Sergio Blanes

List of Publications by Year
in descending order

76	2,559	304743 22	206112 48
papers	citations	h-index	g-index

77	77	77	1678
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	The Magnus expansion and some of its applications. Physics Reports, 2009, 470, 151-238.	25.6	874
2	Practical symplectic partitioned Rungeâ€“Kutta and Rungeâ€“Kuttaâ€“NystrÃ¶m methods. Journal of Computational and Applied Mathematics, 2002, 142, 313-330.	2.0	187
3	Magnus and Fer expansions for matrix differential equations: the convergence problem. Journal of Physics A, 1998, 31, 259-268.	1.6	100
4	Improved High Order Integrators Based on the Magnus Expansion. BIT Numerical Mathematics, 2000, 40, 434-450.	2.0	71
5	New families of symplectic splitting methods for numerical integration in dynamical astronomy. Applied Numerical Mathematics, 2013, 68, 58-72.	2.1	71
6	Fourth- and sixth-order commutator-free Magnus integrators for linear and non-linear dynamical systems. Applied Numerical Mathematics, 2006, 56, 1519-1537.	2.1	69
7	Splitting methods for the time-dependent SchrÃ¶dinger equation. Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 265, 35-42.	2.1	60
8	High Order Optimized Geometric Integrators for Linear Differential Equations. BIT Numerical Mathematics, 2002, 42, 262-284.	2.0	58
9	On the necessity of negative coefficients for operator splitting schemes of order higher than two. Applied Numerical Mathematics, 2005, 54, 23-37.	2.1	55
10	High precision symplectic integrators for the Solar System. Celestial Mechanics and Dynamical Astronomy, 2013, 116, 141-174.	1.4	53
11	A pedagogical approach to the Magnus expansion. European Journal of Physics, 2010, 31, 907-918.	0.6	47
12	Solving the SchrÃ¶dinger eigenvalue problem by the imaginary time propagation technique using splitting methods with complex coefficients. Journal of Chemical Physics, 2013, 139, 124117.	3.0	47
13	Optimized high-order splitting methods for some classes of parabolic equations. Mathematics of Computation, 2012, 82, 1559-1576.	2.1	45
14	Numerical Integrators for the Hybrid Monte Carlo Method. SIAM Journal of Scientific Computing, 2014, 36, A1556-A1580.	2.8	44
15	Symplectic Integration with Processing: A General Study. SIAM Journal of Scientific Computing, 1999, 21, 711-727.	2.8	41
16	On the convergence and optimization of the Bakerâ€“Campbellâ€“Hausdorff formula. Linear Algebra and Its Applications, 2004, 378, 135-158.	0.9	35
17	Splitting and composition methods for explicit time dependence in separable dynamical systems. Journal of Computational and Applied Mathematics, 2010, 235, 646-659.	2.0	34
18	Splitting Methods for Non-autonomous Hamiltonian Equations. Journal of Computational Physics, 2001, 170, 205-230.	3.8	32

