

Michele Ceriotti

List of Publications by Year in descending order

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169
papers

12,029
citations

26567

56
h-index

29081

104
g-index

172
all docs

172
docs citations

172
times ranked

8846
citing authors

#	ARTICLE	IF	CITATIONS
1	Equivariant representations for molecular Hamiltonians and $\langle i \rangle_N \langle /i \rangle$ -center atomic-scale properties. <i>Journal of Chemical Physics</i> , 2022, 156, 014115.	1.2	26
2	Local Kernel Regression and Neural Network Approaches to the Conformational Landscapes of Oligopeptides. <i>Journal of Chemical Theory and Computation</i> , 2022, 18, 1467-1479.	2.3	8
3	Roadmap on Machine learning in electronic structure. <i>Electronic Structure</i> , 2022, 4, 023004.	1.0	69
4	Unified theory of atom-centered representations and message-passing machine-learning schemes. <i>Journal of Chemical Physics</i> , 2022, 156, .	1.2	15
5	Gas-sieving zeolitic membranes fabricated by condensation of precursor nanosheets. <i>Nature Materials</i> , 2021, 20, 362-369.	13.3	86
6	Multi-scale approach for the prediction of atomic scale properties. <i>Chemical Science</i> , 2021, 12, 2078-2090.	3.7	35
7	Origins of structural and electronic transitions in disordered silicon. <i>Nature</i> , 2021, 589, 59-64.	13.7	192
8	Uncertainty estimation for molecular dynamics and sampling. <i>Journal of Chemical Physics</i> , 2021, 154, 074102.	1.2	48
9	Simulating the ghost: quantum dynamics of the solvated electron. <i>Nature Communications</i> , 2021, 12, 766.	5.8	36
10	Efficient implementation of atom-density representations. <i>Journal of Chemical Physics</i> , 2021, 154, 114109.	1.2	32
11	The role of feature space in atomistic learning. <i>Machine Learning: Science and Technology</i> , 2021, 2, 025028.	2.4	25
12	Finite-temperature materials modeling from the quantum nuclei to the hot electron regime. <i>Physical Review Materials</i> , 2021, 5, .	0.9	20
13	Machine learning meets chemical physics. <i>Journal of Chemical Physics</i> , 2021, 154, 160401.	1.2	37
14	Machine learning for metallurgy III: A neural network potential for Al-Mg-Si. <i>Physical Review Materials</i> , 2021, 5, .	0.9	17
15	Global Free-Energy Landscapes as a Smoothly Joined Collection of Local Maps. <i>Journal of Chemical Theory and Computation</i> , 2021, 17, 3292-3308.	2.3	12
16	Modeling the Ga/As binary system across temperatures and compositions from first principles. <i>Physical Review Materials</i> , 2021, 5, .	0.9	14
17	Improving sample and feature selection with principal covariates regression. <i>Machine Learning: Science and Technology</i> , 2021, 2, 035038.	2.4	23
18	Quantum vibronic effects on the electronic properties of solid and molecular carbon. <i>Physical Review Materials</i> , 2021, 5, .	0.9	12

