JesÃºs Vigo-Aguiar

List of Publications by Year
in descending order

119 papers	3,167 citations	94269 37 h-index	174990 52 g-index
136 all docs	136 docs citations	136 times ranked	697 citing authors

#	Article	IF	Citations
1	A moving mesh refinement based optimal accurate uniformly convergent computational method for a parabolic system of boundary layer originated reactionâ€“diffusion problems with arbitrary small diffusion terms. Journal of Computational and Applied Mathematics, 2022, 404, 113167.	1.1	41
2	A parameter-uniform grid equidistribution method for singularly perturbed degenerate parabolic convectionâ€“diffusion problems. Journal of Computational and Applied Mathematics, 2022, 404, 113273.	1.1	12
3	A stable finite difference scheme and error estimates for parabolic singularly perturbed PDEs with shift parameters. Journal of Computational and Applied Mathematics, 2022, 405, 113050.	1.1	7
4	Analysis of a nonlinear singularly perturbed Volterra integro-differential equation. Journal of Computational and Applied Mathematics, 2022, 404, 113410.	1.1	7
5	Three-dimensional Haar wavelet method for singularly perturbed elliptic boundary value problems on non-uniform meshes. Journal of Mathematical Chemistry, 2022, 60, 1314-1336.	0.7	1
6	Numerical solution of timeâ€fractional singularly perturbed convectionâ€“diffusion problems with a delay in time. Mathematical Methods in the Applied Sciences, 2021, 44, 3080-3097.	1.2	12
7	A numerical scheme for a weakly coupled system of singularly perturbed delay differential equations on an adaptive mesh. Computational and Mathematical Methods, 2021, 3, e1104.	0.3	1
8	A new implicit six-step P-stable method for the numerical solution of SchrÃ¶dinger equation. International Journal of Computer Mathematics, 2020, 97, 802-817.	1.0	10
9	Higher order accurate approximations on equidistributed meshes for boundary layer originated mixed type reaction diffusion systems with multiple scale nature. Applied Numerical Mathematics, 2020, 148, 79-97.	1.2	65
10	CMMSE: Computational and Mathematical Methods in Science and Engineering. International Journal of Computer Mathematics, 2020, 97, 1-1.	1.0	0
11	Guest Editor Foreword for CMMSE special issue of Journal of Mathematical Chemistry. Journal of Mathematical Chemistry, 2020, 58, 543-543.	0.7	0
12	A new four-step P-stable Obrechkoff method with vanished phase-lag and some of its derivatives for the numerical solution of radial SchrÃ¶dinger equation. Journal of Computational and Applied Mathematics, 2019, 354, 569-586.	1.1	9
13	International Conference on Computational and Mathematical Methods in Science and Engineering, held in Costa Ballena, CÃ¡diz, Spain, July 9â€“13, 2018. Journal of Mathematical Chemistry, 2019, 57, 1241-1242.	0.7	0
14	Computational and mathematical models meet heterogeneous computing. Journal of Supercomputing, 2019, 75, 999-1000.	2.4	0
15	Parameter uniform optimal order numerical approximation of a class of singularly perturbed system of reaction diffusion problems involving a small perturbation parameter. Journal of Computational and Applied Mathematics, 2019, 354, 533-544.	1.1	68
16	A new class of two-step P-stable TFPL methods for the numerical solution of second-order IVPs with oscillating solutions. Journal of Computational and Applied Mathematics, 2019, 354, 551-561.	1.1	2
17	On the Stability of Exponential Fitting BDF Algorithms: Higher-Order Methods. , 2019, , 351-353.		1
18	Numerical approximation of 2D time dependent singularly perturbed convectionâ€“diffusion problems with attractive or repulsive turning points. Applied Mathematics and Computation, 2018, 317, 223-233.	1.4	4

