Ander Murua

List of Publications by Year
in descending order

52	1,024	394421 19	434195 31
papers	citations	h-index	g-index

55	55	55	479
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	An implicit symplectic solver for high-precision long-term integrations of the Solar System. Celestial Mechanics and Dynamical Astronomy, 2022, 134, .	1.4	1
2	New high order symplectic integrators via generating functions with its application in many-body problem. BIT Numerical Mathematics, 2020, 60, 509-535.	2.0	1
3	Global Time-Renormalization of the Gravitational N-body Problem. SIAM Journal on Applied Dynamical Systems, 2020, 19, 2658-2681.	1.6	2
4	Continuous changes of variables and the Magnus expansion. Journal of Physics Communications, 2019, 3, 095014.	1.2	1
5	The Lie algebra of classical mechanics. Journal of Computational Dynamics, 2019, 6, 345-360.	1.1	0
6	New Integration Methods for Perturbed ODEs Based on Symplectic Implicit Rungeâ€“Kutta Schemes with Application to Solar System Simulations. Journal of Scientific Computing, 2018, 76, 630-650.	2.3	1
7	Efficient implementation of symplectic implicit Runge-Kutta schemes with simplified Newton iterations. Numerical Algorithms, 2018, 78, 63-86.	1.9	3
8	Averaging and Computing Normal Forms with Word Series Algorithms. Springer Proceedings in Mathematics and Statistics, 2018, , 115-137.	0.2	1
9	Word Series for Dynamical Systems and Their Numerical Integrators. Foundations of Computational Mathematics, 2017, 17, 675-712.	2.5	15
10	Symplectic time-average propagators for the SchrÃ¶dinger equation with a time-dependent Hamiltonian. Journal of Chemical Physics, 2017, 146, 114109.	3.0	13
11	Reducing and monitoring round-off error propagation for symplectic implicit Runge-Kutta schemes. Numerical Algorithms, 2017, 76, 861-880.	1.9	10
12	Computing normal forms and formal invariants of dynamical systems by means of word series. Nonlinear Analysis: Theory, Methods & Applications, 2016, 138, 326-345.	1.1	10
13	Stroboscopic Averaging for the Nonlinear SchrÃ¶dinger Equation. Foundations of Computational Mathematics, 2015, 15, 519-559.	2.5	23
14	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
15	Higher-Order Averaging, Formal Series and Numerical Integration III: Error Bounds. Foundations of Computational Mathematics, 2015, 15, 591-612.	2.5	22
16	B-Series. , 2015, , 156-165.		0
17	Multi-revolution composition methods for highly oscillatory differential equations. Numerische Mathematik, 2014, 128, 167-192.	1.9	19
18	New families of symplectic splitting methods for numerical integration in dynamical astronomy. Applied Numerical Mathematics, 2013, 68, 58-72.	2.1	71

