

Ander Murua

List of Publications by Year in descending order

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52
papers

1,024
citations

394421

19
h-index

434195

31
g-index

55
all docs

55
docs citations

55
times ranked

479
citing authors

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 1 | Efficient computation of the Zassenhaus formula. <i>Computer Physics Communications</i> , 2012, 183, 2386-2391. | 7.5 | 81 |
| 2 | An Algebraic Approach to Invariant Preserving Integrators: The Case of Quadratic and Hamiltonian Invariants. <i>Numerische Mathematik</i> , 2006, 103, 575-590. | 1.9 | 74 |
| 3 | New families of symplectic splitting methods for numerical integration in dynamical astronomy. <i>Applied Numerical Mathematics</i> , 2013, 68, 58-72. | 2.1 | 71 |
| 4 | The Hopf Algebra of Rooted Trees, Free Lie Algebras, and Lie Series. <i>Foundations of Computational Mathematics</i> , 2006, 6, 387-426. | 2.5 | 62 |
| 5 | An efficient algorithm for computing the Baker-Campbell-Hausdorff series and some of its applications. <i>Journal of Mathematical Physics</i> , 2009, 50, 033513. | 1.1 | 55 |
| 6 | High precision symplectic integrators for the Solar System. <i>Celestial Mechanics and Dynamical Astronomy</i> , 2013, 116, 141-174. | 1.4 | 53 |
| 7 | Optimized high-order splitting methods for some classes of parabolic equations. <i>Mathematics of Computation</i> , 2012, 82, 1559-1576. | 2.1 | 45 |
| 8 | Formal series and numerical integrators, part I: Systems of ODEs and symplectic integrators. <i>Applied Numerical Mathematics</i> , 1999, 29, 221-251. | 2.1 | 43 |
| 9 | Higher-Order Averaging, Formal Series and Numerical Integration I: B-series. <i>Foundations of Computational Mathematics</i> , 2010, 10, 695-727. | 2.5 | 40 |
| 10 | Symplectic Methods Based on Decompositions. <i>SIAM Journal on Numerical Analysis</i> , 1997, 34, 1926-1947. | 2.3 | 38 |
| 11 | Preserving first integrals and volume forms of additively split systems. <i>IMA Journal of Numerical Analysis</i> , 2007, 27, 381-405. | 2.9 | 34 |
| 12 | Symplectic splitting operator methods for the time-dependent Schrödinger equation. <i>Journal of Chemical Physics</i> , 2006, 124, 234105. | 3.0 | 31 |
| 13 | Numerical stroboscopic averaging for ODEs and DAEs. <i>Applied Numerical Mathematics</i> , 2011, 61, 1077-1095. | 2.1 | 31 |
| 14 | Higher-Order Averaging, Formal Series and Numerical Integration II: The Quasi-Periodic Case. <i>Foundations of Computational Mathematics</i> , 2012, 12, 471-508. | 2.5 | 23 |
| 15 | Stroboscopic Averaging for the Nonlinear Schrödinger Equation. <i>Foundations of Computational Mathematics</i> , 2015, 15, 519-559. | 2.5 | 23 |
| 16 | Higher-Order Averaging, Formal Series and Numerical Integration III: Error Bounds. <i>Foundations of Computational Mathematics</i> , 2015, 15, 591-612. | 2.5 | 22 |
| 17 | On Order Conditions for Partitioned Symplectic Methods. <i>SIAM Journal on Numerical Analysis</i> , 1997, 34, 2204-2211. | 2.3 | 21 |
| 18 | On the Numerical Integration of Ordinary Differential Equations by Processed Methods. <i>SIAM Journal on Numerical Analysis</i> , 2004, 42, 531-552. | 2.3 | 21 |