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19	Foreword for the Special issue on CMMSE 2017. Journal of Mathematical Chemistry, 2018, 56, 1811-1812.	0.7	0
20	A first approach in solving initial-value problems in ODEs by elliptic fitting methods. Journal of Computational and Applied Mathematics, 2017, 318, 599-603.	1.1	12
21	A unified approach for the development of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si36.gif" display="inline" overflow="scroll"><mml:mi>k</mml:mi></mml:math>-step block Falkner-type methods for solving general second-order initial-value problems in ODEs. Journal of Computational and Applied Mathematics, 2017, 318, 550-564.	1.1	33
22	High-performance computing: the essential tool and the essential challenge. Journal of Supercomputing, 2017, 73, 1-3.	2.4	66
23	Current computational tools for science engineering and economics at CMMSE. Journal of Computational and Applied Mathematics, 2017, 318, 1-2.	1.1	4
24	Recent mathematicalâ€“computational techniques and models in chemistry. Journal of Mathematical Chemistry, 2017, 55, 1367-1369.	0.7	1
25	Mathematical and computational tools in chemistry: CMMSEâ€”2014. Journal of Mathematical Chemistry, 2015, 53, 791-793.	0.7	1
26	On the Use of Running Trends as Summary Statistics for Univariate Time Series and Time Series Association. Journal of Climate, 2015, 28, 7489-7502.	1.2	3
27	On the choice of the frequency in trigonometrically-fitted methods for periodic problems. Journal of Computational and Applied Mathematics, 2015, 277, 94-105.	1.1	42
28	The application of Newtonâ€™s method in vector form for solving nonlinear scalar equations where the classical Newton method fails. Journal of Computational and Applied Mathematics, 2015, 275, 228-237.	1.1	17
29	High performance computing: an essential tool for science and engineering breakthroughs. Journal of Supercomputing, 2014, 70, 511-513.	2.4	2
30	A strategy for selecting the frequency in trigonometrically-fitted methods based on the minimization of the local truncation errors and the total energy error. Journal of Mathematical Chemistry, 2014, 52, 1050-1058.	0.7	6
31	A trigonometrically-fitted method with two frequencies, one for the solution and another one for the derivative. Computer Physics Communications, 2014, 185, 1230-1236.	3.0	14
32	Applied differential equations and related computational mathematics in chemistry. Journal of Mathematical Chemistry, 2014, 52, 1021-1022.	0.7	3
33	Decomposition of pseudo-radioactive chemical products with a mathematical approach. Journal of Mathematical Chemistry, 2014, 52, 1059-1065.	0.7	4
34	Mathematical modeling for chemistry-related applications. Journal of Mathematical Chemistry, 2013, 51, 1135-1138.	0.7	1
35	New Optimization Techniques in Engineering. Mathematical Modelling and Algorithms, 2013, 12, 213-215.	0.5	1
36	High performance computing tools in science and engineering. Journal of Supercomputing, 2013, 65, 997-998.	2.4	0

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37	Preface to high performance computing applied to computational problems in science and engineering. Journal of Supercomputing, 2013, 64, 1-3.	2.4	6
38	Topics of contemporary computational mathematics. International Journal of Computer Mathematics, 2012, 89, 265-267.	1.0	5
39	Periodics orbits and C1-integrability in the planar Starkâ€“Zeeman problem. Journal of Mathematical Physics, 2012, 53, 082701.	0.5	6
40	Computational and mathematical methods in science and engineering. International Journal of Computer Mathematics, 2012, 89, 1725-1727.	1.0	0
41	Advances in computational and mathematical chemistry. Journal of Mathematical Chemistry, 2012, 50, 311-312.	0.7	3
42	Computer science and mathematics for chemistry-related applications. Journal of Mathematical Chemistry, 2012, 50, 379-380.	0.7	3
43	High performance computing tools in science andÂengineering. Journal of Supercomputing, 2011, 58, 143-144.	2.4	4
44	High performance computing tools in science and engineering II. Journal of Supercomputing, 2011, 58, 281-282.	2.4	0
45	Advances in Computational and Mathematical Methods in Science and Engineering. Journal of Computational and Applied Mathematics, 2011, 235, 1745.	1.1	8
46	A numerical ODE solver that preserves the fixed points and their stability. Journal of Computational and Applied Mathematics, 2011, 235, 1856-1867.	1.1	14
47	Applications of computational mathematics in science and engineering. International Journal of Computer Mathematics, 2011, 88, 1805-1807.	1.0	4
48	On the frequency choice in trigonometrically fitted methods. Applied Mathematics Letters, 2010, 23, 1378-1381.	1.5	73
49	Mathematical and computational tools in theoretical chemistry. Journal of Mathematical Chemistry, 2010, 48, 1-2.	0.7	6
50	Numerical solution of nonlinear singularly perturbed problems on nonuniform meshes by using a non-standard algorithm. Journal of Mathematical Chemistry, 2010, 48, 38-54.	0.7	35
51	Mathematical and computational methods with applications in chemistry and physics. Journal of Mathematical Chemistry, 2010, 48, 95-97.	0.7	3
52	Accurate Numerical Integration of Perturbed Oscillatory Systems in Two Frequencies. ACM Transactions on Mathematical Software, 2009, 36, 1-34.	1.6	9
53	Recent advances in computational and applied mathematics in science and engineering. International Journal of Computer Mathematics, 2009, 86, 199-199.	1.0	3
54	A note on efficient techniques for the second-order parabolic equation subject to non-local conditions. Applied Numerical Mathematics, 2009, 59, 1258-1264.	1.2	23