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19	Physics-Inspired Structural Representations for Molecules and Materials. <i>Chemical Reviews</i> , 2021, 121, 9759-9815.	23.0	247
20	Chemical physics software. <i>Journal of Chemical Physics</i> , 2021, 155, 010401.	1.2	2
21	Introduction: Machine Learning at the Atomic Scale. <i>Chemical Reviews</i> , 2021, 121, 9719-9721.	23.0	36
22	Importance of Nuclear Quantum Effects for NMR Crystallography. <i>Journal of Physical Chemistry Letters</i> , 2021, 12, 7701-7707.	2.1	9
23	Gaussian Process Regression for Materials and Molecules. <i>Chemical Reviews</i> , 2021, 121, 10073-10141.	23.0	384
24	Optimal radial basis for density-based atomic representations. <i>Journal of Chemical Physics</i> , 2021, 155, 104106.	1.2	17
25	Learning Electron Densities in the Condensed Phase. <i>Journal of Chemical Theory and Computation</i> , 2021, 17, 7203-7214.	2.3	24
26	Bayesian probabilistic assignment of chemical shifts in organic solids. <i>Science Advances</i> , 2021, 7, eabk2341.	4.7	13
27	Reply to: On the liquid–liquid phase transition of dense hydrogen. <i>Nature</i> , 2021, 600, E15-E16.	13.7	2
28	2020 JCP Emerging Investigator Special Collection. <i>Journal of Chemical Physics</i> , 2021, 155, 230401.	1.2	1
29	Accurate Description of Nuclear Quantum Effects with High-Order Perturbed Path Integrals (HOPPI). <i>Journal of Chemical Theory and Computation</i> , 2020, 16, 1128-1135.	2.3	7
30	Identifying and Tracking Defects in Dynamic Supramolecular Polymers. <i>Journal of Physical Chemistry B</i> , 2020, 124, 589-599.	1.2	35
31	Iterative Unbiasing of Quasi-Equilibrium Sampling. <i>Journal of Chemical Theory and Computation</i> , 2020, 16, 100-107.	2.3	14
32	Recursive evaluation and iterative contraction of N -body equivariant features. <i>Journal of Chemical Physics</i> , 2020, 153, 121101.	1.2	46
33	Incompleteness of Atomic Structure Representations. <i>Physical Review Letters</i> , 2020, 125, 166001.	2.9	103
34	Predicting molecular dipole moments by combining atomic partial charges and atomic dipoles. <i>Journal of Chemical Physics</i> , 2020, 153, 024113.	1.2	65
35	3D Ordering at the Liquid–Solid Polar Interface of Nanowires. <i>Advanced Materials</i> , 2020, 32, e2001030.	11.1	10
36	Evidence for supercritical behaviour of high-pressure liquid hydrogen. <i>Nature</i> , 2020, 585, 217-220.	13.7	83

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37	Learning the electronic density of states in condensed matter. <i>Physical Review B</i> , 2020, 102, .	1.1	57
38	Simulating Solvation and Acidity in Complex Mixtures with First-Principles Accuracy: The Case of CH ₃ SO ₃ H and H ₂ O in Phenol. <i>Journal of Chemical Theory and Computation</i> , 2020, 16, 5139-5149.	2.3	26
39	Machine Learning Force Fields and Coarse-Grained Variables in Molecular Dynamics: Application to Materials and Biological Systems. <i>Journal of Chemical Theory and Computation</i> , 2020, 16, 4757-4775.	2.3	120
40	Inexpensive modeling of quantum dynamics using path integral generalized Langevin equation thermostats. <i>Journal of Chemical Physics</i> , 2020, 152, 124104.	1.2	26
41	Quantum kinetic energy and isotope fractionation in aqueous ionic solutions. <i>Physical Chemistry Chemical Physics</i> , 2020, 22, 10490-10499.	1.3	6
42	Classical nucleation theory predicts the shape of the nucleus in homogeneous solidification. <i>Journal of Chemical Physics</i> , 2020, 152, 044103.	1.2	7
43	Understanding How Ligand Functionalization Influences CO ₂ and N ₂ Adsorption in a Sodalite Metal-Organic Framework. <i>Chemistry of Materials</i> , 2020, 32, 1526-1536.	3.2	19
44	Machine-Learning of Atomic-Scale Properties Based on Physical Principles. <i>Lecture Notes in Physics</i> , 2020, , 99-127.	0.3	4
45	Machine Learning of Atomic-Scale Properties Based on Physical Principles. , 2020, , 1911-1937.		3
46	Structure-property maps with Kernel principal covariates regression. <i>Machine Learning: Science and Technology</i> , 2020, 1, 045021.	2.4	26
47	Chemiscope: interactive structure-property explorer for materials and molecules. <i>Journal of Open Source Software</i> , 2020, 5, 2117.	2.0	16
48	Promoting transparency and reproducibility in enhanced molecular simulations. <i>Nature Methods</i> , 2019, 16, 670-673.	9.0	655
49	Using Gaussian process regression to simulate the vibrational Raman spectra of molecular crystals. <i>New Journal of Physics</i> , 2019, 21, 105001.	1.2	44
50	Barely porous organic cages for hydrogen isotope separation. <i>Science</i> , 2019, 366, 613-620.	6.0	210
51	A new kind of atlas of zeolite building blocks. <i>Journal of Chemical Physics</i> , 2019, 151, 154112.	1.2	32
52	Electron density learning of non-covalent systems. <i>Chemical Science</i> , 2019, 10, 9424-9432.	3.7	92
53	Quantum mechanical static dipole polarizabilities in the QM7b and AlphaML showcase databases. <i>Scientific Data</i> , 2019, 6, 152.	2.4	20
54	Assessment of Approximate Methods for Anharmonic Free Energies. <i>Journal of Chemical Theory and Computation</i> , 2019, 15, 5845-5857.	2.3	31

