Jesus Maria Sanz-Serna

List of Publications by Year
in descending order

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120 papers	4,710 citations	100601 38 h-index	124990 64 g-index
122 all docs	122 docs citations	122 times ranked	1909 citing authors

#	Article	IF	Citations
1	The Connections Between Lyapunov Functions for Some Optimization Algorithms and Differential Equations. SIAM Journal on Numerical Analysis, 2021, 59, 1542-1565.	1.1	9
2	HMC: Reducing the number of rejections by not using leapfrog and some results on the acceptance rate. Journal of Computational Physics, 2021, 437, 110333.	1.9	6
3	High-order stroboscopic averaging methods for highly oscillatory delay problems. Applied Numerical Mathematics, 2020, 152, 466-479.	1.2	1
4	Contractivity of Runge–Kutta Methods for Convex Gradient Systems. SIAM Journal on Numerical Analysis, 2020, 58, 2079-2092.	1.1	2
5	A stroboscopic averaging algorithm for highly oscillatory delay problems. IMA Journal of Numerical Analysis, 2019, 39, 1110-1133.	1.5	1
6	Word combinatorics for stochastic differential equations: Splitting integrators. Communications on Pure and Applied Analysis, 2019, 18, 2163-2195.	0.4	3
7	Bogdanovâ€“Takens resonance in time-delayed systems. Nonlinear Dynamics, 2018, 91, 1939-1947.	2.7	6
8	Multi-stage splitting integrators for sampling with modified Hamiltonian Monte Carlo methods. Journal of Computational Physics, 2018, 373, 900-916.	1.9	11
9	Geometric integrators and the Hamiltonian Monte Carlo method. Acta Numerica, 2018, 27, 113-206.	6.3	49
10	Word Series for Dynamical Systems and Their Numerical Integrators. Foundations of Computational Mathematics, 2017, 17, 675-712.	1.5	15
11	Palindromic 3-stage splitting integrators, a roadmap. Journal of Computational Physics, 2017, 346, 340-355.	1.9	11
12	Randomized Hamiltonian Monte Carlo. Annals of Applied Probability, 2017, 27, .	0.6	54
13	Adaptive Splitting Integrators for Enhancing Sampling Efficiency of Modified Hamiltonian Monte Carlo Methods in Molecular Simulation. Langmuir, 2017, 33, 11530-11542.	1.6	16
14	Adaptive multi-stage integrators for optimal energy conservation in molecular simulations. Journal of Computational Physics, 2016, 327, 434-449.	1.9	19
15	A Technique for Studying Strong and Weak Local Errors of Splitting Stochastic Integrators. SIAM Journal on Numerical Analysis, 2016, 54, 3239-3257.	1.1	11
16	Computing normal forms and formal invariants of dynamical systems by means of word series. Nonlinear Analysis: Theory, Methods & Applications, 2016, 138, 326-345.	0.6	10
17	Symplectic Runge–Kutta Schemes for Adjoint Equations, Automatic Differentiation, Optimal Control, and More. SIAM Review, 2016, 58, 3-33.	4.2	55
18	Vibrational resonance: a study with high-order word-series averaging. Applied Mathematics and Nonlinear Sciences, 2016, 1, 239-246.	0.9	14

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19	Higher-Order Averaging, Formal Series and Numerical Integration III: Error Bounds. Foundations of Computational Mathematics, 2015, 15, 591-612.	1.5	22
20	Extra Chance Generalized Hybrid Monte Carlo. Journal of Computational Physics, 2015, 281, 365-374.	1.9	23
21	Compressible generalized hybrid Monte Carlo. Journal of Chemical Physics, 2014, 140, 174108.	1.2	27
22	Numerical Integrators for the Hybrid Monte Carlo Method. SIAM Journal of Scientific Computing, 2014, 36, A1556-A1580.	1.3	44
23	Markov Chain Monte Carlo and Numerical Differential Equations. Lecture Notes in Mathematics, 2014, , 39-88.	0.1	16
24	A simplified variable metric hybrid Monte Carlo method. , 2013, , .		1
25	Beating the Verlet integrator in Monte Carlo simulations. , 2013, , .		0
26	Optimal tuning of the hybrid Monte Carlo algorithm. Bernoulli, 2013, 19, .	0.7	147
27	A new approach to high-order averaging. , 2012, , .		0
28	A Multiscale Technique for Finding Slow Manifolds of Stiff Mechanical Systems. Multiscale Modeling and Simulation, 2012, 10, 1180-1203.	0.6	9
29	Higher-Order Averaging, Formal Series and Numerical Integration II: The Quasi-Periodic Case. Foundations of Computational Mathematics, 2012, 12, 471-508.	1.5	23
30	A Stroboscopic Numerical Method for Highly Oscillatory Problems. Lecture Notes in Computational Science and Engineering, 2012, , 71-85.	0.1	10
31	A formal series approach to averaging: Exponentially small error estimates. Discrete and Continuous Dynamical Systems, 2012, 32, 3009-3027.	0.5	17
32	Numerical stroboscopic averaging for ODEs and DAEs. Applied Numerical Mathematics, 2011, 61, 1077-1095.	1.2	31
33	Hybrid Monte Carlo on Hilbert spaces. Stochastic Processes and Their Applications, 2011, 121, 2201-2230.	0.4	72
34	Higher-Order Averaging, Formal Series and Numerical Integration I: B-series. Foundations of Computational Mathematics, 2010, 10, 695-727.	1.5	40
35	The Acceptance Probability of the Hybrid Monte Carlo Method in High-Dimensional Problems. AIP Conference Proceedings, 2010, , .	0.3	6
36	Heterogeneous Multiscale Methods for Mechanical Systems with Vibrations. SIAM Journal of Scientific Computing, 2010, 32, 2029-2046.	1.3	25