#	Article	IF	Citations
19	Symplectic splitting operator methods for the time-dependent SchrÃ¶dinger equation. Journal of Chemical Physics, 2006, 124, 234105.	3.0	31
20	High-order commutator-free quasi-Magnus exponential integrators for non-autonomousÂlinear evolution equations. Computer Physics Communications, 2017, 220, 243-262.	7.5	30
21	Approximate solutions with a priori error bounds for continuous coefficient matrix Riccati equations. Mathematical and Computer Modelling, 2000, 31, 1-15.	2.0	29
22	High-order Rungeâ€"Kuttaâ€"NystrÃ¶m geometric methods with processing. Applied Numerical Mathematics, 2001, 39, 245-259.	2.1	25
23	Processing Symplectic Methods for Near-Integrable Hamiltonian Systems. Celestial Mechanics and Dynamical Astronomy, 2000, 77, 17-36.	1.4	23
24	Extrapolation of symplectic Integrators. Celestial Mechanics and Dynamical Astronomy, 1999, 75, 149-161.	1.4	21
25	On the Numerical Integration of Ordinary Differential Equations by Processed Methods. SIAM Journal on Numerical Analysis, 2004, 42, 531-552.	2.3	21
26	On the Linear Stability of Splitting Methods. Foundations of Computational Mathematics, 2008, 8, 357-393.	2.5	21
27	Computing the Matrix Exponential with an Optimized Taylor Polynomial Approximation. Mathematics, 2019, 7, 1174.	2.2	21
28	Explicit adaptive symplectic integrators for solving Hamiltonian systems. Celestial Mechanics and Dynamical Astronomy, 2012, 114, 297-317.	1.4	20
29	High order numerical integrators for differential equations using composition and processing of low order methods. Applied Numerical Mathematics, 2001, 37, 289-306.	2.1	19
30	Splitting methods for non-autonomous separable dynamical systems. Journal of Physics A, 2006, 39, 5405-5423.	1.6	18
31	Structure preserving integrators for solving (non-)linear quadratic optimal control problems with applications to describe the flight of a quadrotor. Journal of Computational and Applied Mathematics, 2014, 262, 223-233.	2.0	18
32	Adaptive Geometric Integrators for Hamiltonian Problems with Approximate Scale Invariance. SIAM Journal of Scientific Computing, 2005, 26, 1089-1113.	2.8	17
33	High-order splitting methods for separable non-autonomous parabolic equations. Applied Numerical Mathematics, 2014, 84, 22-32.	2.1	17
34	An efficient algorithm based on splitting for the time integration of the SchrÃ¶dinger equation. Journal of Computational Physics, 2015, 303, 396-412.	3.8	15
35	Fourier methods for the perturbed harmonic oscillator in linear and nonlinear SchrÃ¶dinger equations. Physical Review E, 2011, 83, 046711.	2.1	14
36	Composition Methods for Differential Equations with Processing. SIAM Journal of Scientific Computing, 2006, 27, 1817-1843.	2.8	13

#	Article	IF	Citations
37	Time-averaging and exponential integrators for non-homogeneous linear IVPs and BVPs. Applied Numerical Mathematics, 2012, 62, 875-894.	2.1	13
38	Symplectic time-average propagators for the SchrÃ¶dinger equation with a time-dependent Hamiltonian. Journal of Chemical Physics, 2017, 146, 114109.	3.0	13
39	Splitting methods in the numerical integration of non-autonomous dynamical systems. Revista De La Real Academia De Ciencias Exactas, Fisicas Y Naturales - Serie A: Matematicas, 2012, 106, 49-66.	1.2	12
40	Explicit Adaptive Symplectic (Easy) Integrators: A Scaling Invariant Generalisation of the Levi-Civitaand KS Regularisations. Celestial Mechanics and Dynamical Astronomy, 2004, 89, 383-405.	1.4	11
41	Splitting methods for non-autonomous linear systems. International Journal of Computer Mathematics, 2007, 84, 713-727.	1.8	11
42	Exponential propagators for the SchrÃ¶dinger equation with a time-dependent potential. Journal of Chemical Physics, 2018, 148, 244109.	3.0	10
43	Symplectic maps for approximating polynomial Hamiltonian systems. Physical Review E, 2002, 65, 056703.	2.1	9
44	Explicit symplectic RKN methods for perturbed non-autonomous oscillators: Splitting, extended and exponentially fitting methods. Computer Physics Communications, 2015, 193, 10-18.	7.5	9
45	Optimization of Lie group methods for differential equations. Future Generation Computer Systems, 2003, 19, 331-339.	7.5	7
46	Raising the order of geometric numerical integrators by composition and extrapolation. Numerical Algorithms, 2005, 38, 305-326.	1.9	7
47	Error Analysis of Splitting Methods for the Time Dependent SchrÃ¶dinger Equation. SIAM Journal of Scientific Computing, 2011, 33, 1525-1548.	2.8	7
48	Symplectic integrators for the matrix Hill equation. Journal of Computational and Applied Mathematics, 2017, 316, 47-59.	2.0	7
49	Symplectic integrators for second-order linear non-autonomous equations. Journal of Computational and Applied Mathematics, 2018, 330, 909-919.	2.0	7
50	Magnus integrators for solving linear-quadratic differential games. Journal of Computational and Applied Mathematics, 2012, 236, 3394-3408.	2.0	6
51	The Scaling, Splitting, and Squaring Method for the Exponential of Perturbed Matrices. SIAM Journal on Matrix Analysis and Applications, 2015, 36, 594-614.	1.4	6
52	High order structure preserving explicit methods for solving linear-quadratic optimal control problems. Numerical Algorithms, 2015, 69, 271-290.	1.9	6
53	Applying splitting methods with complex coefficients to the numerical integration of unitary problems. Journal of Computational Dynamics, 2022, 9, 85.	1.1	6
54	Continuous numerical solutions of coupled mixed partial differential systems using Fer's factorization. Journal of Computational and Applied Mathematics, 1999, 101, 189-202.	2.0	5