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55	On the numerical solution of the heat conduction equations subject to nonlocal conditions. Applied Numerical Mathematics, 2009, 59, 2507-2514.	1.2	45
56	Multistep numerical methods for the integration of oscillatory problems in several frequencies. Advances in Engineering Software, 2009, 40, 543-553.	1.8	7
57	Exponential fitted Gauss, Radau and Lobatto methods of low order. Numerical Algorithms, 2008, 48, 327-346.	1.1	57
58	Exponential fitting BDFâ€“Rungeâ€“Kutta algorithms. Computer Physics Communications, 2008, 178, 15-34.	3.0	72
59	A new algorithm appropriate for solving singular and singularly perturbed autonomous initial-value problems. International Journal of Computer Mathematics, 2008, 85, 603-611.	1.0	30
60	Preface Recent advances in computational and applied mathematics in science and engineering. International Journal of Computer Mathematics, 2008, 85, 307-307.	1.0	7
61	Explicit finite difference schemes adapted to advectionâ€“reaction equations. International Journal of Computer Mathematics, 2008, 85, 547-558.	1.0	1
62	A family of A-stable Runge Kutta collocation methods of higher order for initial-value problems. IMA Journal of Numerical Analysis, 2007, 27, 798-817.	1.5	46
63	Adapted BDF algorithms applied to parabolic problems. Numerical Methods for Partial Differential Equations, 2007, 23, 350-365.	2.0	8
64	An almost L-stable BDF-type method for the numerical solution of stiff ODEs arising from the method of lines. Numerical Methods for Partial Differential Equations, 2007, 23, 1110-1121.	2.0	10
65	High order smoothing schemes for inhomogeneous parabolic problems with applications in option pricing. Numerical Methods for Partial Differential Equations, 2007, 23, 1249-1276.	2.0	21
66	Variable-stepsize Chebyshev-type methods for the integration of second-order I.V.P.'s. Journal of Computational and Applied Mathematics, 2007, 204, 102-113.	1.1	18
67	A fourth-order Rungeâ€“Kutta method based on BDF-type Chebyshev approximations. Journal of Computational and Applied Mathematics, 2007, 204, 124-136.	1.1	32
68	On smoothing of the Crankâ€“Nicolson scheme and higher order schemes for pricing barrier options. Journal of Computational and Applied Mathematics, 2007, 204, 144-158.	1.1	50
69	Exponential fitting BDF algorithms and their properties. Applied Mathematics and Computation, 2007, 190, 80-110.	1.4	12
70	Numeric multistep variable methods for perturbed linear system integration. Applied Mathematics and Computation, 2007, 190, 63-79.	1.4	13
71	Adapted BDF Algorithms: Higher-order Methods and Their Stability. Journal of Scientific Computing, 2007, 32, 287-313.	1.1	54
72	An efficient numerical method for singular perturbation problems. Journal of Computational and Applied Mathematics, 2006, 192, 132-141.	1.1	51