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37	Carrying an inverted pendulum on a bumpy road. Discrete and Continuous Dynamical Systems - Series B, 2010, 14, 429-438.	0.5	2
38	Instabilities and Inaccuracies in the Integration of Highly Oscillatory Problems. SIAM Journal of Scientific Computing, 2009, 31, 1653-1677.	1.3	11
39	Modulated Fourier expansions and heterogeneous multiscale methods. IMA Journal of Numerical Analysis, 2009, 29, 595-605.	1.5	44
40	Mollified Impulse Methods for Highly Oscillatory Differential Equations. SIAM Journal on Numerical Analysis, 2008, 46, 1040-1059.	1.1	36
41	STABILIZING WITH A HAMMER. Stochastics and Dynamics, 2008, 08, 47-57.	0.6	8
42	The numerical integration of relative equilibrium solutions. The nonlinear Schrodinger equation. IMA Journal of Numerical Analysis, 2000, 20, 235-261.	1.5	68
43	Ergodicity of Dissipative Differential Equations Subject to Random Impulses. Journal of Differential Equations, 1999, 155, 262-284.	1.1	34
44	A shadowing result with applications to finite element approximation of reaction-diffusion equations. Mathematics of Computation, 1999, 68, 55-73.	1.1	15
45	Variable step implementation of geometric integrators. Applied Numerical Mathematics, 1998, 28, 1-16.	1.2	26
46	Long-Time-Step Methods for Oscillatory Differential Equations. SIAM Journal of Scientific Computing, 1998, 20, 930-963.	1.3	194
47	Error growth in the numerical integration of periodic orbits by multistep methods, with application to reversible systems. IMA Journal of Numerical Analysis, 1998, 18, 57-75.	1.5	28
48	The numerical integration of relative equilibrium solutions. Geometric theory. Nonlinearity, 1998, 11, 1547-1567.	0.6	17
49	Error Growth in the Numerical Integration of Periodic Orbits, with Application to Hamiltonian and Reversible Systems. SIAM Journal on Numerical Analysis, 1997, 34, 1391-1417.	1.1	47
50	Symplectic Methods Based on Decompositions. SIAM Journal on Numerical Analysis, 1997, 34, 1926-1947.	1.1	38
51	Explicit Symplectic Integrators Using Hessian--Vector Products. SIAM Journal of Scientific Computing, 1997, 18, 223-238.	1.3	40
52	Accuracy and conservation properties in numerical integration: the case of the Korteweg-de Vries equation. Numerische Mathematik, 1997, 75, 421-445.	0.9	55
53	Classical numerical integrators for waveâ€packet dynamics. Journal of Chemical Physics, 1996, 104, 2349-2355.	1.2	51
54	Are Gauss-Legendre methods useful in molecular dynamics?. Journal of Computational and Applied Mathematics, 1996, 67, 173-179.	1.1	11

