Applications</i> , 2012, 64, 2408-2430.	1.4	59
21	The finite cell method for the J2 flow theory of plasticity. <i>Finite Elements in Analysis and Design</i> , 2013, 69, 37-47.	1.7	58
22	Two-scale modelling of micromorphic continua. <i>Continuum Mechanics and Thermodynamics</i> , 2009, 21, 297-315.	1.4	57
23	On volumetric locking-free behaviour of p-version finite elements under finite deformations. <i>Communications in Numerical Methods in Engineering</i> , 2007, 24, 1019-1032.	1.3	55
24	Numerical integration of discontinuous functions: moment fitting and smart octree. <i>Computational Mechanics</i> , 2017, 60, 863-881.	2.2	49
25	Ap-version finite element approach for two- and three-dimensional problems of the J2 flow theory with non-linear isotropic hardening. <i>International Journal for Numerical Methods in Engineering</i> , 2002, 53, 49-63.	1.5	46
26	Fluid Structure Interaction II. <i>Lecture Notes in Computational Science and Engineering</i> , 2010, , .	0.1	46
27	The p-version of the finite element method compared to an adaptive h-version for the deformation theory of plasticity. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2001, 190, 1925-1935.	3.4	44
28	Applying the hp-version of the FEM to locally enhance dimensionally reduced models. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2007, 196, 3524-3533.	3.4	42
29	A comparison of the h-, p-, hp-, and rp-version of the FEM for the solution of the 2D Hertzian contact problem. <i>Computational Mechanics</i> , 2010, 45, 513-522.	2.2	42
30	High-order finite elements applied to the discrete Boltzmann equation. <i>International Journal for Numerical Methods in Engineering</i> , 2006, 67, 1094-1121.	1.5	40
31	Non-standard bone simulation: interactive numerical analysis by computational steering. <i>Computing and Visualization in Science</i> , 2011, 14, 207-216.	1.2	39
32	A Selection of Benchmark Problems in Solid Mechanics and Applied Mathematics. <i>Archives of Computational Methods in Engineering</i> , 2021, 28, 713-751.	6.0	36
33	FCMLab: A finite cell research toolbox for MATLAB. <i>Advances in Engineering Software</i> , 2014, 74, 49-63.	1.8	34
34	Equivalent Legendre polynomials: Numerical integration of discontinuous functions in the finite element methods. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2019, 343, 690-720.	3.4	31
35	Numerical integration for nonlinear problems of the finite cell method using an adaptive scheme based on moment fitting. <i>Computers and Mathematics With Applications</i> , 2019, 77, 1983-1997.	1.4	29
36	Axisymmetric pressure boundary loading for finite deformation analysis using p-FEM. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2007, 196, 1261-1277.	3.4	28

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37	pq-Adaptive solid finite elements for three-dimensional plates and shells. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2007, 197, 243-254.	3.4	28
38	Finite cell method compared to h-version finite element method for elasto-plastic problems. <i>Applied Mathematics and Mechanics (English Edition)</i> , 2014, 35, 1239-1248.	1.9	25
39	Numerical homogenization of hybrid metal foams using the finite cell method. <i>Computers and Mathematics With Applications</i> , 2015, 70, 1501-1517.	1.4	25
40	A partitioned solution approach for electro-thermo-mechanical problems. <i>Archive of Applied Mechanics</i> , 2015, 85, 1075-1101.	1.2	25
41	Experimental and numerical investigation of single pores for identification of effective metal foams properties. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 2018, 98, 682-695.	0.9	22
42	p-FEM for finite deformation powder compaction. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2008, 197, 727-740.	3.4	21
43	Numerical investigations of foam-like materials by nested high-order finite element methods. <i>Computational Mechanics</i> , 2009, 45, 45-59.	2.2	21
44	Selective enrichment of moment fitting and application to cut finite elements and cells. <i>Computational Mechanics</i> , 2020, 65, 429-450.	2.2	21
45	The finite cell method for nearly incompressible finite strain plasticity problems with complex geometries. <i>Computers and Mathematics With Applications</i> , 2018, 75, 3298-3316.	1.4	20
46	Monolithic and partitioned coupling schemes for thermo-viscoplasticity. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2015, 293, 375-410.	3.4	19
47	A Numerical Investigation of High-Order Finite Elements for Problems of Elastoplasticity. <i>Journal of Scientific Computing</i> , 2002, 17, 397-404.	1.1	18
