# 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 g-index |
| 107 all docs | 107 docs citations | 107 times ranked | 1471 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | An Approximation Theoristâ€™s view onÂsolving operator equationsâ€”With special attention to Trefftz, MFS, MPS, and DRM methods. Computers and Mathematics With Applications, 2021, 88, 70-77. | 1.4 | 0 |
| 2 | On COVID-19 Modelling. Deutsche Mathematiker Vereinigung Jahresbericht, 2020, 122, 167-205. | 0.4 | 9 |
| 3 | 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 |
| 4 | On the fractional derivatives of radial basis functions: Theories and applications. Mathematical Methods in the Applied Sciences, 2019, 42, 3877-3899. | 1.2 | 3 |
| 5 | A meshfree method for solving the Mongeâ€“AmpÃ¨re equation. Numerical Algorithms, 2019, 82, 539-551. | 1.1 | 9 |
| 6 | $H^2$-Convergence of Least-Squares Kernel Collocation Methods. SIAM Journal on Numerical Analysis, 2018, 56, 614-633. | 1.1 | 22 |
| 7 | Minimal numerical differentiation formulas. Numerische Mathematik, 2018, 140, 555-592. | 0.9 | 19 |
| 8 | Superconvergence of kernel-based interpolation. Journal of Approximation Theory, 2018, 235, 1-19. | 0.5 | 9 |
| 9 | Kernel-based adaptive approximation of functions with discontinuities. Applied Mathematics and Computation, 2017, 307, 113-123. | 1.4 | 6 |
| 10 | Convergence analysis of general spectral methods. Journal of Computational and Applied Mathematics, 2017, 313, 284-293. | 1.1 | 0 |
| 11 | Optimal stencils in Sobolev spaces. IMA Journal of Numerical Analysis, 2017, , . | 1.5 | 5 |
| 12 | Error Analysis of Nodal Meshless Methods. Lecture Notes in Computational Science and Engineering, 2017, , 117-143. | 0.1 | 4 |
| 13 | Approximation of eigenfunctions in kernel-based spaces. Advances in Computational Mathematics, 2016, 42, 973-993. | 0.8 | 11 |
| 14 | All well-posed problems have uniformly stable and convergent discretizations. Numerische Mathematik, 2016, 132, 597-630. | 0.9 | 26 |
| 15 | Error bounds for kernel-based numerical differentiation. Numerische Mathematik, 2016, 132, 243-269. | 0.9 | 34 |
| 16 | Direct meshless kernel techniques for time-dependent equations. Applied Mathematics and Computation, 2015, 258, 220-226. | 1.4 | 3 |
| 17 | Interpolation with variably scaled kernels. IMA Journal of Numerical Analysis, 2015, 35, 199-219. | 1.5 | 45 |
| 18 | A computational tool for comparing all linear PDE solvers. Advances in Computational Mathematics, 2015, 41, 333-355. | 0.8 | 19 |

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|---|---|---|---|
| 19 | Radial kernels via scale derivatives. Advances in Computational Mathematics, 2015, 41, 277-291. | 0.8 | 2 |
| 20 | Multivariate Approximation. , 2015, , 1014-1017. | | 2 |
| 21 | The meshless Kernel-based method of lines for parabolic equations. Computers and Mathematics With Applications, 2014, 68, 2057-2067. | 1.4 | 11 |
| 22 | Solving heat conduction problems by the Direct Meshless Local Petrov-Galerkin (DMLPG) method. Numerical Algorithms, 2014, 65, 275-291. | 1.1 | 49 |
| 23 | Greedy sparse linear approximations of functionals from nodal data. Numerical Algorithms, 2014, 67, 531-547. | 1.1 | 12 |
| 24 | The meshless kernel-based method of lines for solving the equal width equation. Applied Mathematics and Computation, 2013, 219, 5224-5232. | 1.4 | 15 |
