H Martin BÃ¼cker

List of Publications by Year
in descending order

88 papers	651 citations	840776 11 h-index	752698 20 g-index
94 all docs	94 docs citations	94 times ranked	473 citing authors

#	Article	IF	Citations
1	Simultaneous Optimization of Working Fluid and Process for Organic Rankine Cycles Using PC-SAFT. Industrial & Engineering Chemistry Research, 2014, 53, 8821-8830.	3.7	108
2	Joint three-dimensional inversion of coupled groundwater flow and heat transfer based on automatic differentiation: sensitivity calculation, verification, and synthetic examples. Geophysical Journal International, 2006, 167, 453-466.	2.4	69
3	Combining source transformation and operator overloading techniques to compute derivatives for MATLAB programs. , 0, , .		51
4	On CFL evolution strategies for implicit upwind methods in linearized Euler equations. International Journal for Numerical Methods in Fluids, 2009, 59, 1-18.	1.6	28
5	Sensitivity Analysis of Turbulence Models Using Automatic Differentiation. SIAM Journal of Scientific Computing, 2004, 26, 510-522.	2.8	20
6	Sensitivity of optimal shapes of artificial grafts with respect to flow parameters. Computer Methods in Applied Mechanics and Engineering, 2010, 199, 997-1005.	6.6	20
7	Sensitivity-based analysis of the k–ε model for the turbulent flow between two plates. Chemical Engineering Science, 2008, 63, 4763-4775.	3.8	16
8	Using exact Jacobians in an implicit Newton–Krylov method. Computers and Fluids, 2006, 35, 1063-1073.	2.5	15
9	Mountain belt growth inferred from histories of past plate convergence: A new tectonic inverse problem. Earth and Planetary Science Letters, 2007, 260, 516-523.	4.4	15
10	Automatic Differentiation of the General-Purpose Computational Fluid Dynamics Package FLUENT. Journal of Fluids Engineering, Transactions of the ASME, 2007, 129, 652-658.	1.5	14
11	Practical shape optimization of a levitation device for single droplets. Optimization and Engineering, 2008, 9, 179-199.	2.4	13
12	Explicit loop scheduling in OpenMP for parallel automatic differentiation. , 0, , .		12
13	A smooth transition from serial to parallel processing in the industrial petroleum system modeling package PetroMod. Computers and Geosciences, 2008, 34, 1473-1479.	4.2	12
14	Efficient and accurate derivatives for a software process chain in airfoil shape optimization. Future Generation Computer Systems, 2005, 21, 1333-1344.	7.5	11
15	Parallel re-initialization of level set functions on distributed unstructured tetrahedral grids. Journal of Computational Physics, 2011, 230, 4437-4453.	3.8	10
16	Extending the functionality of the general-purpose finite element package SEPRAN by automatic differentiation. International Journal for Numerical Methods in Engineering, 2003, 58, 2225-2238.	2.8	9
17	Software supporting optimal experimental design: A case study of binary diffusion using EFCOSS. Computers and Chemical Engineering, 2009, 33, 838-849.	3.8	9
18	A variant of the biconjugate gradient method suitable for massively parallel computing. Lecture Notes in Computer Science, 1997, , 72-79.	1.3	9

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19	Parallel Minimum *p*-Norm Solution of the Neuromagnetic Inverse Problem for Realistic Signals Using Exact Hessian-Vector Products. SIAM Journal of Scientific Computing, 2008, 30, 2905-2921.	2.8	8
20	Modeling the performance of interface contraction. ACM Transactions on Mathematical Software, 2003, 29, 440-457.	2.9	7
21	An Interactive Environment for Supporting the Transition from Simulation to Optimization. Scientific Programming, 2003, 11, 263-272.	0.7	7
22	EFCOSS. ACM Transactions on Mathematical Software, 2010, 37, 1-37.	2.9	7
23	Solving a parameter estimation problem in a three-dimensional conical tube on a parallel and distributed software infrastructure. Journal of Computational Science, 2011, 2, 95-104.	2.9	7
24	A Parallel Strategy for a Level Set Simulation of Droplets Moving in a Liquid Medium. Lecture Notes in Computer Science, 2011, , 200-209.	1.3	7
25	A new user interface for ADiMat: toward accurate and efficient derivatives of MATLAB programmes with ease of use. International Journal of Computational Science and Engineering, 2014, 9, 408.	0.5	7
26	Optimal experimental design for reservoir property estimates in geothermal exploration. Computational Geosciences, 2016, 20, 375-383.	2.4	7
27	SHEMAT-Suite: An open-source code for simulating flow, heat and species transport in porous media. SoftwareX, 2020, 12, 100533.	2.6	7
28	A new metric enabling an exact hypergraph model for the communication volume in distributed-memory parallel applications. Parallel Computing, 2013, 39, 319-335.	2.1	6
29	A Bibliography of Automatic Differentiation. Lecture Notes in Computational Science and Engineering, 2006, , 321-322.	0.3	6
30	Binding Nested OpenMP Programs on Hierarchical Memory Architectures. Lecture Notes in Computer Science, 2010, , 29-42.	1.3	6
31	Computing sensitivities of the electrostatic potential by automatic differentiation. Computer Physics Communications, 2002, 147, 720-723.	7.5	5
32	Solving large-scale optimization problems with EFCOSS. Advances in Engineering Software, 2003, 34, 633-639.	3.8	5
33	Interactively Exploring the Connection between Nested Dissection Orderings for Parallel Cholesky Factorization and Vertex Separators. , 2014, , .		5
34	Transforming Equation-Based Models in Process Engineering. Lecture Notes in Computational Science and Engineering, 2006, , 189-198.	0.3	5
35	On the Use of a Differentiated Finite Element Package for Sensitivity Analysis. Lecture Notes in Computer Science, 2001, , 795-801.	1.3	5
36	Hands-On Training for Undergraduates in High-Performance Computing Using Java. Lecture Notes in Computer Science, 2001, , 306-315.	1.3	5

