Panayot S Vassilevski

List of Publications by Year
in descending order

82 papers	1,793 citations	279701 23 h-index	302012 39 g-index
82 all docs	82 docs citations	82 times ranked	620 citing authors

#	Article	IF	Citations
1	Numerical results for adaptive (negative norm) constrained first order system least squares formulations. Computers and Mathematics With Applications, 2021, 95, 256-270.	1.4	4
2	Multilevel graph embedding. Numerical Linear Algebra With Applications, 2021, 28, e2326.	0.9	3
3	Multilevel Spectral Coarsening for Graph Laplacian Problems with Application to Reservoir Simulation. SIAM Journal of Scientific Computing, 2021, 43, A2737-A2765.	1.3	2
4	Estimating posterior quantity of interest expectations in a multilevel scalable framework. Numerical Linear Algebra With Applications, 2021, 28, e2352.	0.9	4
5	Eigenvalue Problems for Exponential-Type Kernels. Computational Methods in Applied Mathematics, 2020, 20, 61-78.	0.4	5
6	Nonlinear multigrid based on local spectral coarsening for heterogeneous diffusion problems. Computer Methods in Applied Mechanics and Engineering, 2020, 372, 113432.	3.4	5
7	Auxiliary Space Preconditioning of Finite Element Equations Using a Nonconforming Interior Penalty Reformulation and Static Condensation. SIAM Journal of Scientific Computing, 2020, 42, A1741-A1764.	1.3	3
8	Modifying AMG Coarse Spaces with Weak Approximation Property to Exhibit Approximation in Energy Norm. SIAM Journal on Matrix Analysis and Applications, 2019, 40, 1131-1152.	0.7	2
9	Bootstrap AMG for spectral clustering. Computational and Mathematical Methods, 2019, 1, e1020.	0.3	4
10	Improving solve time of aggregationâ€based adaptive AMG. Numerical Linear Algebra With Applications, 2019, 26, e2269.	0.9	6
11	Nonlinear multigrid solvers exploiting AMGe coarse spaces with approximation properties. Journal of Computational and Applied Mathematics, 2018, 340, 691-708.	1.1	8
12	Scalable hierarchical PDE sampler for generating spatially correlated random fields using nonmatching meshes. Numerical Linear Algebra With Applications, 2018, 25, e2146.	0.9	12
13	Space-time discretizations using constrained first-order system least squares (CFOSLS). Journal of Computational Physics, 2018, 373, 863-876.	1.9	10
14	BootCMatch. ACM Transactions on Mathematical Software, 2018, 44, 1-25.	1.6	18
15	Arbitrary dimension convectionâ€“diffusion schemes for spaceâ€“time discretizations. Journal of Computational and Applied Mathematics, 2017, 310, 19-31.	1.1	22
16	Numerical Multilevel Upscaling for Incompressible Flow in Reservoir Simulation: An Element-Based Algebraic Multigrid (AMGe) Approach. SIAM Journal of Scientific Computing, 2017, 39, B102-B137.	1.3	6
17	Spectral Upscaling for Graph Laplacian Problems with Application to Reservoir Simulation. SIAM Journal of Scientific Computing, 2017, 39, S323-S346.	1.3	8
18	Solving Graph Laplacian Systems Through Recursive Partitioning and Two-Grid Preconditioning. SIAM Journal on Matrix Analysis and Applications, 2017, 38, 621-648.	0.7	2

