

Robert Schaback

List of Publications by Year in descending order

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101
papers

4,274
citations

136740

32
h-index

118652

62
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107
all docs

107
docs citations

107
times ranked

1471
citing authors

#	ARTICLE	IF	CITATIONS
1	Error estimates and condition numbers for radial basis function interpolation. <i>Advances in Computational Mathematics</i> , 1995, 3, 251-264.	0.8	471
2	Solving partial differential equations by collocation using radial basis functions. <i>Applied Mathematics and Computation</i> , 1998, 93, 73-82.	1.4	325
3	Local error estimates for radial basis function interpolation of scattered data. <i>IMA Journal of Numerical Analysis</i> , 1993, 13, 13-27.	1.5	324
4	Convergence order estimates of meshless collocation methods using radial basis functions. <i>Advances in Computational Mathematics</i> , 1998, 8, 381-399.	0.8	202
5	On unsymmetric collocation by radial basis functions. <i>Applied Mathematics and Computation</i> , 2001, 119, 177-186.	1.4	194
6	Kernel techniques: From machine learning to meshless methods. <i>Acta Numerica</i> , 2006, 15, 543-639.	6.3	184
7	On generalized moving least squares and diffuse derivatives. <i>IMA Journal of Numerical Analysis</i> , 2012, 32, 983-1000.	1.5	165
8	Multivariate Interpolation by Polynomials and Radial Basis Functions. <i>Constructive Approximation</i> , 2005, 21, 293-317.	1.8	114
9	Results on meshless collocation techniques. <i>Engineering Analysis With Boundary Elements</i> , 2006, 30, 247-253.	2.0	114
10	Adaptive greedy techniques for approximate solution of large RBF systems. <i>Numerical Algorithms</i> , 2000, 24, 239-254.	1.1	102
11	Direct Meshless Local Petrov-Galerkin (DMLPG) method: A generalized MLS approximation. <i>Applied Numerical Mathematics</i> , 2013, 68, 73-82.	1.2	84
12	Improved error bounds for scattered data interpolation by radial basis functions. <i>Mathematics of Computation</i> , 1999, 68, 201-217.	1.1	80
13	Near-optimal data-independent point locations for radial basis function interpolation. <i>Advances in Computational Mathematics</i> , 2005, 23, 317-330.	0.8	76
14	Convergence of Unsymmetric Kernel-Based Meshless Collocation Methods. <i>SIAM Journal on Numerical Analysis</i> , 2007, 45, 333-351.	1.1	74
15	An Adaptive Greedy Algorithm for Solving Large RBF Collocation Problems. <i>Numerical Algorithms</i> , 2003, 32, 13-25.	1.1	69
16	Bases for kernel-based spaces. <i>Journal of Computational and Applied Mathematics</i> , 2011, 236, 575-588.	1.1	67
17	Characterization and construction of radial basis functions. , 2001, , 1-24.		66
18	Stable and Convergent Unsymmetric Meshless Collocation Methods. <i>SIAM Journal on Numerical Analysis</i> , 2008, 46, 1097-1115.	1.1	62

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19	Interpolation of spatial data – A stochastic or a deterministic problem?. European Journal of Applied Mathematics, 2013, 24, 601-629.	1.4	59
20	A unified theory of radial basis functions. Journal of Computational and Applied Mathematics, 2000, 121, 165-177.	1.1	54
21	Approximation by radial basis functions with finitely many centers. Constructive Approximation, 1996, 12, 331-340.	1.8	50
22	Solving heat conduction problems by the Direct Meshless Local Petrov-Galerkin (DMLPG) method. Numerical Algorithms, 2014, 65, 275-291.	1.1	49
23	Stability of kernel-based interpolation. Advances in Computational Mathematics, 2010, 32, 155-161.	0.8	46
24	Operators on radial functions. Journal of Computational and Applied Mathematics, 1996, 73, 257-270.	1.1	45
25	Interpolation with variably scaled kernels. IMA Journal of Numerical Analysis, 2015, 35, 199-219.	1.5	45
26	An improved subspace selection algorithm for meshless collocation methods. International Journal for Numerical Methods in Engineering, 2009, 80, 1623-1639.	1.5	43
27	Unsymmetric meshless methods for operator equations. Numerische Mathematik, 2010, 114, 629-651.	0.9	39
28	The missing Wendland functions. Advances in Computational Mathematics, 2011, 34, 67-81.	0.8	38
29	Native Hilbert Spaces for Radial Basis Functions I. , 1999, , 255-282.		37
30	Interpolation with piecewise quadratic visually C2 B-splines. Computer Aided Geometric Design, 1989, 6, 219-233.	0.5	35
31	A Newton basis for Kernel spaces. Journal of Approximation Theory, 2009, 161, 645-655.	0.5	35
32	Error bounds for kernel-based numerical differentiation. Numerische Mathematik, 2016, 132, 243-269.	0.9	34
33	Adaptive Interpolation by Scaled Multiquadrics. Advances in Computational Mathematics, 2002, 16, 375-387.	0.8	33
34	Limit problems for interpolation by analytic radial basis functions. Journal of Computational and Applied Mathematics, 2008, 212, 127-149.	1.1	32
35	On convergent numerical algorithms for unsymmetric collocation. Advances in Computational Mathematics, 2009, 30, 339-354.	0.8	31
36	Inverse and saturation theorems for radial basis function interpolation. Mathematics of Computation, 2001, 71, 669-682.	1.1	30

