

# Oliver Rheinbach

## List of Publications by Year in descending order

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77  
papers

1,038  
citations

471371

17  
h-index

477173

29  
g-index

82  
all docs

82  
docs citations

82  
times ranked

330  
citing authors

#	ARTICLE	IF	CITATIONS
1	Robust FETI-DP methods for heterogeneous three dimensional elasticity problems. Computer Methods in Applied Mechanics and Engineering, 2007, 196, 1400-1414.	3.4	85
2	An Analysis of a FETI-DP Algorithm on Irregular Subdomains in the Plane. SIAM Journal on Numerical Analysis, 2008, 46, 2484-2504.	1.1	85
3	Inexact FETI-DP methods. International Journal for Numerical Methods in Engineering, 2007, 69, 284-307.	1.5	64
4	A Parallel Implementation of Dual-Primal FETI Methods for Three-Dimensional Linear Elasticity Using a Transformation of Basis. SIAM Journal of Scientific Computing, 2006, 28, 1886-1906.	1.3	63
5	FETI-DP Methods with an Adaptive Coarse Space. SIAM Journal on Numerical Analysis, 2015, 53, 297-320.	1.1	57
6	Toward Extremely Scalable Nonlinear Domain Decomposition Methods for Elliptic Partial Differential Equations. SIAM Journal of Scientific Computing, 2015, 37, C667-C696.	1.3	47
7	Modelling and convergence in arterial wall simulations using a parallel FETI solution strategy. Computer Methods in Biomechanics and Biomedical Engineering, 2008, 11, 569-583.	0.9	43
8	Adaptive Coarse Spaces for FETI-DP in Three Dimensions. SIAM Journal of Scientific Computing, 2016, 38, A2880-A2911.	1.3	41
9	Nonlinear FETI-DP and BDDC Methods. SIAM Journal of Scientific Computing, 2014, 36, A737-A765.	1.3	40
10	Spectral element FETI-DP and BDDC preconditioners with multi-element subdomains. Computer Methods in Applied Mechanics and Engineering, 2008, 198, 511-523.	3.4	37
11	Numerical modeling of fluid-structure interaction in arteries with anisotropic polyconvex hyperelastic and anisotropic viscoelastic material models at finite strains. International Journal for Numerical Methods in Biomedical Engineering, 2016, 32, e02756.	1.0	36
12	Deflation, Projector Preconditioning, and Balancing in Iterative Substructuring Methods: Connections and New Results. SIAM Journal of Scientific Computing, 2012, 34, A459-A484.	1.3	29
13	A Parallel Implementation of a Two-Level Overlapping Schwarz Method with Energy-Minimizing Coarse Space Based on Trilinos. SIAM Journal of Scientific Computing, 2016, 38, C713-C747.	1.3	27
14	Parallel Iterative Substructuring in Structural Mechanics. Archives of Computational Methods in Engineering, 2009, 16, 425-463.	6.0	22
15	Multiscale coarse spaces for overlapping Schwarz methods based on the ACMS space in 2D. Electronic Transactions on Numerical Analysis, 0, 48, 156-182.	0.0	21
16	On the mechanical modeling of anisotropic biological soft tissue and iterative parallel solution strategies. Archive of Applied Mechanics, 2010, 80, 479-488.	1.2	20
17	Nonlinear FETI-DP and BDDC Methods: A Unified Framework and Parallel Results. SIAM Journal of Scientific Computing, 2017, 39, C417-C451.	1.3	20
18	Projector preconditioning and transformation of basis in FETI-DP algorithms for contact problems. Mathematics and Computers in Simulation, 2012, 82, 1894-1907.	2.4	19