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55	Energy Relaxation and Thermal Diffusion in Infrared Pump-Probe Spectroscopy of Hydrogen-Bonded Liquids. <i>Journal of Physical Chemistry Letters</i> , 2019, 10, 3447-3452.	2.1	10
56	Atomic Motif Recognition in (Bio)Polymers: Benchmarks From the Protein Data Bank. <i>Frontiers in Molecular Biosciences</i> , 2019, 6, 24.	1.6	10
57	Modeling the Structural and Thermal Properties of Loaded Metal-Organic Frameworks. An Interplay of Quantum and Anharmonic Fluctuations. <i>Journal of Chemical Theory and Computation</i> , 2019, 15, 3237-3249.	2.3	22
58	Atom-density representations for machine learning. <i>Journal of Chemical Physics</i> , 2019, 150, 154110.	1.2	120
59	Unsupervised machine learning in atomistic simulations, between predictions and understanding. <i>Journal of Chemical Physics</i> , 2019, 150, 150901.	1.2	113
60	Accurate molecular polarizabilities with coupled cluster theory and machine learning. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 3401-3406.	3.3	126
61	Incorporating long-range physics in atomic-scale machine learning. <i>Journal of Chemical Physics</i> , 2019, 151, 204105.	1.2	114
62	Atomic-Scale Representation and Statistical Learning of Tensorial Properties. <i>ACS Symposium Series</i> , 2019, , 1-21.	0.5	12
63	Machine Learning at the Atomic Scale. <i>Chimia</i> , 2019, 73, 972.	0.3	4
64	Determination and evaluation of the nonadditivity in wetting of molecularly heterogeneous surfaces. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 25516-25523.	3.3	8
65	A Bayesian approach to NMR crystal structure determination. <i>Physical Chemistry Chemical Physics</i> , 2019, 21, 23385-23400.	1.3	39
66	Transferable Machine-Learning Model of the Electron Density. <i>ACS Central Science</i> , 2019, 5, 57-64.	5.3	178
67	Ab initio thermodynamics of liquid and solid water. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 1110-1115.	3.3	201
68	Fast and Accurate Uncertainty Estimation in Chemical Machine Learning. <i>Journal of Chemical Theory and Computation</i> , 2019, 15, 906-915.	2.3	102
69	An <i>In Situ</i> Neutron Diffraction and DFT Study of Hydrogen Adsorption in a Sodalite-Type Metal-Organic Framework, Cu-BTTri. <i>European Journal of Inorganic Chemistry</i> , 2019, 2019, 1147-1154.	1.0	15
70	i-PI 2.0: A universal force engine for advanced molecular simulations. <i>Computer Physics Communications</i> , 2019, 236, 214-223.	3.0	220
71	Nuclear quantum effects enter the mainstream. <i>Nature Reviews Chemistry</i> , 2018, 2, .	13.8	271
72	Comparison of permutationally invariant polynomials, neural networks, and Gaussian approximation potentials in representing water interactions through many-body expansions. <i>Journal of Chemical Physics</i> , 2018, 148, 241725.	1.2	142