#	Article	IF	Citations
55	Splitting methods with complex coefficients. BoletÃn De La Sociedad EspaÃ‘ola De MatemÃtica Aplicada, 2010, 50, 47-60.	0.9	5
56	New efficient numerical methods to describe the heat transfer in a solid medium. Mathematical and Computer Modelling, 2011, 54, 1858-1862.	2.0	5
57	Splitting and composition methods with embedded error estimators. Applied Numerical Mathematics, 2019, 146, 400-415.	2.1	5
58	Novel symplectic integrators for the Kleinâ€“Gordon equation with space- and time-dependent mass. Journal of Computational and Applied Mathematics, 2019, 350, 130-138.	2.0	5
59	High order efficient splittings for the semiclassical timeâ€“dependent SchrÃ¶dinger equation. Journal of Computational Physics, 2020, 405, 109157.	3.8	5
60	Convergence analysis of high-order commutator-free quasi-Magnus exponential integrators for nonautonomous linear evolution equations of parabolic type. IMA Journal of Numerical Analysis, 2018, 38, 743-778.	2.9	4
61	An efficient algorithm to compute the exponential of skew-Hermitian matrices for the time integration of the SchrÃ¶dinger equation. Mathematics and Computers in Simulation, 2022, 194, 383-400.	4.4	4
62	Efficient numerical integration of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si20.gif" display="inline" overflow="scroll"><mml:mi>N</mml:mi></mml:math>th-order non-autonomous linear differential equations. Journal of Computational and Applied Mathematics, 2016, 291, 380-390.	2.0	3
63	Symplectic propagators for the Kepler problem with time-dependent mass. Celestial Mechanics and Dynamical Astronomy, 2019, 131, 1.	1.4	3
64	Propagators for Quantum-Classical Models: Commutator-Free Magnus Methods. Journal of Chemical Theory and Computation, 2020, 16, 1420-1430.	5.3	3
65	Computing the matrix sine and cosine simultaneously with a reduced number of products. Applied Numerical Mathematics, 2021, 163, 96-107.	2.1	3
66	On the construction of symmetric second order methods for ODEs. Applied Mathematics Letters, 2019, 98, 41-48.	2.7	2
67	Efficient time integration methods for Gross-Pitaevskii equations with rotation term. Journal of Computational Dynamics, 2019, 6, 147-169.	1.1	2
68	Time-Average on the Numerical Integration of Nonautonomous Differential Equations. SIAM Journal on Numerical Analysis, 2018, 56, 2513-2536.	2.3	1
69	Novel parallel in time integrators for ODEs. Applied Mathematics Letters, 2021, 122, 107542.	2.7	1
70	Preface for the special issue â€œGeometric numerical integration, twenty-five years laterâ€. International Journal of Computer Mathematics, 2022, 99, 1-3.	1.8	1
71	Comment on â€œStructure of positive decompositions of exponential operatorsâ€. Physical Review E, 2006, 73, 048701.	2.1	0
72	Beating the Verlet integrator in Monte Carlo simulations. , 2013, , .		0

#	Article	IF	Citations
73	Exponential integrators for coupled self-adjoint non-autonomous partial differential systems. Applied Mathematics and Computation, 2014, 243, 1-11.	2.2	0
74	Performance of fourth and sixthâ€order commutatorâ€free Magnus expansion integrators for Ehrenfest dynamics. Computational and Mathematical Methods, 2021, 3, e1100.	0.8	0
75	Convergence analysis of high-order commutator-free quasi-Magnus exponential integrators for nonautonomous linear SchrÃ¶dinger equations. IMA Journal of Numerical Analysis, 2021, 41, 594-617.	2.9	0
76	Solving the Pertubed Quantum Harmonic Oscillator in Imaginary Time Using Splitting Methods with Complex Coefficients. SEMA SIMAI Springer Series, 2014, , 217-227.	0.7	0