#	ARTICLE	IF	CITATIONS
19	A hybrid approach to 3-level FETI. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10841-10843.	0.2	18
20	FETI-DP domain decomposition methods for elasticity with structural changes:P-elasticity. ESAIM: Mathematical Modelling and Numerical Analysis, 2011, 45, 563-602.	0.8	18
21	Analysis of FETI-DP and BDDC for Linear Elasticity in 3D with Almost Incompressible Components and Varying Coefficients Inside Subdomains. SIAM Journal on Numerical Analysis, 2012, 50, 2208-2236.	1.1	16
22	Computational homogenization with million-way parallelism using domain decomposition methods. Computational Mechanics, 2020, 65, 1-22.	2.2	15
23	The approximate component mode synthesis special finite element method in two dimensions: Parallel implementation and numerical results. Journal of Computational and Applied Mathematics, 2015, 289, 116-133.	1.1	14
24	Scalability of Classical Algebraic Multigrid for Elasticity to Half a Million Parallel Tasks. Lecture Notes in Computational Science and Engineering, 2016, , 113-140.	0.1	13
25	Adaptive GDSW Coarse Spaces for Overlapping Schwarz Methods in Three Dimensions. SIAM Journal of Scientific Computing, 2019, 41, A3045-A3072.	1.3	13
26	Adaptive FETI-DP and BDDC methods with a generalized transformation of basis for heterogeneous problems. Electronic Transactions on Numerical Analysis, 0, 49, 1-27.	0.0	12
27	Using logistic regression model selection towards interpretable machine learning in mineral prospectivity modeling. Chemie Der Erde, 2021, 81, 125826.	0.8	10
28	On an Adaptive Coarse Space and on Nonlinear Domain Decomposition. Lecture Notes in Computational Science and Engineering, 2014, , 71-83.	0.1	9
29	Improving the Parallel Performance of Overlapping Schwarz Methods by Using a Smaller Energy Minimizing Coarse Space. Lecture Notes in Computational Science and Engineering, 2018, , 383-392.	0.1	9
30	FROSch: A Fast And Robust Overlapping Schwarz Domain Decomposition Preconditioner Based on Xpetra in Trilinos. Lecture Notes in Computational Science and Engineering, 2020, , 176-184.	0.1	9
31	Some Computational Results for Dual-Primal FETI Methods for Elliptic Problems in 3D. , 2005, , 361-368.		8
32	Nonlinear BDDC Methods with approximate solvers. Electronic Transactions on Numerical Analysis, 0, 49, 244-273.	0.0	8
33	FETI-DP with different scalings for adaptive coarse spaces. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 835-836.	0.2	6
34	Multicore Performance Engineering of Sparse Triangular Solves Using a Modified Roofline Model. , 2018, , .		6
35	Parallel adaptive FETI-DP using lightweight asynchronous dynamic load balancing. International Journal for Numerical Methods in Engineering, 2020, 121, 621-643.	1.5	6
36	Dual-primal Iterative Substructuring for Almost Incompressible Elasticity. , 2007, , 397-404.		6

#	ARTICLE	IF	CITATIONS
37	A Highly Scalable Implementation of Inexact Nonlinear FETI-DP Without Sparse Direct Solvers. Lecture Notes in Computational Science and Engineering, 2016, , 255-264.	0.1	5
38	A Three-level Extension of the GDSW Overlapping Schwarz Preconditioner in Three Dimensions. Lecture Notes in Computational Science and Engineering, 2020, , 185-192.	0.1	5
39	Coarse spaces for FETI-DP and BDDC Methods for heterogeneous problems: connections of deflation and a generalized transformation-of-basis approach. Electronic Transactions on Numerical Analysis, 0, 52, 43-76.	0.0	4
40	Parallel Two-Level Overlapping Schwarz Methods in Fluid-Structure Interaction. Lecture Notes in Computational Science and Engineering, 2016, , 521-530.	0.1	4
41	Adaptive GDSW Coarse Spaces of Reduced Dimension for Overlapping Schwarz Methods. SIAM Journal of Scientific Computing, 2022, 44, A1176-A1204.	1.3	4
42	A Three-Level Extension of the GDSW Overlapping Schwarz Preconditioner in Two Dimensions. Lecture Notes in Computational Science and Engineering, 2019, , 187-204.	0.1	3
43	EXASTEEL: Towards a Virtual Laboratory for the Multiscale Simulation of Dual-Phase Steel Using High-Performance Computing. Lecture Notes in Computational Science and Engineering, 2020, , 351-404.	0.1	3
44	Adaptive Coarse Spaces for BDDC with a Transformation of Basis. Lecture Notes in Computational Science and Engineering, 2016, , 301-309.	0.1	3
45	Hybrid MPI/OpenMP Parallelization in FETI-DP Methods. Lecture Notes in Computational Science and Engineering, 2015, , 67-84.	0.1	3
46	An Adaptive GDSW Coarse Space for Two-Level Overlapping Schwarz Methods in Two Dimensions. Lecture Notes in Computational Science and Engineering, 2018, , 373-382.	0.1	3
47	FETI-DP for Anisotropic Problems. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10189-10190.	0.2	2
48	Numerical Simulations of Arterial Walls Based on IVUS-Data. Proceedings in Applied Mathematics and Mechanics, 2009, 9, 75-78.	0.2	2
49	Solving geometrically exact micromorphic elasticity with a staggered algorithm. GAMM Mitteilungen, 2010, 33, 57-72.	2.7	2
50	Energy efficiency of nonlinear domain decomposition methods. International Journal of High Performance Computing Applications, 2021, 35, 237-253.	2.4	2
51	Variational Methods and Parallel Solvers in Chemo-Mechanics. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000272.	0.2	2
52	Adaptive Coarse Spaces for FETI-DP in Three Dimensions with Applications to Heterogeneous Diffusion Problems. Lecture Notes in Computational Science and Engineering, 2017, , 187-196.	0.1	2
53	New Nonlinear FETI-DP Methods Based on a Partial Nonlinear Elimination of Variables. Lecture Notes in Computational Science and Engineering, 2017, , 207-215.	0.1	2
54	Newton-Krylov-FETI-DP with Adaptive Coarse Spaces. Lecture Notes in Computational Science and Engineering, 2017, , 197-205.	0.1	2