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73	Computing the absolute Gibbs free energy in atomistic simulations: Applications to defects in solids. <i>Physical Review B</i> , 2018, 97, .	1.1	53
74	Decisive role of nuclear quantum effects on surface mediated water dissociation at finite temperature. <i>Journal of Chemical Physics</i> , 2018, 148, 102320.	1.2	32
75	Symmetry-Adapted Machine Learning for Tensorial Properties of Atomistic Systems. <i>Physical Review Letters</i> , 2018, 120, 036002.	2.9	186
76	Recognizing Local and Global Structural Motifs at the Atomic Scale. <i>Journal of Chemical Theory and Computation</i> , 2018, 14, 486-498.	2.3	43
77	Approximating Matsubara dynamics using the planetary model: Tests on liquid water and ice. <i>Journal of Chemical Physics</i> , 2018, 148, 102336.	1.2	27
78	Analyzing Fluxional Molecules Using DORI. <i>Journal of Chemical Theory and Computation</i> , 2018, 14, 2370-2379.	2.3	5
79	Fine tuning classical and quantum molecular dynamics using a generalized Langevin equation. <i>Journal of Chemical Physics</i> , 2018, 148, 102301.	1.2	52
80	Machine learning for the structure-“energy”-property landscapes of molecular crystals. <i>Chemical Science</i> , 2018, 9, 1289-1300.	3.7	153
81	Theoretical prediction of the homogeneous ice nucleation rate: disentangling thermodynamics and kinetics. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 28732-28740.	1.3	25
82	Feature optimization for atomistic machine learning yields a data-driven construction of the periodic table of the elements. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 29661-29668.	1.3	88
83	Machine Learning of Atomic-Scale Properties Based on Physical Principles. , 2018, , 1-27.		6
84	Nuclear Quantum Effects in Sodium Hydroxide Solutions from Neural Network Molecular Dynamics Simulations. <i>Journal of Physical Chemistry B</i> , 2018, 122, 10158-10171.	1.2	29
85	Chemical shifts in molecular solids by machine learning. <i>Nature Communications</i> , 2018, 9, 4501.	5.8	170
86	Comment on “Water-water correlations in electrolyte solutions probed by hyper-Rayleigh scattering” [J. Chem. Phys. 147, 214505 (2017)]. <i>Journal of Chemical Physics</i> , 2018, 149, 167101.	1.2	3
87	Hydrogen Diffusion and Trapping in Fe : The Role of Quantum and Anharmonic Fluctuations. <i>Physical Review Letters</i> , 2018, 120, 225901.	2.9	26
88	Automatic selection of atomic fingerprints and reference configurations for machine-learning potentials. <i>Journal of Chemical Physics</i> , 2018, 148, 241730.	1.2	224
89	Fast-forward Langevin dynamics with momentum flips. <i>Journal of Chemical Physics</i> , 2018, 148, 184109.	1.2	6
90	Communication: Computing the Tolman length for solid-liquid interfaces. <i>Journal of Chemical Physics</i> , 2018, 148, 231102.	1.2	12