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73	stepsize implementation of multistep methods for <mml:math altimg="si47.gif" overflow="scroll" xmlns:xocs="http://www.elsevier.com/xml/xocs/dtd" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.elsevier.com/xml/ja/dtd" xmlns:ja="http://www.elsevier.com/xml/ja/dtd" xmlns:mml="http://www.w3.org/1998/Math/MathML" xmlns:tb="http://www.elsevier.com/xml/common/table/dtd"	1.1	73
74	Exponential fitting BDF algorithms: Explicit and implicit 0-stable methods. Journal of Computational and Applied Mathematics, 2006, 192, 100-113.	1.1	39
75	A New Eighth-order A-stable Method for Solving Differential Systems Arising in Chemical Reactions. Journal of Mathematical Chemistry, 2006, 40, 71-83.	0.7	16
76	Variable stepsize stÃ¶rmer-cowell methods. Mathematical and Computer Modelling, 2005, 42, 837-846.	2.0	22
77	Symplectic conditions for exponential fitting Runge-Kutta-NystrÃ¶m methods. Mathematical and Computer Modelling, 2005, 42, 873-876.	2.0	115
78	On the stability of exponential fitting BDF algorithms. Journal of Computational and Applied Mathematics, 2005, 175, 183-194.	1.1	23
79	A note on step-size selection in the StÃ¶rmerâ€“Cowell methods. Journal of Computational and Applied Mathematics, 2005, 175, 149-159.	1.1	3
80	A variable-step Numerov method for the numerical solution of the Schrï¿½dinger equation. Journal of Mathematical Chemistry, 2005, 37, 255-262.	0.7	24
81	New algorithms and trends in modelling. Mathematical Modelling and Algorithms, 2005, 4, 235-235.	0.5	0
82	Stochastic methods for Dirichlet problems. Mathematical Modelling and Algorithms, 2005, 4, 317-330.	0.5	3
83	Review of multistep methods for the numerical solution of the radial SchrÃ¶dinger equation. International Journal of Quantum Chemistry, 2005, 103, 278-290.	1.0	80
84	A Parallel Boundary Value Technique for Singularly Perturbed Two-Point Boundary Value Problems. Journal of Supercomputing, 2004, 27, 195-206.	2.4	92
85	Controlling the error growth in longâ€“term numerical integration of perturbed oscillations in one or several frequencies. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2004, 460, 561-567.	1.0	50
86	Modification of the Richardson-Panovsky methods for precise integration of satellite orbits. Computers and Mathematics With Applications, 2003, 45, 25-36.	1.4	4
87	A numerical algorithm for singular perturbation problems exhibiting weak boundary layers. Computers and Mathematics With Applications, 2003, 45, 469-479.	1.4	42
88	New ItÃ´â€“Taylor expansions. Journal of Computational and Applied Mathematics, 2003, 158, 169-185.	1.1	8
89	Dissipative Chebyshev exponential-fitted methods for numerical solution of second-order differential equations. Journal of Computational and Applied Mathematics, 2003, 158, 187-211.	1.1	93
90	Parameter uniform numerical method for singularly perturbed turning point problems exhibiting boundary layers. Journal of Computational and Applied Mathematics, 2003, 158, 121-134.	1.1	60