#	ARTICLE	IF	CITATIONS
55	Preconditioning the coarse problem of BDDC methods –three-level, algebraic multigrid, and vertex-based preconditioners. <i>Electronic Transactions on Numerical Analysis</i> , 0, 51, 432-450.	0.0	2
56	Effective hyperelastic material parameters from microstructures constructed using the planar Boolean model. <i>Computational Mechanics</i> , 2022, 69, 1295-1321.	2.2	2
57	Logistic regression for potential modeling. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2019, 19, e201900039.	0.2	1
58	Fully-coupled micro–macro finite element simulations of the Nakajima test using parallel computational homogenization. <i>Computational Mechanics</i> , 2021, 68, 1153-1178.	2.2	1
59	Preconditioning of Iterative Eigenvalue Problem Solvers in Adaptive FETI-DP. <i>Lecture Notes in Computational Science and Engineering</i> , 2018, , 415-423.	0.1	1
60	A Simultaneous Augmented Lagrange Approach for the Simulation of Soft Biological Tissue. <i>Lecture Notes in Computational Science and Engineering</i> , 2013, , 369-376.	0.1	1
61	A Nonlinear FETI-DP Method with an Inexact Coarse Problem. <i>Lecture Notes in Computational Science and Engineering</i> , 2016, , 41-52.	0.1	1
62	A Newton-Krylov-FETI-DP Method with an Adaptive Coarse Space Applied to Elastoplasticity. <i>Lecture Notes in Computational Science and Engineering</i> , 2016, , 293-300.	0.1	1
63	Parallel Overlapping Schwarz with an Energy-Minimizing Coarse Space. <i>Lecture Notes in Computational Science and Engineering</i> , 2017, , 353-360.	0.1	1
64	On the Accuracy of the Inner Newton Iteration in Nonlinear Domain Decomposition. <i>Lecture Notes in Computational Science and Engineering</i> , 2018, , 435-443.	0.1	1
65	Using Algebraic Multigrid in Inexact BDDC Domain Decomposition Methods. <i>Lecture Notes in Computational Science and Engineering</i> , 2018, , 425-433.	0.1	1
66	A Closer Look at Local Eigenvalue Solvers for Adaptive FETI-DP and BDDC. <i>Lecture Notes in Computational Science and Engineering</i> , 2020, , 235-242.	0.1	1
67	Variational Settings and Domain Decomposition Based Solution Schemes for a Coupled Deformation–Diffusion Problem. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2021, 21, .	0.2	1
68	Large-scale simulation of arterial walls: mechanical modeling. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2007, 7, 4020017-4020018.	0.2	0
69	Parallel Simulation of Biological Soft Tissue. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2012, 12, 767-768.	0.2	0
70	Scalability of a FETI-DP Method for Optimal Control Problems. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2014, 14, 837-838.	0.2	0
71	Using Local Spectral Information in Domain Decomposition Methods – A Brief Overview in a Nutshell. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2016, 16, 729-730.	0.2	0
72	Steps Towards More Realistic FSI Simulations of Coronary Arteries. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2017, 17, 187-188.	0.2	0

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73	Remarks on Fluid-Structure Interaction Simulations in Realistic Arterial Geometries with regard to the Transmural Stress Distribution. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800312.	0.2	0
74	FETI-DP Solvers and Deal.II for Problems in Dislocation Mechanics. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900292.	0.2	0
75	Applying the FROSch Overlapping Schwarz Preconditioner to Dislocation Mechanics in Deal.II. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900337.	0.2	0
76	FETI-DP for Elasticity with Almost Incompressible Material Components. Lecture Notes in Computational Science and Engineering, 2013, , 353-360.	0.1	0
77	Globalization of Nonlinear FETI-DP Domain Decomposition Methods Using an SQP Approach. Vietnam Journal of Mathematics, 0, , .	0.4	0