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55	The number of conditions for a Runge-Kutta method to have effective order p. Applied Numerical Mathematics, 1996, 22, 103-111.	1.2	26
56	A Finite Difference Scheme for the K(2, 2) Compacton Equation. Journal of Computational Physics, 1995, 120, 248-252.	1.9	37
57	Lack of dissipativity is not symplecticness. BIT Numerical Mathematics, 1995, 35, 269-276.	1.0	8
58	Canonical B-series. Numerische Mathematik, 1994, 67, 161-175.	0.9	29
59	An unconventional symplectic integrator of W. Kahan. Applied Numerical Mathematics, 1994, 16, 245-250.	1.2	37
60	The non-existence of symplectic multi-derivative Runge-Kutta methods. BIT Numerical Mathematics, 1994, 34, 80-87.	1.0	10
61	The Behavior of Finite Element Solutions of Semilinear Parabolic Problems Near Stationary Points. SIAM Journal on Numerical Analysis, 1994, 31, 1000-1018.	1.1	29
62	Shadows, chaos, and saddles. Applied Numerical Mathematics, 1993, 13, 181-190.	1.2	24
63	The Development of Variable-Step Symplectic Integrators, with Application to the Two-Body Problem. SIAM Journal of Scientific Computing, 1993, 14, 936-952.	1.3	127
64	Partitioned Runge-Kutta methods for separable Hamiltonian problems. Mathematics of Computation, 1993, 60, 617-634.	1.1	63
65	High-Order Symplectic Rungeâ€“Kuttaâ€“NystrÃ¶m Methods. SIAM Journal of Scientific Computing, 1993, 14, 1237-1252.	1.3	54
66	A note on uniform in time error estimates for approximations to reaction-diffusion equations. IMA Journal of Numerical Analysis, 1992, 12, 457-462.	1.5	20
67	An easily implementable fourth-order method for the time integration of wave problems. Journal of Computational Physics, 1992, 103, 160-168.	1.9	64
68	The numerical study of blowup with application to a nonlinear Schrodinger equation. Journal of Computational Physics, 1992, 102, 407-416.	1.9	19
69	Symplectic Runge-Kutta and related methods: recent results. Physica D: Nonlinear Phenomena, 1992, 60, 293-302.	1.3	39
70	Symplectic integrators for Hamiltonian problems: an overview. Acta Numerica, 1992, 1, 243-286.	6.3	290
71	Conservation of integrals and symplectic structure in the integration of differential equations by multistep methods. Numerische Mathematik, 1992, 61, 281-290.	0.9	30
72	Order conditions for canonical Runge-Kutta-NystrÃ¶m methods. BIT Numerical Mathematics, 1992, 32, 131-142.	1.0	28

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73	Order Conditions for Canonical Rungeâ€“Kutta Schemes. SIAM Journal on Numerical Analysis, 1991, 28, 1081-1096.	1.1	113
74	Numerical solution of a hyperbolic system of conservation laws with source term arising in a fluidized bed model. Journal of Computational Physics, 1991, 93, 297-311.	1.9	18
75	On polynomials orthogonal with respect to certain Sobolev inner products. Journal of Approximation Theory, 1991, 65, 151-175.	0.5	148
76	Approximation of radial functions by piecewise polynomials on arbitrary grids. Numerical Methods for Partial Differential Equations, 1991, 7, 1-8.	2.0	3
77	A New Class of Results for the Algebraic Equations of Implicit Runge-Kutta Processes. IMA Journal of Numerical Analysis, 1991, 11, 449-455.	1.5	4
78	Pseudospectral Method for the "Good" Boussinesq Equation. Mathematics of Computation, 1991, 57, 109.	1.1	41
79	A Finite Difference Formula for the Discretization of d 3 /dx 3 on Nonuniform Grids. Mathematics of Computation, 1991, 57, 239.	1.1	14
80	The spectral accuracy of a fully-discrete scheme for a nonlinear third order equation. Computing (Vienna/New York), 1990, 44, 187-196.	3.2	6
81	Nonlinear stability and convergence of finite-difference methods for the ?good? Boussinesq equation. Numerische Mathematik, 1990, 58, 215-229.	0.9	49
82	Equilibria of Runge-Kutta methods. Numerische Mathematik, 1990, 58, 243-254.	0.9	34
83	Remarks on methods for the computation of boundary-element integrals by co-ordinate transformation. Communications in Applied Numerical Methods, 1990, 6, 121-123.	0.5	21
84	A Hamiltonian, explicit algorithm with spectral accuracy for the â€˜goodâ€™ Boussinesq system. Computer Methods in Applied Mechanics and Engineering, 1990, 80, 417-423.	3.4	19
85	A stabilized Galerkin method for a third-order evolutionary problem. Mathematics of Computation, 1990, 55, 497-497.	1.1	2
86	Stability and convergence at the PDE/stiff ode interface. Applied Numerical Mathematics, 1989, 5, 117-132.	1.2	38
87	Convergence analysis of one-step schemes in the method of lines. Applied Mathematics and Computation, 1989, 31, 183-196.	1.4	11
88	An adaptive moving grid method for one-dimensional systems of partial differential equations. Journal of Computational Physics, 1989, 82, 454-486.	1.9	37
89	Split-step spectral schemes for nonlinear dirac systems. Journal of Computational Physics, 1989, 83, 407-423.	1.9	34
90	Runge-kutta schemes for Hamiltonian systems. BIT Numerical Mathematics, 1988, 28, 877-883.	1.0	361