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91	Anisotropy of the Proton Momentum Distribution in Water. <i>Journal of Physical Chemistry B</i> , 2018, 122, 6048-6054.	1.2	12
92	Mapping uncharted territory in ice—from zeolite networks to ice structures. <i>Nature Communications</i> , 2018, 9, 2173.	5.8	57
93	Large-Scale Computational Screening of Molecular Organic Semiconductors Using Crystal Structure Prediction. <i>Chemistry of Materials</i> , 2018, 30, 4361-4371.	3.2	79
94	Generalized convex hull construction for materials discovery. <i>Physical Review Materials</i> , 2018, 2, .	0.9	30
95	Simulating Energy Relaxation in Pump-Probe Vibrational Spectroscopy of Hydrogen-Bonded Liquids. <i>Journal of Chemical Theory and Computation</i> , 2017, 13, 1284-1292.	2.3	18
96	Mapping and classifying molecules from a high-throughput structural database. <i>Journal of Cheminformatics</i> , 2017, 9, 6.	2.8	28
97	Bridging the gap between atomistic and macroscopic models of homogeneous nucleation. <i>Journal of Chemical Physics</i> , 2017, 146, 034106.	1.2	19
98	Mapping the conformational free energy of aspartic acid in the gas phase and in aqueous solution. <i>Journal of Chemical Physics</i> , 2017, 146, 145102.	1.2	10
99	Semiconducting Nanowire-Based Optoelectronic Fibers. <i>Advanced Materials</i> , 2017, 29, 1700681.	11.1	116
100	Communication: Mean-field theory of water-water correlations in electrolyte solutions. <i>Journal of Chemical Physics</i> , 2017, 146, .	1.2	22
101	Solvent fluctuations and nuclear quantum effects modulate the molecular hyperpolarizability of water. <i>Physical Review B</i> , 2017, 96, .	1.1	28
102	The Gibbs free energy of homogeneous nucleation: From atomistic nuclei to the planar limit. <i>Journal of Chemical Physics</i> , 2017, 147, 104707.	1.2	10
103	Ab initio modelling of the early stages of precipitation in Al-6000 alloys. <i>Acta Materialia</i> , 2017, 140, 240-249.	3.8	14
104	Machine learning unifies the modeling of materials and molecules. <i>Science Advances</i> , 2017, 3, e1701816.	4.7	488
105	Extracting the interfacial free energy and anisotropy from a smooth fluctuating dividing surface. <i>Journal of Physics Condensed Matter</i> , 2017, 29, 445001.	0.7	6
106	Neural network potential for Al-Mg-Si alloys. <i>Physical Review Materials</i> , 2017, 1, .	0.9	57
107	High order path integrals made easy. <i>Journal of Chemical Physics</i> , 2016, 145, 234103.	1.2	47
108	Accelerated path integral methods for atomistic simulations at ultra-low temperatures. <i>Journal of Chemical Physics</i> , 2016, 145, 054101.	1.2	25

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109	Accurate molecular dynamics and nuclear quantum effects at low cost by multiple steps in real and imaginary time: Using density functional theory to accelerate wavefunction methods. <i>Journal of Chemical Physics</i> , 2016, 144, 054111.	1.2	58
110	Nuclear Quantum Effects in Water at the Triple Point: Using Theory as a Link Between Experiments. <i>Journal of Physical Chemistry Letters</i> , 2016, 7, 2210-2215.	2.1	57
111	Nuclear Quantum Effects in Water and Aqueous Systems: Experiment, Theory, and Current Challenges. <i>Chemical Reviews</i> , 2016, 116, 7529-7550.	23.0	439
112	Comparing molecules and solids across structural and alchemical space. <i>Physical Chemistry Chemical Physics</i> , 2016, 18, 13754-13769.	1.3	489
113	Machines learn to recognize glasses. <i>Nature Physics</i> , 2016, 12, 377-378.	6.5	1
114	Anharmonic and Quantum Fluctuations in Molecular Crystals: A First-Principles Study of the Stability of Paracetamol. <i>Physical Review Letters</i> , 2016, 117, 115702.	2.9	59
115	Second-Harmonic Scattering as a Probe of Structural Correlations in Liquids. <i>Journal of Physical Chemistry Letters</i> , 2016, 7, 4311-4316.	2.1	25
116	Nuclear Quantum Effects in H ⁺ and OH ⁻ Diffusion along Confined Water Wires. <i>Journal of Physical Chemistry Letters</i> , 2016, 7, 3001-3007.	2.1	50
117	Electrolytes induce long-range orientational order and free energy changes in the H-bond network of bulk water. <i>Science Advances</i> , 2016, 2, e1501891.	4.7	151
118	Thermally-nucleated self-assembly of water and alcohol into stable structures at hydrophobic interfaces. <i>Nature Communications</i> , 2016, 7, 13064.	5.8	33
119	Beyond static structures: Putting forth REMD as a tool to solve problems in computational organic chemistry. <i>Journal of Computational Chemistry</i> , 2016, 37, 83-92.	1.5	27
120	Probing Defects and Correlations in the Hydrogen-Bond Network of ab Initio Water. <i>Journal of Chemical Theory and Computation</i> , 2016, 12, 1953-1964.	2.3	51
121	Solid-liquid interfacial free energy out of equilibrium. <i>Physical Review B</i> , 2015, 92, .	1.1	40
122	Probing the Unfolded Configurations of a Î ² -Hairpin Using Sketch-Map. <i>Journal of Chemical Theory and Computation</i> , 2015, 11, 1086-1093.	2.3	25
123	Discussion: Nuclear Quantum Dynamics - Protons and Beyond. <i>Journal of Physics: Conference Series</i> , 2014, 571, 012004.	0.3	3
124	Direct path integral estimators for isotope fractionation ratios. <i>Journal of Chemical Physics</i> , 2014, 141, 244112.	1.2	30
125	Communication: On the consistency of approximate quantum dynamics simulation methods for vibrational spectra in the condensed phase. <i>Journal of Chemical Physics</i> , 2014, 141, 181101.	1.2	74
126	Recognizing molecular patterns by machine learning: An agnostic structural definition of the hydrogen bond. <i>Journal of Chemical Physics</i> , 2014, 141, 174110.	1.2	60