48	A flexible C++ framework for the partitioned solution of strongly coupled multifield problems. <i>Computers and Mathematics With Applications</i> , 2016, 72, 1764-1789.	1.4	18
49	Convergence acceleration for partitioned simulations of the fluid-structure interaction in arteries. <i>Computational Mechanics</i> , 2016, 57, 901-920.	2.2	18
50	An rp-adaptive finite element method for the deformation theory of plasticity. <i>Computational Mechanics</i> , 2007, 39, 557-574.	2.2	15
51	Using the finite cell method to predict crack initiation in ductile materials. <i>Computational Materials Science</i> , 2014, 82, 427-434.	1.4	15
52	Adjoint shape optimization for fluid-structure interaction of ducted flows. <i>Computational Mechanics</i> , 2018, 61, 259-276.	2.2	15
53	Non-negative moment fitting quadrature for cut finite elements and cells undergoing large deformations. <i>Computational Mechanics</i> , 2022, 70, 1059-1081.	2.2	15
54	High-order finite elements compared to low-order mixed element formulations. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 2013, 93, 163-176.	0.9	14

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55	High order thin-walled solid finite elements applied to elastic spring-back computations. Computer Methods in Applied Mechanics and Engineering, 2006, 195, 5377-5389.	3.4	13
56	A partitioned solution approach for the simulation of dynamic behaviour and acoustic signature of flexible cavitating marine propellers. Ocean Engineering, 2020, 197, 106854.	1.9	13
57	Topology optimization based on the finite cell method. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 151-152.	0.2	12
58	Reducing spurious oscillations in discontinuous wave propagation simulation using high-order finite elements. Computers and Mathematics With Applications, 2015, 70, 1640-1658.	1.4	12
59	An extension of the finite cell method using boolean operations. Computational Mechanics, 2017, 59, 877-886.	2.2	12
60	Modelling the material parameter distribution of expanded granules. Granular Matter, 2017, 19, 1.	1.1	12
61	Numerical Investigation of Polymer Coated Nanoporous Gold. Materials, 2019, 12, 2178.	1.3	12
62	The efficiency of the p-version finite element method in a distributed computing environment. International Journal for Numerical Methods in Engineering, 2001, 52, 589-604.	1.5	11
63	A remeshing strategy for large deformations in the finite cell method. Computers and Mathematics With Applications, 2020, 80, 2379-2398.	1.4	11
64	MICROMORPHIC TWO-SCALE MODELLING OF PERIODIC GRID STRUCTURES. International Journal for Multiscale Computational Engineering, 2013, 11, 161-176.	0.8	11
65	Modelling the Excitation Force of a Standard Tapping Machine on Lightweight Floor Structures. Building Acoustics, 2010, 17, 175-197.	1.1	10
66	Simulation of Lamb waves using the spectral cell method. , 2013, , .		10
67	The spectral cell method for wave propagation in heterogeneous materials simulated on multiple GPUs and CPUs. Computational Mechanics, 2019, 63, 805-819.	2.2	10
68	Model adaptivity for industrial application of sheet metal forming simulation. Finite Elements in Analysis and Design, 2010, 46, 585-600.	1.7	9
69	A flexible multi-physics coupling interface for partitioned solution approaches. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 363-364.	0.2	9
70	Numerical investigation of the landing manoeuvre of a crew transfer vessel to an offshore wind turbine. Ships and Offshore Structures, 2017, 12, S115-S133.	0.9	9
71	Experimental and numerical characterization of expanded glass granules. Computational Particle Mechanics, 2018, 5, 297-312.	1.5	9
72	Simulation of the fluid-structure interaction of a floating wind turbine. Ships and Offshore Structures, 2019, 14, 207-218.	0.9	9

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73	Spline- and hp-basis functions of higher differentiability in the finite cell method. GAMM Mitteilungen, 2020, 43, e202000004.	2.7	8
74	Experimental investigation of granules as crash-absorber in ship building. Ships and Offshore Structures, 2021, 16, 314-325.	0.9	8
75	Fluid-structure interaction and stress analysis of a floating wind turbine. Marine Structures, 2021, 78, 102970.	1.6	8
76	The Finite Cell Method: High Order Simulation of Complex Structures without Meshing. , 2009, , 87-92.		8
77	The p-version of the FEM for computational contact mechanics. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10271-10272.	0.2	7
78	Partitioned coupling strategies for multi-physically coupled radiative heat transfer problems. Journal of Computational Physics, 2015, 300, 327-351.	1.9	7