| # | ARTICLE | IF | CITATIONS |
|----|--|-----|-----------|
| 19 | On the Linear Stability of Splitting Methods. Foundations of Computational Mathematics, 2008, 8, 357-393. | 2.5 | 21 |
| 20 | Multi-revolution composition methods for highly oscillatory differential equations. Numerische Mathematik, 2014, 128, 167-192. | 1.9 | 19 |
| 21 | A formal series approach to averaging: Exponentially small error estimates. Discrete and Continuous Dynamical Systems, 2012, 32, 3009-3027. | 0.9 | 17 |
| 22 | An efficient algorithm based on splitting for the time integration of the Schrödinger equation. Journal of Computational Physics, 2015, 303, 396-412. | 3.8 | 15 |
| 23 | Word Series for Dynamical Systems and Their Numerical Integrators. Foundations of Computational Mathematics, 2017, 17, 675-712. | 2.5 | 15 |
| 24 | Composition Methods for Differential Equations with Processing. SIAM Journal of Scientific Computing, 2006, 27, 1817-1843. | 2.8 | 13 |
| 25 | Symplectic time-average propagators for the Schrödinger equation with a time-dependent Hamiltonian. Journal of Chemical Physics, 2017, 146, 114109. | 3.0 | 13 |
| 26 | Extrapolation of symplectic methods for Hamiltonian problems. Applied Numerical Mathematics, 2000, 34, 189-205. | 2.1 | 12 |
| 27 | Splitting methods in the numerical integration of non-autonomous dynamical systems. Revista De La Real Academia De Ciencias Exactas, Físicas Y Naturales - Serie A: Matemáticas, 2012, 106, 49-66. | 1.2 | 12 |
| 28 | Splitting methods for non-autonomous linear systems. International Journal of Computer Mathematics, 2007, 84, 713-727. | 1.8 | 11 |
| 29 | The non-existence of symplectic multi-derivative Runge-Kutta methods. BIT Numerical Mathematics, 1994, 34, 80-87. | 2.0 | 10 |
| 30 | Non-stiff integrators for differential-algebraic systems of index 2. Numerical Algorithms, 1998, 19, 25-41. | 1.9 | 10 |
| 31 | 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 |
| 32 | Reducing and monitoring round-off error propagation for symplectic implicit Runge-Kutta schemes. Numerical Algorithms, 2017, 76, 861-880. | 1.9 | 10 |
| 33 | A Stroboscopic Numerical Method for Highly Oscillatory Problems. Lecture Notes in Computational Science and Engineering, 2012, , 71-85. | 0.3 | 10 |
| 34 | An algebraic theory of order. ESAIM: Mathematical Modelling and Numerical Analysis, 2009, 43, 607-630. | 1.9 | 10 |
| 35 | Post-projected Runge-Kutta methods for index-2 differential-algebraic equations. Applied Numerical Mathematics, 2002, 42, 77-94. | 2.1 | 8 |
| 36 | New Runge-Kutta Based Schemes for ODEs with Cheap Global Error Estimation. BIT Numerical Mathematics, 2003, 43, 595-610. | 2.0 | 8 |

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 37 | Error Analysis of Splitting Methods for the Time Dependent Schrödinger Equation. SIAM Journal of Scientific Computing, 2011, 33, 1525-1548. | 2.8 | 7 |
| 38 | A new class of symplectic integration schemes based on generating functions. Numerische Mathematik, 2009, 113, 631-642. | 1.9 | 6 |
| 39 | Splitting methods with complex coefficients. Boletín De La Sociedad Española De Matemática Aplicada, 2010, 50, 47-60. | 0.9 | 5 |
| 40 | Efficient implementation of symplectic implicit Runge-Kutta schemes with simplified Newton iterations. Numerical Algorithms, 2018, 78, 63-86. | 1.9 | 3 |
| 41 | Global Time-Renormalization of the Gravitational N-body Problem. SIAM Journal on Applied Dynamical Systems, 2020, 19, 2658-2681. | 1.6 | 2 |
| 42 | Reversible methods of Runge-Kutta type for Index-2 DAEs. Numerische Mathematik, 2004, 97, 427-440. | 1.9 | 1 |
| 43 | New Integration Methods for Perturbed ODEs Based on Symplectic Implicit Runge-Kutta Schemes with Application to Solar System Simulations. Journal of Scientific Computing, 2018, 76, 630-650. | 2.3 | 1 |
| 44 | Continuous changes of variables and the Magnus expansion. Journal of Physics Communications, 2019, 3, 095014. | 1.2 | 1 |
| 45 | 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 |
| 46 | Averaging and Computing Normal Forms with Word Series Algorithms. Springer Proceedings in Mathematics and Statistics, 2018, , 115-137. | 0.2 | 1 |
| 47 | An implicit symplectic solver for high-precision long-term integrations of the Solar System. Celestial Mechanics and Dynamical Astronomy, 2022, 134, . | 1.4 | 1 |
| 48 | Stroboscopic averaging in Banach spaces: Application to NLS. , 2012, , . | | 0 |
| 49 | A new approach to high-order averaging. , 2012, , . | | 0 |
| 50 | Majorant series for the N-body problem. International Journal of Computer Mathematics, 0, , 1-26. | 1.8 | 0 |
| 51 | B-Series. , 2015, , 156-165. | | 0 |
| 52 | The Lie algebra of classical mechanics. Journal of Computational Dynamics, 2019, 6, 345-360. | 1.1 | 0 |