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127	How to remove the spurious resonances from ring polymer molecular dynamics. <i>Journal of Chemical Physics</i> , 2014, 140, 234116.	1.2	174
128	Quantum fluctuations and isotope effects in <i>ab initio</i> descriptions of water. <i>Journal of Chemical Physics</i> , 2014, 141, 104502.	1.2	68
129	The Role of Quantum Effects on Structural and Electronic Fluctuations in Neat and Charged Water. <i>Journal of Physical Chemistry B</i> , 2014, 118, 13226-13235.	1.2	48
130	Evaluating functions of positive-definite matrices using colored-noise thermostats. <i>Physical Review E</i> , 2014, 89, 023302.	0.8	4
131	i-PI: A Python interface for <i>ab initio</i> path integral molecular dynamics simulations. <i>Computer Physics Communications</i> , 2014, 185, 1019-1026.	3.0	189
132	<i>Ab initio</i> simulation of particle momentum distributions in high-pressure water. <i>Journal of Physics: Conference Series</i> , 2014, 571, 012011.	0.3	1
133	Discussion: Measurement and Instrumentation. <i>Journal of Physics: Conference Series</i> , 2014, 571, 012010.	0.3	4
134	Discussion: Theoretical Horizons and Calculation. <i>Journal of Physics: Conference Series</i> , 2014, 571, 012013.	0.3	3
135	A Surface-Specific Isotope Effect in Mixtures of Light and Heavy Water. <i>Journal of Physical Chemistry C</i> , 2013, 117, 2944-2951.	1.5	55
136	Effects of High Angular Momentum on the Unimolecular Dissociation of CD ₂ CD ₂ OH: Theory and Comparisons with Experiment. <i>Journal of Physical Chemistry A</i> , 2013, 117, 10951-10963.	1.1	16
137	Nuclear quantum effects and hydrogen bond fluctuations in water. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 15591-15596.	3.3	204
138	Demonstrating the Transferability and the Descriptive Power of Sketch-Map. <i>Journal of Chemical Theory and Computation</i> , 2013, 9, 1521-1532.	2.3	104
139	Direct Measurement of Competing Quantum Effects on the Kinetic Energy of Heavy Water upon Melting. <i>Journal of Physical Chemistry Letters</i> , 2013, 4, 3251-3256.	2.1	64
140	Efficient methods and practical guidelines for simulating isotope effects. <i>Journal of Chemical Physics</i> , 2013, 138, 014112.	1.2	78
141	Simultaneous measurement of lithium and fluorine momentum in ⁷ LiF. <i>Journal of Physics Condensed Matter</i> , 2012, 24, 365401.	0.7	11
142	Density functional study of the decomposition pathways of SiH ₃ and GeH ₃ at the Si(100) and Ge(100) surfaces. <i>Journal of Physics Condensed Matter</i> , 2012, 24, 104002.	0.7	2
143	Using sketch-map coordinates to analyze and bias molecular dynamics simulations. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 5196-5201.	3.3	147
144	The inefficiency of re-weighted sampling and the curse of system size in high-order path integration. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2012, 468, 2-17.	1.0	37