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91	A dissipative exponentially-fitted method for the numerical solution of the SchrÃ¶dinger equation and related problems. Computer Physics Communications, 2003, 152, 274-294.	3.0	68
92	Exponentially fitted symplectic integrator. Physical Review E, 2003, 67, 016701.	0.8	85
93	VARIABLE STEP-SIZE STÃ–RMER METHODS. , 2003, , .		1
94	Weak Second Order Conditions for Stochastic Runge--Kutta Methods. SIAM Journal of Scientific Computing, 2002, 24, 507-523.	1.3	58
95	Title is missing!. Journal of Mathematical Chemistry, 2002, 31, 135-144.	0.7	87
96	Title is missing!. Journal of Mathematical Chemistry, 2002, 32, 257-270.	0.7	93
97	An Efficient Parallel Algorithm for the Numerical Solution of SchrÃ¶dinger Equation. Lecture Notes in Computer Science, 2001, , 262-270.	1.0	1
98	An Infinite Family of Second Order Weak Explicit Runge-Kutta Methods. Journal of Computational Methods in Sciences and Engineering, 2001, 1, 125-134.	0.1	3
99	Backward differentiation formulae adapted to scalar linear equations. Applied Mathematics Letters, 2001, 14, 639-643.	1.5	5
100	High order Bessel fitting methods for the numerical integration of the SchrÃ¶dinger equation. Computers & Chemistry, 2001, 25, 97-100.	1.2	8
101	A modified Rungeâ€“Kutta method with phase-lag of order infinity for the numerical solution of the SchrÃ¶dinger equation and related problems. Computers & Chemistry, 2001, 25, 275-281.	1.2	43
102	An exponentially-fitted high order method for long-term integration of periodic initial-value problems. Computer Physics Communications, 2001, 140, 358-365.	3.0	39
103	A Family of P-stable Eighth Algebraic Order Methods with Exponential Fitting Facilities. Journal of Mathematical Chemistry, 2001, 29, 177-189.	0.7	48
104	A Parallel ODE Solver Adapted to Oscillatory Problems. Journal of Supercomputing, 2001, 19, 163-171.	2.4	45
105	Title is missing!. Journal of Mathematical Chemistry, 2001, 30, 121-131.	0.7	101
106	A Note on the Step Size Selection in Adams Multistep Methods. Numerical Algorithms, 2001, 27, 359-366.	1.1	8
107	A SYMMETRIC HIGH ORDER METHOD WITH MINIMAL PHASE-LAG FOR THE NUMERICAL SOLUTION OF THE SCHRÃ–DINGER EQUATION. International Journal of Modern Physics C, 2001, 12, 1035-1042.	0.8	37
108	AN ADAPTED SYMPLECTIC INTEGRATOR FOR HAMILTONIAN PROBLEMS. International Journal of Modern Physics C, 2001, 12, 225-234.	0.8	49

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109	ON THE CONSTRUCTION OF EFFICIENT METHODS FOR SECOND ORDER IVPS WITH OSCILLATING SOLUTION. International Journal of Modern Physics C, 2001, 12, 1453-1476.	0.8	37
110	An Exponentially Fitted and Trigonometrically Fitted Method for the Numerical Solution of Orbital Problems. Astronomical Journal, 2001, 122, 1656-1660.	1.9	16
111	An embedded exponentially-fitted Runge-Kutta method for the numerical solution of the SchrÃ¶dinger equation and related periodic initial-value problems. Computer Physics Communications, 2000, 131, 52-67.	3.0	44
112	ENCKE METHODS ADAPTED TO REGULARIZING VARIABLES. International Journal of Modern Physics A, 2000, 15, 3993-4010.	0.5	5
113	A NEW MODIFIED RUNGEâ€“KUTTAâ€“NYSTRÃ–M METHOD WITH PHASE-LAG OF ORDER INFINITY FOR THE NUMERICAL SOLUTION OF THE SCHRÃ–DINGER EQUATION AND RELATED PROBLEMS. International Journal of Modern Physics C, 2000, 11, 1195-1208.	0.8	37
114	VSVO multistep formulae adapted to perturbed second-order differential equations. Applied Mathematics Letters, 1998, 11, 83-87.	1.5	16
115	A General Procedure For the Adaptation of Multistep Algorithms to the Integration of Oscillatory Problems. SIAM Journal on Numerical Analysis, 1998, 35, 1684-1708.	1.1	105
116	Analysis of a Numerical Dynamic Programming Algorithm Applied to Economic Models. Econometrica, 1998, 66, 409.	2.6	92
117	Higher-order variable-step algorithms adapted to the accurate numerical integration of perturbed oscillators. Computers in Physics, 1998, 12, 467.	0.6	19
118	New numerical method improving the integration of time in KS regularization. Journal of Guidance, Control, and Dynamics, 1996, 19, 742-744.	1.6	4
119	Quadratic Bâ€spline collocation method for time dependentÂsingularly perturbed differentialâ€difference equation arising in the modeling of neuronalactivity. Numerical Methods for Partial Differential Equations, 0, , .	2.0	7