#	Article	IF	Citations
19	A Multilevel, Hierarchical Sampling Technique for Spatially Correlated Random Fields. SIAM Journal of Scientific Computing, 2017, 39, S543-S562.	1.3	18
20	Parallel Solver for $$oldsymbol{H}$$ (div) Problems Using Hybridization and AMG. Lecture Notes in Computational Science and Engineering, 2017, , 69-80.	0.1	5
21	Space-Time CFOSLS Methods with AMGe Upscaling. Lecture Notes in Computational Science and Engineering, 2017, , 253-260.	0.1	0
22	A twoâ€grid SAâ€AMG convergence bound that improves when increasing the polynomial degree. Numerical Linear Algebra With Applications, 2016, 23, 746-771.	0.9	8
23	Î±AMG Based on Weighted Matching for Systems of Elliptic PDEs Arising from Displacement and Mixed Methods. Mathematics in Industry, 2016, , 1013-1020.	0.1	3
24	Accurate Coarse-Scale AMG-Based Finite Volume Reservoir Simulations in Highly Heterogeneous Media. , 2015, , .		2
25	A Mixed Formulation for the Brinkman Problem. SIAM Journal on Numerical Analysis, 2014, 52, 258-281.	1.1	33
26	Commuting projections on graphs. Numerical Linear Algebra With Applications, 2014, 21, 297-315.	0.9	6
27	The Construction of the Coarse de Rham Complexes with Improved Approximation Properties. Computational Methods in Applied Mathematics, 2014, 14, 257-303.	0.4	20
28	Comparative Convergence Analysis of Nonlinear AMLI-Cycle Multigrid. SIAM Journal on Numerical Analysis, 2013, 51, 1349-1369.	1.1	11
29	Improving the Communication Pattern in Matrix-Vector Operations for Large Scale-Free Graphs by Disaggregation. SIAM Journal of Scientific Computing, 2013, 35, S465-S486.	1.3	7
30	A Block-Diagonal Algebraic Multigrid Preconditioner for the Brinkman Problem. SIAM Journal of Scientific Computing, 2013, 35, S3-S17.	1.3	25
31	Adaptive AMG with coarsening based on compatible weighted matching. Computing and Visualization in Science, 2013, 16, 59-76.	1.2	28
32	Multilevel Methods for Elliptic Problems with Highly Varying Coefficients on Nonaligned Coarse Grids. SIAM Journal on Numerical Analysis, 2012, 50, 1675-1694.	1.1	29
33	Parallel Auxiliary Space AMG Solver for $H(div)$ Problems. SIAM Journal of Scientific Computing, 2012, 34, A3079-A3098.	1.3	40
34	An improved convergence analysis of smoothed aggregation algebraic multigrid. Numerical Linear Algebra With Applications, 2012, 19, 441-469.	0.9	22
35	Smoothed Aggregation Spectral Element Agglomeration AMG: SA-ÏAMGe. Lecture Notes in Computer Science, 2012, , 3-15.	1.0	8
36	Weak Approximation Properties of Elliptic Projections with Functional Constraints. Multiscale Modeling and Simulation, 2011, 9, 1677-1699.	0.6	25

#	Article	IF	Citations
37	COARSE SPACES BY ALGEBRAIC MULTIGRID: MULTIGRID CONVERGENCE AND UPSCALING ERROR ESTIMATES. Advances in Adaptive Data Analysis, 2011, 03, 229-249.	0.6	16
38	Spectral Element Agglomerate Algebraic Multigrid Methods for Elliptic Problems with High-Contrast Coefficients. Lecture Notes in Computational Science and Engineering, 2011, , 407-414.	0.1	18
39	Mixed finite element methods for incompressible flow: Stationary Stokes equations. Numerical Methods for Partial Differential Equations, 2010, 26, 957-978.	2.0	59
40	General Constrained Energy Minimization Interpolation Mappings for AMG. SIAM Journal of Scientific Computing, 2010, 32, 1-13.	1.3	46
41	H(curl) auxiliary mesh preconditioning. Numerical Linear Algebra With Applications, 2008, 15, 455-471.	0.9	14
42	Recursive Krylovâ€based multigrid cycles. Numerical Linear Algebra With Applications, 2008, 15, 473-487.	0.9	84
43	On some versions of the element agglomeration AMGe method. Numerical Linear Algebra With Applications, 2008, 15, 595-620.	0.9	23
44	Exact de Rham Sequences of Spaces Defined on Macro-Elements in Two and Three Spatial Dimensions. SIAM Journal of Scientific Computing, 2008, 30, 2427-2446.	1.3	29
45	Spectral Element Agglomerate AMGe. , 2007, , 513-521.		9
46	Multiple Vector Preserving Interpolation Mappings in Algebraic Multigrid. SIAM Journal on Matrix Analysis and Applications, 2006, 27, 1040-1055.	0.7	11
47	AMG by element agglomeration and constrained energy minimization interpolation. Numerical Linear Algebra With Applications, 2006, 13, 771-788.	0.9	18
48	Two-level preconditioning of discontinuous Galerkin approximations of second-order elliptic equations. Numerical Linear Algebra With Applications, 2006, 13, 753-770.	0.9	57
49	On two-grid convergence estimates. Numerical Linear Algebra With Applications, 2005, 12, 471-494.	0.9	72
50	An element agglomeration nonlinear additive Schwarz preconditioned Newton method for unstructured finite element problems. Applications of Mathematics, 2005, 50, 247-275.	0.9	4
51	Monotone multigrid methods based on element agglomeration coarsening away from the contact boundary for the Signorini's problem. Numerical Linear Algebra With Applications, 2004, 11, 189-204.	0.9	15
52	On Generalizing the Algebraic Multigrid Framework. SIAM Journal on Numerical Analysis, 2004, 42, 1669-1693.	1.1	107
53	On Mesh-Independent Convergence of an Inexact Newton--Multigrid Algorithm. SIAM Journal of Scientific Computing, 2003, 25, 570-590.	1.3	13
54	Nonlinear Schwarz-FAS methods for unstructured finite element elliptic problems. , 2003, , 2008-2011.		2