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37	Approximation in Sobolev Spaces by Kernel Expansions. Journal of Approximation Theory, 2002, 114, 70-83.	0.5	29
38	Lower Bounds for Norms of Inverses of Interpolation Matrices for Radial Basis Functions. Journal of Approximation Theory, 1994, 79, 287-306.	0.5	28
39	Multilevel Interpolation and Approximation. Applied and Computational Harmonic Analysis, 1999, 7, 243-261.	1.1	27
40	All well-posed problems have uniformly stable and convergent discretizations. Numerische Mathematik, 2016, 132, 597-630.	0.9	26
41	Comparison of Radial Basis Function Interpolants. , 1993, , .		25
42	Adaptive rational splines. Constructive Approximation, 1990, 6, 167-179.	1.8	22
43	H^2 -Convergence of Least-Squares Kernel Collocation Methods. SIAM Journal on Numerical Analysis, 2018, 56, 614-633.	1.1	22
44	An extended continuous Newton method. Journal of Optimization Theory and Applications, 1990, 67, 57-77.	0.8	21
45	Planar curve interpolation by piecewise conics of arbitrary type. Constructive Approximation, 1993, 9, 373-389.	1.8	21
46	Construction Techniques for Highly Accurate Quasi-Interpolation Operators. Journal of Approximation Theory, 1997, 91, 320-331.	0.5	19
47	A computational tool for comparing all linear PDE solvers. Advances in Computational Mathematics, 2015, 41, 333-355.	0.8	19
48	Minimal numerical differentiation formulas. Numerische Mathematik, 2018, 140, 555-592.	0.9	19
49	Convergence analysis of the general Gauss-Newton algorithm. Numerische Mathematik, 1985, 46, 281-309.	0.9	17
50	Interpolation by basis functions of different scales and shapes. Calcolo, 2004, 41, 77-87.	0.6	17
51	Generalized Whittle's Matérn and polyharmonic kernels. Advances in Computational Mathematics, 2013, 39, 129-141.	0.8	17
52	Solvability of partial differential equations by meshless kernel methods. Advances in Computational Mathematics, 2008, 28, 283-299.	0.8	16
53	On alternation numbers in nonlinear Chebyshev approximation. Journal of Approximation Theory, 1978, 23, 379-391.	0.5	15
54	On the Expected Sublinearity of the Boyer's Moore Algorithm. SIAM Journal on Computing, 1988, 17, 648-658.	0.8	15

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55	Solving the Laplace equation by meshless collocation using harmonic kernels. <i>Advances in Computational Mathematics</i> , 2009, 31, 457-470.	0.8	15
56	The meshless kernel-based method of lines for solving the equal width equation. <i>Applied Mathematics and Computation</i> , 2013, 219, 5224-5232.	1.4	15
57	Interpolation and approximation in Taylor spaces. <i>Journal of Approximation Theory</i> , 2013, 171, 65-83.	0.5	15
58	Interpolation by basis functions of different scales and shapes. <i>Calcolo</i> , 2004, 41, 77-87.	0.6	14
59	Recursive Kernels. <i>Analysis in Theory and Applications</i> , 2009, 25, 301-316.	0.1	14
60	Greedy sparse linear approximations of functionals from nodal data. <i>Numerical Algorithms</i> , 2014, 67, 531-547.	1.1	12
61	Konstruktion und algebraische Eigenschaften von M-Spline-Interpolierenden. <i>Numerische Mathematik</i> , 1973, 21, 166-180.	0.9	11
62	Error estimates for approximations from control nets. <i>Computer Aided Geometric Design</i> , 1993, 10, 57-66.	0.5	11
63	The meshless Kernel-based method of lines for parabolic equations. <i>Computers and Mathematics With Applications</i> , 2014, 68, 2057-2067.	1.4	11
64	Approximation of eigenfunctions in kernel-based spaces. <i>Advances in Computational Mathematics</i> , 2016, 42, 973-993.	0.8	11
65	Linearly constrained reconstruction of functions by kernels with applications to machine learning. <i>Advances in Computational Mathematics</i> , 2006, 25, 237-258.	0.8	10
66	A nonlinear discretization theory. <i>Journal of Computational and Applied Mathematics</i> , 2013, 254, 204-219.	1.1	10
67	Solving the 3D Laplace equation by meshless collocation via harmonic kernels. <i>Advances in Computational Mathematics</i> , 2013, 38, 1-19.	0.8	10
68	Remarks on Meshless Local Construction of Surfaces. , 2000, , 34-58.		10
69	Superconvergence of kernel-based interpolation. <i>Journal of Approximation Theory</i> , 2018, 235, 1-19.	0.5	9
70	A meshfree method for solving the Monge-Ampère equation. <i>Numerical Algorithms</i> , 2019, 82, 539-551.	1.1	9
71	On COVID-19 Modelling. <i>Deutsche Mathematiker Vereinigung Jahresbericht</i> , 2020, 122, 167-205.	0.4	9
72	Sampling and Stability. <i>Lecture Notes in Computer Science</i> , 2010, , 347-369.	1.0	8