| 25 | Direct Meshless Local Petrovâ€“Galerkin (DMLPG) method: A generalized MLS approximation. Applied Numerical Mathematics, 2013, 68, 73-82. | 1.2 | 84 |
| 26 | A nonlinear discretization theory. Journal of Computational and Applied Mathematics, 2013, 254, 204-219. | 1.1 | 10 |
| 27 | Interpolation and approximation in Taylor spaces. Journal of Approximation Theory, 2013, 171, 65-83. | 0.5 | 15 |
| 28 | Solving the 3D Laplace equation by meshless collocation via harmonic kernels. Advances in Computational Mathematics, 2013, 38, 1-19. | 0.8 | 10 |
| 29 | Bases for conditionally positive definite kernels. Journal of Computational and Applied Mathematics, 2013, 243, 152-163. | 1.1 | 4 |
| 30 | Generalized Whittleâ€“MatÃ©rn and polyharmonic kernels. Advances in Computational Mathematics, 2013, 39, 129-141. | 0.8 | 17 |
| 31 | Interpolation of spatial data â€“ A stochastic or a deterministic problem?. European Journal of Applied Mathematics, 2013, 24, 601-629. | 1.4 | 59 |
| 32 | On generalized moving least squares and diffuse derivatives. IMA Journal of Numerical Analysis, 2012, 32, 983-1000. | 1.5 | 165 |
| 33 | Bases for kernel-based spaces. Journal of Computational and Applied Mathematics, 2011, 236, 575-588. | 1.1 | 67 |
| 34 | The missing Wendland functions. Advances in Computational Mathematics, 2011, 34, 67-81. | 0.8 | 38 |
| 35 | Unsymmetric meshless methods for operator equations. Numerische Mathematik, 2010, 114, 629-651. | 0.9 | 39 |
| 36 | Stability of kernel-based interpolation. Advances in Computational Mathematics, 2010, 32, 155-161. | 0.8 | 46 |

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|---|---|---|---|
| 37 | Sampling and Stability. Lecture Notes in Computer Science, 2010, , 347-369. | 1.0 | 8 |
| 38 | An improved subspace selection algorithm for meshless collocation methods. International Journal for Numerical Methods in Engineering, 2009, 80, 1623-1639. | 1.5 | 43 |
| 39 | On convergent numerical algorithms for unsymmetric collocation. Advances in Computational Mathematics, 2009, 30, 339-354. | 0.8 | 31 |
| 40 | Solving the Laplace equation by meshless collocation using harmonic kernels. Advances in Computational Mathematics, 2009, 31, 457-470. | 0.8 | 15 |
| 41 | Recursive Kernels. Analysis in Theory and Applications, 2009, 25, 301-316. | 0.1 | 14 |
| 42 | A Newton basis for Kernel spaces. Journal of Approximation Theory, 2009, 161, 645-655. | 0.5 | 35 |
| 43 | Solvability of partial differential equations by meshless kernel methods. Advances in Computational Mathematics, 2008, 28, 283-299. | 0.8 | 16 |
| 44 | Recovery of functions from weak data using unsymmetric meshless kernel-based methods. Applied Numerical Mathematics, 2008, 58, 726-741. | 1.2 | 6 |
| 45 | Limit problems for interpolation by analytic radial basis functions. Journal of Computational and Applied Mathematics, 2008, 212, 127-149. | 1.1 | 32 |
| 46 | Stable and Convergent Unsymmetric Meshless Collocation Methods. SIAM Journal on Numerical Analysis, 2008, 46, 1097-1115. | 1.1 | 62 |
| 47 | Convergence of Unsymmetric Kernelâ€Based Meshless Collocation Methods. SIAM Journal on Numerical Analysis, 2007, 45, 333-351. | 1.1 | 74 |
| 48 | Results on meshless collocation techniques. Engineering Analysis With Boundary Elements, 2006, 30, 247-253. | 2.0 | 114 |
| 49 | Kernel B-splines and interpolation. Numerical Algorithms, 2006, 41, 1-16. | 1.1 | 5 |