#	Article	IF	Citations
55	Sparse matrix element topology with application to AMG(e) and preconditioning. Numerical Linear Algebra With Applications, 2002, 9, 429-444.	0.9	22
56	AMGE Based on Element Agglomeration. SIAM Journal of Scientific Computing, 2001, 23, 109-133.	1.3	101
57	Element-Free AMGe: General Algorithms for Computing Interpolation Weights in AMG. SIAM Journal of Scientific Computing, 2001, 23, 629-650.	1.3	54
58	Iterative solution of a coupled mixed and standard Galerkin discretization method for elliptic problems. Numerical Linear Algebra With Applications, 2001, 8, 13-31.	0.9	7
59	A general mixed covolume framework for constructing conservative schemes for elliptic problems. Mathematics of Computation, 1999, 68, 991-1012.	1.1	53
60	Mixed Upwinding Covolume Methods on Rectangular Grids for Convection-Diffusion Problems. SIAM Journal of Scientific Computing, 1999, 21, 145-165.	1.3	25
61	An upwinding cell-centered method with piecewise constant velocity over covolumes. Numerical Methods for Partial Differential Equations, 1999, 15, 49-62.	2.0	6
62	Domain embedding preconditioners for mixed systems. Numerical Linear Algebra With Applications, 1998, 5, 321-345.	0.9	5
63	Mixed Covolume Methods for Elliptic Problems on Triangular Grids. SIAM Journal on Numerical Analysis, 1998, 35, 1850-1861.	1.1	60
64	Stabilizing the Hierarchical Basis by Approximate Wavelets II: Implementation and Numerical Results. SIAM Journal of Scientific Computing, 1998, 20, 490-514.	1.3	51
65	On Two Ways of Stabilizing the Hierarchical Basis Multilevel Methods. SIAM Review, 1997, 39, 18-53.	4.2	70
66	Wavelet-Like Methods in the Design of Efficient Multilevel Preconditioners for Elliptic PDEs. Wavelet Analysis and Its Applications, 1997, 6, 59-105.	0.2	2
67	Performance of Block-ILU Factorization Preconditioners Based on Block-Size Reduction for 2D Elasticity Systems. SIAM Journal of Scientific Computing, 1997, 18, 1355-1366.	1.3	4
68	Stabilizing the Hierarchical Basis by Approximate Wavelets, I: Theory. Numerical Linear Algebra With Applications, 1997, 4, 103-126.	0.9	65
69	Interior penalty preconditioners for mixed finite element approximations of elliptic problems. Mathematics of Computation, 1996, 65, 447-467.	1.1	45
70	Preconditioning Mixed Finite Element Saddle-point Elliptic Problems. Numerical Linear Algebra With Applications, 1996, 3, 1-20.	0.9	39
71	Preconditioning Mixed Finite Element Saddleâ€point Elliptic Problems. Numerical Linear Algebra With Applications, 1996, 3, 1-20.	0.9	10
72	A framework for block ILU factorizations using block-size reduction. Mathematics of Computation, 1995, 64, 129-129.	1.1	20

#	Article	IF	Citations
73	Preconditioning Nonsymmetric and Indefinite Capacitance Matrix Problems in Domain Imbedding. SIAM Journal of Scientific Computing, 1995, 16, 414-430.	1.3	1
74	An Application of the Abstract Multilevel Theory to Nonconforming Finite Element Methods. SIAM Journal on Numerical Analysis, 1995, 32, 235-248.	1.1	26
75	Two-Level Local Refinement Preconditioners for Nonsymmetric and Indefinite Elliptic Problems. SIAM Journal of Scientific Computing, 1994, 15, 149-163.	1.3	1
76	Preconditioning Capacitance Matrix Problems in Domain Imbedding. SIAM Journal of Scientific Computing, 1994, 15, 77-88.	1.3	7
77	Algebraic Multilevel Preconditioning of Anisotropic Elliptic Problems. SIAM Journal of Scientific Computing, 1994, 15, 1026-1037.	1.3	22
78	Domain Decomposition Type Iterative Techniques for Parabolic Problems on Locally Refined Grids. SIAM Journal on Numerical Analysis, 1993, 30, 1537-1557.	1.1	13
79	Computation of Constants in the Strengthened Cauchy Inequality for Elliptic Bilinear Forms with Anisotropy. SIAM Journal on Scientific and Statistical Computing, 1992, 13, 655-665.	1.5	6
80	Vectorizable preconditioners for mixed finite element solution of second-order elliptic problems. International Journal of Computer Mathematics, 1992, 44, 313-327.	1.0	9
81	Multilevel iterative methods for mixed finite element discretizations of elliptic problems. Numerische Mathematik, 1992, 63, 503-520.	0.9	56
82	Multilevel Hierarchical Decomposition of Finite Element White Noise with Application to Multilevel Markov Chain Monte Carlo. SIAM Journal of Scientific Computing, 0, , S293-S316.	1.3	2