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37	On Deriving the Quasi-Minimal Residual Method. SIAM Review, 1998, 40, 922-926.	9.5	4
38	Parallel programming in computational science: an introductory practical training course for computer science undergraduates at Aachen University. Future Generation Computer Systems, 2003, 19, 1309-1319.	7.5	4
39	Interactively exploring elimination orderings in symbolic sparse Cholesky factorization. Procedia Computer Science, 2010, 1, 867-874.	2.0	4
40	Discrete and continuous adjoint approaches to estimate boundary heat fluxes in falling films. Optimization Methods and Software, 2011, 26, 105-125.	2.4	4
41	An interactive educational module illustrating sparse matrix compression via graph coloring. , 2013, , .		4
42	On Combining Computational Differentiation and Toolkits for Parallel Scientific Computing. Lecture Notes in Computer Science, 2000, , 86-94.	1.3	4
43	Code Optimization Techniques in Source Transformations for Interpreted Languages. Lecture Notes in Computational Science and Engineering, 2008, , 223-233.	0.3	4
44	Automatic Generation of Parallel Code for Hessian Computations. Lecture Notes in Computer Science, 2008, , 372-381.	1.3	4
45	Using automatic differentiation for the solution of the minimum p-norm estimation problem in magnetoencephalography. Simulation Modelling Practice and Theory, 2004, 12, 105-116.	3.8	3
46	Characteristics of testing conditions for constitutive models in metal plasticity. Journal of Engineering Mathematics, 2014, 88, 99-119.	1.2	3
47	Enabling Technologies for Robust High-Performance Simulations in Computational Fluid Dynamics. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2010, , 153-180.	0.3	3
48	The Impact of Dynamic Data Reshaping on Adjoint Code Generation for Weakly-Typed Languages Such as Matlab. Lecture Notes in Computational Science and Engineering, 2012, , 127-138.	0.3	3
49	Computation of Sensitivity Information for Aircraft Design by Automatic Differentiation. Lecture Notes in Computer Science, 2002, , 1069-1076.	1.3	3
50	Threads in an Undergraduate Course: A Java Example Illuminating Different Multithreading Approaches. Lecture Notes in Computer Science, 2004, , 882-891.	1.3	2
51	Looking for narrow interfaces in automatic differentiation using graph drawing. Future Generation Computer Systems, 2005, 21, 1418-1425.	7.5	2
52	Sensitivities of flow and transport parameters in fractured porous media using automatic differentiation. International Journal for Numerical Methods in Engineering, 2006, 65, 1923-1934.	2.8	2
53	Reformulating a Breadth-First Search Algorithm on an Undirected Graph in the Language of Linear Algebra. , 2014, , .		2
54	The Approximate Discrete Radon Transform: A Case Study in Auto-Tuning of OpenCL Implementations. , 2015, , .		2