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73	Rational Geometric Curve Interpolation. , 1992, , 517-535.		8
74	A parallel multistage method for surface/surface intersection. Computer Aided Geometric Design, 1993, 10, 277-291.	0.5	7
75	Approximation by radial basis functions with finitely many centers. , 1996, 12, 331.		7
76	Optimal nodes for interpolation in Hardy spaces. Mathematische Zeitschrift, 1982, 179, 169-178.	0.4	6
77	Mathematical Results Concerning Kernel Techniques. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2003, 36, 1777-1781.	0.4	6
78	Recovery of functions from weak data using unsymmetric meshless kernel-based methods. Applied Numerical Mathematics, 2008, 58, 726-741.	1.2	6
79	Kernel-based adaptive approximation of functions with discontinuities. Applied Mathematics and Computation, 2017, 307, 113-123.	1.4	6
80	On Global GC2 Convexity Preserving Interpolation of Planar Curves by Piecewise BÄ©zier Polynomials. , 1989, , 539-547.		6
81	Kernel B-splines and interpolation. Numerical Algorithms, 2006, 41, 1-16.	1.1	5
82	Optimal stencils in Sobolev spaces. IMA Journal of Numerical Analysis, 2017, , .	1.5	5
83	Optimale Interpolations-und Approximationssysteme. Mathematische Zeitschrift, 1973, 130, 339-349.	0.4	4
84	Suboptimal Exponential Approximations. SIAM Journal on Numerical Analysis, 1979, 16, 1007-1018.	1.1	4
85	Bases for conditionally positive definite kernels. Journal of Computational and Applied Mathematics, 2013, 243, 152-163.	1.1	4
86	Error Analysis of Nodal Meshless Methods. Lecture Notes in Computational Science and Engineering, 2017, , 117-143.	0.1	4
87	Eine LÄ¶sungsmethode fÄ¼r die lineare Tschebyscheff-Approximation bei nicht erfÄ¼llter Haarscher Bedingung. Computing (Vienna/New York), 1970, 6, 289-294.	3.2	3
88	Direct meshless kernel techniques for time-dependent equations. Applied Mathematics and Computation, 2015, 258, 220-226.	1.4	3
89	On the fractional derivatives of radial basis functions: Theories and applications. Mathematical Methods in the Applied Sciences, 2019, 42, 3877-3899.	1.2	3
90	Die Numerische Berechnung von StartnÄ¼herungen bei der Exponentialapproximation. International Series of Numerical Mathematics, 1978, , 260-280.	1.0	3

#	ARTICLE	IF	CITATIONS
91	Bemerkungen zur Fehlerabschätzung bei Linearer Tschebyscheff Approximation. , 1980, , 255-276.		3
92	Radial kernels via scale derivatives. Advances in Computational Mathematics, 2015, 41, 277-291.	0.8	2
93	Multivariate Approximation. , 2015, , 1014-1017.		2
94	Geometrical Differentiation and High Accuracy Curve Interpolation. , 1992, , 445-462.		2
95	Globale Konvergenz von Verfahren Zur Nichtlinearen Approximation. Lecture Notes in Mathematics, 1976, , 352-363.	0.1	1
96	A nonlinear discretization theory for meshfree collocation methods applied to quasilinear elliptic equations. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2020, 100, e201800170.	0.9	1
97	Fehlerabschätzungen für Koeffizienten von Exponentialsummen und Polynomen. Numerische Mathematik, 1982, 39, 293-307.	0.9	0
98	Convergence analysis of general spectral methods. Journal of Computational and Applied Mathematics, 2017, 313, 284-293.	1.1	0
99	An Approximation Theorist's view on solving operator equations With special attention to Trefftz, MFS, MPS, and DRM methods. Computers and Mathematics With Applications, 2021, 88, 70-77.	1.4	0
100	Kollokation mit mehrdimensionalen Spline Funktionen. Lecture Notes in Mathematics, 1974, , 291-300.	0.1	0
101	Convergence Theorems for Nonlinear Approximation Algorithms. International Series of Numerical Mathematics, 1987, , 188-200.	1.0	0