| 50 | Linearly constrained reconstruction of functions by kernels with applications to machine learning. Advances in Computational Mathematics, 2006, 25, 237-258. | 0.8 | 10 |
| 51 | Kernel techniques: From machine learning to meshless methods. Acta Numerica, 2006, 15, 543-639. | 6.3 | 184 |
| 52 | Multivariate Interpolation by Polynomials and Radial Basis Functions. Constructive Approximation, 2005, 21, 293-317. | 1.8 | 114 |
| 53 | Near-optimal data-independent point locations for radial basis function interpolation. Advances in Computational Mathematics, 2005, 23, 317-330. | 0.8 | 76 |
| 54 | Interpolation by basis functions of different scales and shapes. Calcolo, 2004, 41, 77-87. | 0.6 | 14 |

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| 55 | Interpolation by basis functions of different scales and shapes. Calcolo, 2004, 41, 77-87. | 0.6 | 17 |
| 56 | An Adaptive Greedy Algorithm for Solving Large RBF Collocation Problems. Numerical Algorithms, 2003, 32, 13-25. | 1.1 | 69 |
| 57 | Mathematical Results Concerning Kernel Techniques. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2003, 36, 1777-1781. | 0.4 | 6 |
| 58 | Approximation in Sobolev Spaces by Kernel Expansions. Journal of Approximation Theory, 2002, 114, 70-83. | 0.5 | 29 |
| 59 | Adaptive Interpolation by Scaled Multiquadrics. Advances in Computational Mathematics, 2002, 16, 375-387. | 0.8 | 33 |
| 60 | Characterization and construction of radial basis functions. , 2001, , 1-24. | | 66 |
| 61 | Inverse and saturation theorems for radial basis function interpolation. Mathematics of Computation, 2001, 71, 669-682. | 1.1 | 30 |
| 62 | On unsymmetric collocation by radial basis functions. Applied Mathematics and Computation, 2001, 119, 177-186. | 1.4 | 194 |
| 63 | A unified theory of radial basis functions. Journal of Computational and Applied Mathematics, 2000, 121, 165-177. | 1.1 | 54 |
| 64 | Adaptive greedy techniques for approximate solution of large RBF systems. Numerical Algorithms, 2000, 24, 239-254. | 1.1 | 102 |
| 65 | Remarks on Meshless Local Construction of Surfaces. , 2000, , 34-58. | | 10 |
| 66 | Native Hilbert Spaces for Radial Basis Functions I. , 1999, , 255-282. | | 37 |
| 67 | Multilevel Interpolation and Approximation. Applied and Computational Harmonic Analysis, 1999, 7, 243-261. | 1.1 | 27 |
| 68 | Improved error bounds for scattered data interpolation by radial basis functions. Mathematics of Computation, 1999, 68, 201-217. | 1.1 | 80 |
| 69 | Convergence order estimates of meshless collocation methods using radial basis functions. Advances in Computational Mathematics, 1998, 8, 381-399. | 0.8 | 202 |
| 70 | Solving partial differential equations by collocation using radial basis functions. Applied Mathematics and Computation, 1998, 93, 73-82. | 1.4 | 325 |
| 71 | Construction Techniques for Highly Accurate Quasi-Interpolation Operators. Journal of Approximation Theory, 1997, 91, 320-331. | 0.5 | 19 |
| 72 | Approximation by radial basis functions with finitely many centers. Constructive Approximation, 1996, 12, 331-340. | 1.8 | 50 |

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|---|---|---|---|
| 73 | Operators on radial functions. Journal of Computational and Applied Mathematics, 1996, 73, 257-270. | 1.1 | 45 |
| 74 | Approximation by radial basis functions with finitely many centers. , 1996, 12, 331. | | 7 |
| 75 | Error estimates and condition numbers for radial basis function interpolation. Advances in Computational Mathematics, 1995, 3, 251-264. | 0.8 | 471 |