79	Experimental and numerical investigation of granular materials for an increase of the collision safety of double-hull vessels. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 409-410.	0.2	7
80	A partitioned solution approach for the simulation of the dynamic behaviour of flexible marine propellers. Ship Technology Research, 2020, 67, 37-50.	1.1	7
81	Thin Solids for Fluid-Structure Interaction. , 2006, , 294-335.		7
82	COMPUTATIONAL CONTACT MECHANICS BASED ON THE r_p -VERSION OF THE FINITE ELEMENT METHOD. International Journal of Computational Methods, 2011, 08, 493-512.	0.8	6
83	Finite Cell Method implementation and validation of a nonlocal integral damage model. International Journal of Mechanical Sciences, 2017, 128-129, 401-413.	3.6	6
84	Anisotropic hierarchic solid finite elements for the simulation of passive-active arterial wall models. Computers and Mathematics With Applications, 2017, 74, 3058-3079.	1.4	6
85	An eigenvalue stabilization technique to increase the robustness of the finite cell method for finite strain problems. Computational Mechanics, 2022, 69, 1225-1240.	2.2	6
86	Acceleration of partitioned coupling schemes for problems of thermoelasticity. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 367-368.	0.2	5
87	The influence of geometric imperfections in cardiovascular FSI simulations. Computers and Mathematics With Applications, 2017, 74, 1675-1689.	1.4	5
88	A posteriori error control for the finite cell method. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900419.	0.2	5
89	A multiscale DEM-FEM coupled approach for the investigation of granules as crash-absorber in ship building. Computational Particle Mechanics, 2022, 9, 179-197.	1.5	5
90	The Finite Cell Method for large deformation analysis. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 271-272.	0.2	4

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91	Efficient computation of cellular materials using the finite cell method. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 251-252.	0.2	4
92	Acceleration methods for the convergence of vector sequences applied to multi-physics problems. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 521-522.	0.2	4
93	DEM-FEM coupled numerical investigation of granular materials to increase crashworthiness of double-hull vessels. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 311-312.	0.2	4
94	Efficient numerical integration of arbitrarily broken cells using the moment fitting approach. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 201-202.	0.2	3
95	hp-version finite elements and finite cells for finite strain elastoplastic problems. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 243-244.	0.2	3
96	Different finite element refinement strategies for the computation of the strain energy density in a welded joint. , 2011, , 289-294.		3
97	Adaptive Integration of Cut Finite Elements and Cells for Nonlinear Structural Analysis. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2020, , 31-73.	0.3	3
98	A remeshing approach for the finite cell method applied to problems with large deformations. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	3
99	The hp-d version of the finite cell method with local enrichment for multiscale problems. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 259-260.	0.2	2
100	Cardiovascular fluid-structure interaction: A partitioned approach utilizing the p-FEM. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 493-494.	0.2	2
101	A high-order enrichment strategy for the finite cell method. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 207-208.	0.2	2
102	Numerical and Experimental Investigation Regarding the Landing Manoeuvre of a Catamaran Vessel at an Offshore Wind Turbine in Waves. , 2015, , .		2
103	Adaptive numerical integration of broken finite cells based on moment fitting applied to finite strain problems. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800089.	0.2	2
104	Optimally Blended Spectral Elements in Structural Dynamics: Selective Integration and Mesh Distortion. International Journal of Computational Methods, 0, , 2150042.	0.8	2
105	Dynamic Load Balancing Strategies for Hierarchical p-FEM Solvers. Lecture Notes in Computer Science, 2009, , 305-312.	1.0	2
106	Simulation of granular materials with the discrete element method to investigate their suitability as crash-absorber in ship collisions. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	2