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91	On simple moving grid methods for one-dimensional evolutionary partial differential equations. Journal of Computational Physics, 1988, 74, 191-213.	1.9	65
92	Stability and Convergence in Numerical Analysis III: Linear Investigation of Nonlinear Stability. IMA Journal of Numerical Analysis, 1988, 8, 71-84.	1.5	64
93	A Numerical Method for a Partial Integro-Differential Equation. SIAM Journal on Numerical Analysis, 1988, 25, 319-327.	1.1	141
94	Soliton and antisoliton interactions in the â€˜â€˜goodâ€™â€™ Boussinesq equation. Journal of Mathematical Physics, 1988, 29, 1964-1968.	0.5	63
95	Studies in Numerical Nonlinear Instability III: Augmented Hamiltonian Systems. SIAM Journal on Applied Mathematics, 1987, 47, 92-108.	0.8	18
96	Conerservative and Nonconservative Schemes for the Solution of the Nonlinear SchrÃ¶dinger Equation. IMA Journal of Numerical Analysis, 1986, 6, 25-42.	1.5	120
97	Studies in numerical nonlinear instability. II. A new look at ut + uux = 0. Journal of Computational Physics, 1986, 66, 225-238.	1.9	16
98	A study of the recursion Yn + 1 = Yn + TYmn. Journal of Mathematical Analysis and Applications, 1986, 116, 456-464.	0.5	12
99	A simple adaptive technique for nonlinear wave problems. Journal of Computational Physics, 1986, 67, 348-360.	1.9	61
100	Regions of stability, equivalence theorems and the Courant-Friedrichs-Lewy condition. Numerische Mathematik, 1986, 49, 319-329.	0.9	15
101	FINITE ELEMENTS FOR NONLINEAR INTEGROâ€“DIFFERENTIAL EQUATIONS AND THEIR INTEGRATION IN TIME. , 1985, , 415-420.		1
102	A general equivalence theorem in the theory of discretization methods. Mathematics of Computation, 1985, 45, 143-152.	1.1	28
103	Methods for the numerical solution of the nonlinear Schroedinger equation. Mathematics of Computation, 1984, 43, 21-27.	1.1	111
104	A galerkin method for a nonlinear integro-differential wave system. Computer Methods in Applied Mechanics and Engineering, 1984, 44, 229-237.	3.4	22
105	On the use of the product approximation technique in nonlinear galerkin methods. International Journal for Numerical Methods in Engineering, 1984, 20, 778-779.	1.5	2
106	Convergence of the Lambert-McLeod trajectory solver and of the celf method. Numerische Mathematik, 1984, 45, 173-182.	0.9	7
107	An extension of the Lax-Richtmyer theory. Numerische Mathematik, 1984, 44, 279-283.	0.9	23
108	Convergence of method of lines approximations to partial differential equations. Computing (Vienna/New York), 1984, 33, 297-313.	3.2	87

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109	Interpolation of the Coefficients in Nonlinear Elliptic Galerkin Procedures. SIAM Journal on Numerical Analysis, 1984, 21, 77-83.	1.1	16
110	Equivalence Theorems for Incomplete Spaces: An Appraisal. IMA Journal of Numerical Analysis, 1984, 4, 109-115.	1.5	16
111	On finite elements simulatenously in space and time. International Journal for Numerical Methods in Engineering, 1983, 19, 623-624.	1.5	5
112	A method for the integration in time of certain partial differential equations. Journal of Computational Physics, 1983, 52, 273-289.	1.9	55
113	Geometrically Derived Difference Formulae for the Numerical Integration of Trajectory Problems. IMA Journal of Numerical Analysis, 1982, 2, 357-370.	1.5	4
114	An explicit finite-difference scheme with exact conservation properties. Journal of Computational Physics, 1982, 47, 199-210.	1.9	64
115	Product Approximation for Non-linear Problems in the Finite Element Method. IMA Journal of Numerical Analysis, 1981, 1, 253-266.	1.5	118
116	Convergence of Methods for the Numerical Solution of the Kortewegâ€"de Vries Equation. IMA Journal of Numerical Analysis, 1981, 1, 215-221.	1.5	34
117	Petrov-Galerkin methods for nonlinear dispersive waves. Journal of Computational Physics, 1981, 39, 94-102.	1.9	96
118	Linearly Implicit Variable Coefficient Methods of Lambertâ€"Sigurdsson Type. IMA Journal of Numerical Analysis, 1981, 1, 39-45.	1.5	3
119	Some aspects of the boundary locus method. BIT Numerical Mathematics, 1980, 20, 97-101.	1.0	5
120	Barrelledness conditions onC 0 (E). Archiv Der Mathematik, 1978, 31, 589-596.	0.3	18