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55	On the reproducibility of biological image workflows by annotating computational results automatically. , 2017, , .		2
56	A Normalization Scheme for the Non-symmetric s-Step Lanczos Algorithm. Lecture Notes in Computer Science, 2013, , 30-39.	1.3	2
57	Illustrating a Graph Coloring Algorithm Based on the Principle of Inclusion and Exclusion Using GraphTea. Lecture Notes in Computer Science, 2014, , 514-517.	1.3	2
58	An Educational Module Illustrating How Sparse Matrix-Vector Multiplication on Parallel Processors Connects to Graph Partitioning. Lecture Notes in Computer Science, 2015, , 135-146.	1.3	2
59	Exploiting Intermediate Sparsity in Computing Derivatives for a Leapfrog Scheme. Computational Optimization and Applications, 2003, 24, 117-133.	1.6	1
60	TIME-PARALLEL COMPUTATION OF PSEUDO-ADJOINTS FOR A LEAPFROG SCHEME. International Journal of High Speed Computing, 2004, 12, 1-27.	0.2	1
61	Partial Jacobian computation in the domain-specific program transformation system ADiCape. , 2009, , .		1
62	Sensitivity of shear rate in artificial grafts using automatic differentiation. International Journal for Numerical Methods in Fluids, 2010, 62, 1047-1062.	1.6	1
63	A Graph Model for Minimizing the Storage Overhead of Distributing Data for the Parallel Solution of Two-Phase Flows. , 2011, , .		1
64	Identification of optimal material models and parameters in finite strain plasticity. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 335-336.	0.2	1
65	Model Identification for Flow Simulations in Geothermal Reservoirs: Towards Optimally Drilling Boreholes. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 345-346.	0.2	1
66	Preservation of Non-uniform Memory Architecture Characteristics when Going from a Nested OpenMP to a Hybrid MPI/OpenMP Approach. , 2014, , .		1
67	RIOS: efficient I/O in reverse direction. Software - Practice and Experience, 2015, 45, 1399-1427.	3.6	1
68	Interactively Exploring the Connection between Bidirectional Compression and Star Bicoloring. Procedia Computer Science, 2015, 51, 1917-1926.	2.0	1
69	Estimating the expansion coefficients of a geomagnetic field model using first-order derivatives of associated Legendre functions. Optimization Methods and Software, 2018, 33, 924-944.	2.4	1
70	A System for Interfacing MATLAB with External Software Geared Toward Automatic Differentiation. Lecture Notes in Computer Science, 2006, , 373-384.	1.3	1
71	On Parallelizing Benson's Algorithm:. Lecture Notes in Computer Science, 2018, , 653-668.	1.3	1
72	Synchronization-Reducing Variants of the Biconjugate Gradient and the Quasi-Minimal Residual Methods. Lecture Notes in Computer Science, 2013, , 226-235.	1.3	1

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73	The Non–Symmetric <i>s</i>–Step Lanczos Algorithm: Derivation of Efficient Recurrences and Synchronization–Reducing Variants of BiCG and QMR. International Journal of Applied Mathematics and Computer Science, 2015, 25, 769-785.	1.5	1
74	Redesigning Interactive Educational Modules for Combinatorial Scientific Computing. Lecture Notes in Computer Science, 2019, , 363-373.	1.3	1
75	Preconditioning Jacobian Systems by Superimposing Diagonal Blocks. Lecture Notes in Computer Science, 2020, , 101-115.	1.3	1
76	Experiences with scientific applications on an SCI-based Linux cluster. , 0, , .		0
77	A 1-norm quasi-minimal residual variant of the Bi-CGSTAB algorithm for nonsymmetric linear systems. , 0, , .		0
78	On Using Hölder Norms in the Quasi-Minimal Residual Approach. BIT Numerical Mathematics, 2001, 41, 901-911.	2.0	0
79	Semi-automatic parallelization of direct and inverse problems for geothermal simulation. , 2009, , .		0
80	Hybrid Distributed-/Shared-Memory Parallelization For Re-initializing Level Set Functions. , 2010, , .		0
81	Second-order derivatives of the general-purpose finite element package SEPRAN via source transformation. Mathematics and Computers in Simulation, 2011, 81, 2431-2439.	4.4	0
82	A Distributed-Memory Parallelization of a Shared-Memory Parallel Ensemble Kalman Filter. , 2014, , .		0
83	Benchmarking Different MapReduce Implementations for Computer-Aided Hardware Development. , 2014, , .		0
84	Automatic Differentiation of Computer Programs in the Time and Frequency Domain. , 2017, , .		0
85	Efficient signed backward substitution for piecewise affine functions via path problems in a directed acyclic graph. , 2021, , 171-181.		0
86	A Case Study of Computational Differentiation Applied to Neutron Scattering. , 2002, , 69-74.		0
87	Coping with a Variable Number of Arguments when Transforming MATLAB Programs. Lecture Notes in Computational Science and Engineering, 2008, , 211-222.	0.3	0
88	Parallel summation of symmetric inter-particle forces in smoothed particle hydrodynamics. Lecture Notes in Computational Science and Engineering, 2011, , 235-248.	0.3	0