107	Numerical Investigation of High-Order Solid Finite Elements for Anisotropic Finite Strain Problems. International Journal of Computational Methods, 2022, 19, .	0.8	2
108	FSI Based on Bidirectional Coupling of High Order Solids to a Lattice-Boltzmann Method. , 2006, , 419.		1

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109	A new strategy for stiffness evaluation of sheet metal parts. , 2011, , .		1
110	A FEM-BEM approach for Fluid-Structure Interaction. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 457-458.	0.2	1
111	Extraction of effective material parameters with application to sandwich structures. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 553-554.	0.2	1
112	Energy-Conserving Data Transfer in the Partitioned Treatment of Thermo-Viscoplastic Problems. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 211-212.	0.2	1
113	Hydrodynamic Behaviour of Very Large Floating Structures (VLFS) in Waves. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 531-532.	0.2	1
114	Efficient simulation of wave propagation in heterogeneous materials. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 715-716.	0.2	1
115	Numerical analysis of Ni/Al hybrid metal foams using the finite cell method. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 299-300.	0.2	1
116	Characterization of Ni/Al hybrid foam from atomic to microscale. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 283-284.	0.2	1
117	Experimental and numerical investigation of metal foams undergoing large deformations. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 345-346.	0.2	1
118	Statistical characterization of granular material applied as crash absorber in ship building. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 487-488.	0.2	1
119	Modelling and experimental testing of expanded granules as crash absorber for double hull ships. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800416.	0.2	1
120	Partitioned simulation of the acoustic behavior of flexible marine propellers using finite and boundary elements. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000315.	0.2	1
121	Force Transfer for High Order Finite Element Methods Using Intersected Meshes. , 2007, , .		1
122	A Partitioned Scheme for Coupling of FEM and DEM Simulations of Granular Materials. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	1
123	Investigations on an elastic micropolar continuum model for large deformations. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10549-10550.	0.2	0
124	Numerical homogenization of foam-like structures based on the FE2-approach. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10573-10574.	0.2	0
125	On Dirichlet boundary conditions in second-order FE2-schemes. Proceedings in Applied Mathematics and Mechanics, 2010, 10, 423-424.	0.2	0
126	Simulation of Safety-Relevant Situations Regarding the Interaction of Service Ships With Offshore Wind Turbine Plants. , 2015, , .		0

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127	A Flexible C++ Framework for the Efficient Solution of Strongly Coupled Multifield Problems. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 455-456.	0.2	0
128	Partitioned simulation of multi-field problems – efficient and robust coupling of fluids and structures. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800424.	0.2	0
129	Partitioned simulation of the fluid-structure interaction of flexible marine propellers in unsteady flow conditions. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800471.	0.2	0
130	Adjoint shape optimization for fluid-structure interaction. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800427.	0.2	0
131	HOFEIM 2019. Computers and Mathematics With Applications, 2020, 80, 2259-2260.	1.4	0
132	Nonlinear computation of cables with high order solid elements using an anisotropic material model. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000217.	0.2	0
133	High Order Finite Elements: Principles, Achievements, Open Questions. Computational Technology Reviews, 2010, 1, 29-55.	0.6	0
134	Extension processes, adaptivity and remeshing for elasto-plastic problems. , 2006, , 408-408.		0
135	Efficient simulation of heterogeneous materials with the finite cell method. Proceedings in Applied Mathematics and Mechanics, 2021, 21, .	0.2	0
136	Towards Efficient Reliability Methods with Applications to Industrial Problems. , 0, , .		0
137	Modelling Fluid-Structure Interaction with High Order Solids and Lattice Boltzmann. , 0, , .		0
138	Validation of a partitioned fluid-structure interaction simulation for turbo machine rotors. Ships and Offshore Structures, 2023, 18, 775-786.	0.9	0