| 76 | Lower Bounds for Norms of Inverses of Interpolation Matrices for Radial Basis Functions. Journal of Approximation Theory, 1994, 79, 287-306. | 0.5 | 28 |
| 77 | Error estimates for approximations from control nets. Computer Aided Geometric Design, 1993, 10, 57-66. | 0.5 | 11 |
| 78 | Planar curve interpolation by piecewise conics of arbitrary type. Constructive Approximation, 1993, 9, 373-389. | 1.8 | 21 |
| 79 | A parallel multistage method for surface/surface intersection. Computer Aided Geometric Design, 1993, 10, 277-291. | 0.5 | 7 |
| 80 | Local error estimates for radial basis function interpolation of scattered data. IMA Journal of Numerical Analysis, 1993, 13, 13-27. | 1.5 | 324 |
| 81 | Comparison of Radial Basis Function Interpolants. , 1993, , . | | 25 |
| 82 | Geometrical Differentiation and Highâ€"Accuracy Curve Interpolation. , 1992, , 445-462. | | 2 |
| 83 | Rational Geometric Curve Interpolation. , 1992, , 517-535. | | 8 |
| 84 | Adaptive rational splines. Constructive Approximation, 1990, 6, 167-179. | 1.8 | 22 |
| 85 | An extended continuous Newton method. Journal of Optimization Theory and Applications, 1990, 67, 57-77. | 0.8 | 21 |
| 86 | Interpolation with piecewise quadratic visually C2 BÃ©zier polynomials. Computer Aided Geometric Design, 1989, 6, 219-233. | 0.5 | 35 |
| 87 | On Global GC2 Convexity Preserving Interpolation of Planar Curves by Piecewise BÃ©zier Polynomials. , 1989, , 539-547. | | 6 |
| 88 | On the Expected Sublinearity of the Boyerâ€"Moore Algorithm. SIAM Journal on Computing, 1988, 17, 648-658. | 0.8 | 15 |
| 89 | Convergence Theorems for Nonlinear Approximation Algorithms. International Series of Numerical Mathematics, 1987, , 188-200. | 1.0 | 0 |
| 90 | Convergence analysis of the general Gauss-Newton algorithm. Numerische Mathematik, 1985, 46, 281-309. | 0.9 | 17 |

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|---|---|---|---|
| 91 | Fehlerabschï¿½tzungen fï¿½r Koeffizienten von Exponentialsummen und Polynomen. Numerische Mathematik, 1982, 39, 293-307. | 0.9 | 0 |
| 92 | Optimal nodes for interpolation in Hardy spaces. Mathematische Zeitschrift, 1982, 179, 169-178. | 0.4 | 6 |
| 93 | Bemerkungen zur FehlerabschÃtzung bei Linearer Tschebyscheff â€" Approximation. , 1980, , 255-276. | | 3 |
| 94 | Suboptimal Exponential Approximations. SIAM Journal on Numerical Analysis, 1979, 16, 1007-1018. | 1.1 | 4 |
| 95 | On alternation numbers in nonlinear Chebyshev approximation. Journal of Approximation Theory, 1978, 23, 379-391. | 0.5 | 15 |
| 96 | Die Numerische Berechnung von StartnÃherungen bei der Exponentialapproximation. International Series of Numerical Mathematics, 1978, , 260-280. | 1.0 | 3 |
| 97 | Globale Konvergene von Verfahren Zur Nichtlinearen Approximation. Lecture Notes in Mathematics, 1976, , 352-363. | 0.1 | 1 |
| 98 | Kollokation mit mehrdimensionalen Spline â€" Funktionen. Lecture Notes in Mathematics, 1974, , 291-300. | 0.1 | 0 |
| 99 | Konstruktion und algebraische Eigenschaften vonM-Spline-Interpolierenden. Numerische Mathematik, 1973, 21, 166-180. | 0.9 | 11 |
| 100 | Optimale Interpolations-und Approximationssysteme. Mathematische Zeitschrift, 1973, 130, 339-349. | 0.4 | 4 |
| 101 | Eine LÃ¶sungsmethode fÃ¼r die lineare Tschebyscheff-Approximation bei nicht erfÃ¼llter Haarscher Bedingung. Computing (Vienna/New York), 1970, 6, 289-294. | 3.2 | 3 |