#	Article	IF	Citations
19	High precision symplectic integrators for the Solar System. Celestial Mechanics and Dynamical Astronomy, 2013, 116, 141-174.	1.4	53
20	Stroboscopic averaging in Banach spaces: Application to NLS. , 2012, , .		0
21	A new approach to high-order averaging. , 2012, , .		0
22	Optimized high-order splitting methods for some classes of parabolic equations. Mathematics of Computation, 2012, 82, 1559-1576.	2.1	45
23	Efficient computation of the Zassenhaus formula. Computer Physics Communications, 2012, 183, 2386-2391.	7.5	81
24	Higher-Order Averaging, Formal Series and Numerical Integration II: The Quasi-Periodic Case. Foundations of Computational Mathematics, 2012, 12, 471-508.	2.5	23
25	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
26	A Stroboscopic Numerical Method for Highly Oscillatory Problems. Lecture Notes in Computational Science and Engineering, 2012, , 71-85.	0.3	10
27	A formal series approach to averaging: Exponentially small error estimates. Discrete and Continuous Dynamical Systems, 2012, 32, 3009-3027.	0.9	17
28	Error Analysis of Splitting Methods for the Time Dependent SchrÃ¶dinger Equation. SIAM Journal of Scientific Computing, 2011, 33, 1525-1548.	2.8	7
29	Numerical stroboscopic averaging for ODEs and DAEs. Applied Numerical Mathematics, 2011, 61, 1077-1095.	2.1	31
30	Higher-Order Averaging, Formal Series and Numerical Integration I: B-series. Foundations of Computational Mathematics, 2010, 10, 695-727.	2.5	40
31	Splitting methods with complex coefficients. BoletÃn De La Sociedad EspaÃ‘ola De MatemÃ¡tica Aplicada, 2010, 50, 47-60.	0.9	5
32	An efficient algorithm for computing the Bakerâ€“Campbellâ€“Hausdorff series and some of its applications. Journal of Mathematical Physics, 2009, 50, 033513.	1.1	55
33	A new class of symplectic integration schemes based on generating functions. Numerische Mathematik, 2009, 113, 631-642.	1.9	6
34	An algebraic theory of order. ESAIM: Mathematical Modelling and Numerical Analysis, 2009, 43, 607-630.	1.9	10
35	On the Linear Stability of Splitting Methods. Foundations of Computational Mathematics, 2008, 8, 357-393.	2.5	21
36	Preserving first integrals and volume forms of additively split systems. IMA Journal of Numerical Analysis, 2007, 27, 381-405.	2.9	34

#	Article	IF	Citations
37	Splitting methods for non-autonomous linear systems. International Journal of Computer Mathematics, 2007, 84, 713-727.	1.8	11
38	Composition Methods for Differential Equations with Processing. SIAM Journal of Scientific Computing, 2006, 27, 1817-1843.	2.8	13
39	The Hopf Algebra of Rooted Trees, Free Lie Algebras, and Lie Series. Foundations of Computational Mathematics, 2006, 6, 387-426.	2.5	62
40	An Algebraic Approach to Invariant Preserving Integators: The Case of Quadratic and Hamiltonian Invariants. Numerische Mathematik, 2006, 103, 575-590.	1.9	74
41	Symplectic splitting operator methods for the time-dependent SchrÃ¶dinger equation. Journal of Chemical Physics, 2006, 124, 234105.	3.0	31
42	Reversible methods of Runge-Kutta type for Index-2 DAEs. Numerische Mathematik, 2004, 97, 427-440.	1.9	1
43	On the Numerical Integration of Ordinary Differential Equations by Processed Methods. SIAM Journal on Numerical Analysis, 2004, 42, 531-552.	2.3	21
44	New Rungeâ€“Kutta Based Schemes for ODEs with Cheap Global Error Estimation. BIT Numerical Mathematics, 2003, 43, 595-610.	2.0	8
45	Post-projected Rungeâ€“Kutta methods for index-2 differentialâ€“algebraic equations. Applied Numerical Mathematics, 2002, 42, 77-94.	2.1	8
46	Extrapolation of symplectic methods for Hamiltonian problems. Applied Numerical Mathematics, 2000, 34, 189-205.	2.1	12
47	Formal series and numerical integrators, part I: Systems of ODEs and symplectic integrators. Applied Numerical Mathematics, 1999, 29, 221-251.	2.1	43
48	Non-stiff integrators for differentialâ€“algebraic systems of index 2. Numerical Algorithms, 1998, 19, 25-41.	1.9	10
49	Symplectic Methods Based on Decompositions. SIAM Journal on Numerical Analysis, 1997, 34, 1926-1947.	2.3	38
50	On Order Conditions for Partitioned Symplectic Methods. SIAM Journal on Numerical Analysis, 1997, 34, 2204-2211.	2.3	21
51	The non-existence of symplectic multi-derivative Runge-Kutta methods. BIT Numerical Mathematics, 1994, 34, 80-87.	2.0	10
52	Majorant series for the N-body problem. International Journal of Computer Mathematics, 0, , 1-26.	1.8	0