Rupert Klein

List of Publications by Year
in descending order

62 papers	1,474 citations	394421 19 h-index	330143 37 g-index
67 all docs	67 docs citations	67 times ranked	1000 citing authors

#	Article	IF	Citations
1	Computational Simulation of an Exhaust Plenum Charged by a Multi-tube Pulsed Detonation Combustor. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2022, , 85-102.	0.3	0
2	Solving the time-independent Schrödinger equation for chains of coupled excitons and phonons using tensor trains. Journal of Chemical Physics, 2022, 156, 024109.	3.0	4
3	Numerical and experimental evaluation of shock dividers. Shock Waves, 2022, 32, 195-211.	1.9	3
4	Derivation of Liouville-like equations for the n-state probability density of an open system with thermalized particle reservoirs and its link to molecular simulation. Journal of Physics A: Mathematical and Theoretical, 2022, 55, 155002.	2.1	4
5	QG–DL–Ekman: Dynamics of a Diabatic Layer in the Quasi-Geostrophic Framework. Journals of the Atmospheric Sciences, 2022, 79, 887-905.	1.7	1
6	Diffraction of shock waves through a non-quiescent medium. Journal of Fluid Mechanics, 2022, 944, .	3.4	1
7	Thermodynamic Relations at the Coupling Boundary in Adaptive Resolution Simulations for Open Systems. Advanced Theory and Simulations, 2021, 4, 2000303.	2.8	12
8	Nonequilibrium Induced by Reservoirs: Physico-Mathematical Models and Numerical Tests. Advanced Theory and Simulations, 2021, 4, 2100071.	2.8	7
9	Dynamics of tilted atmospheric vortices under asymmetric diabatic heating. Theoretical and Computational Fluid Dynamics, 2021, 35, 831-873.	2.2	0
10	The dynamic state index with moisture and phase changes. Journal of Mathematical Physics, 2021, 62, 123101.	1.1	0
11	Liouville-type equations for the n-particle distribution functions of an open system. Journal of Mathematical Physics, 2020, 61, 083102.	1.1	14
12	Theory and simulation of open systems out of equilibrium. Journal of Chemical Physics, 2020, 153, 101102.	3.0	16
13	Particle–Continuum Coupling and its Scaling Regimes: Theory and Applications. Advanced Theory and Simulations, 2020, 3, 1900232.	2.8	12
14	Global well-posedness for the primitive equations coupled to nonlinear moisture dynamics with phase changes. Nonlinearity, 2020, 33, 3206-3236.	1.4	14
15	Dynamic evolution of a transient supersonic trailing jet induced by a strong incident shock wave. Physical Review Fluids, 2020, 5, .	2.5	15
16	Evaluation of Shock Dividers using Numerical and Experimental Methods. , 2020, , .		2
17	WavePacket: A Matlab package for numerical quantum dynamics. III. Quantum–classical simulations and surface hopping trajectories. Journal of Computational Chemistry, 2019, 40, 2677-2688.	3.3	9
18	Initiation of ray tracing models: evolution of small-amplitude gravity wave packets in non-uniform background. Theoretical and Computational Fluid Dynamics, 2019, 33, 509-535.	2.2	7

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19	A Semi-Implicit Compressible Model for Atmospheric Flows with Seamless Access to Soundproof and Hydrostatic Dynamics. Monthly Weather Review, 2019, 147, 4221-4240.	1.4	9
20	Molecular Dynamics of Open Systems: Construction of a Mean‐Field Particle Reservoir. Advanced Theory and Simulations, 2019, 2, 1900014.	2.8	27
21	FVM 1.0: a nonhydrostatic finite-volume dynamical core for the IFS. Geoscientific Model Development, 2019, 12, 651-676.	3.6	47
22	On identification of self-similar characteristics using the Tensor Train decomposition method with application to channel turbulence flow. Theoretical and Computational Fluid Dynamics, 2019, 33, 141-159.	2.2	6
23	Probing spatial locality in ionic liquids with the grand canonical adaptive resolution molecular dynamics technique. Journal of Chemical Physics, 2018, 148, 193804.	3.0	19
24	A dimensionally split Cartesian cut cell method for hyperbolic conservation laws. Journal of Computational Physics, 2018, 364, 186-208.	3.8	32
25	Scale Dependent Analytical Investigation of the Dynamic State Index Concerning the Quasi-Geostrophic Theory. Mathematics of Climate and Weather Forecasting, 2018, 4, 1-22.	0.8	4
26	A semi-implicit multiscale scheme for shallow water flows at low Froude number. Communications in Applied Mathematics and Computational Science, 2018, 13, 303-336.	1.8	10
27	A dimensionally split Cartesian cut cell method for the compressible Navier–Stokes equations. Journal of Computational Physics, 2018, 375, 1205-1219.	3.8	2
28	Asymptotics for moist deep convectionÂI: refined scalings and self-sustaining updrafts. Theoretical and Computational Fluid Dynamics, 2018, 32, 137-164.	2.2	15
29	Structural Locality and Early Stage of Aggregation of Micelles in Water: An Adaptive Resolution Molecular Dynamics Study. Advanced Theory and Simulations, 2018, 1, 1800025.	2.8	14
30	Shockless Explosion Combustion: Experimental Investigation of a New Approximate Constant Volume Combustion Process. Journal of Engineering for Gas Turbines and Power, 2017, 139, .	1.1	23
31	The Tropical Transition of the October 1996 Medicane in the Western Mediterranean Sea: A Warm Seclusion Event. Monthly Weather Review, 2017, 145, 2575-2595.	1.4	36
32	Online Optimization Applied to a Shockless Explosion Combustor. Processes, 2016, 4, 48.	2.8	4
33	Simulation of macromolecular liquids with the adaptive resolution molecular dynamics technique. Physical Review E, 2016, 94, 023309.	2.1	14
34	Adaptive molecular resolution approach in Hamiltonian form: An asymptotic analysis. Physical Review E, 2016, 94, 043321.	2.1	7
35	Comments on "Open boundary molecular dynamics" by R. Delgado-Buscalioni, J. SabliÄ‡ and M. Praprotnik. European Physical Journal: Special Topics, 2015, 224, 2509-2510.	2.6	3
36	Comments on "Adaptive resolution simulation in equilibrium and beyond" by H. Wang and A. Agarwal. European Physical Journal: Special Topics, 2015, 224, 2497-2499.	2.6	1

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37	Systematic large‑scale secondary circulations in a regional climate model. Geophysical Research Letters, 2015, 42, 4142-4149.	4.0	19
38	Comments on "Advantages and challenges in coupling an ideal gas to atomistic models in adaptive resolution simulations" by K. Kreis, A.C. Fogarty, K. Kremer and R. Potestio. European Physical Journal: Special Topics, 2015, 224, 2503-2504.	2.6	0
39	A Clustering Method to Characterize Intermittent Bursts of Turbulence and Interaction with Submesomotions in the Stable Boundary Layer. Journals of the Atmospheric Sciences, 2015, 72, 1504-1517.	1.7	43
40	Multiscale Numerical Methods in Atmospheric Science. , 2015, , 1002-1006.		0
41	Shockless Explosion Combustion: An Innovative Way of Efficient Constant Volume Combustion in Gas Turbines. Combustion Science and Technology, 2014, 186, 1680-1689.	2.3	56
42	A Blended Soundproof-to-Compressible Numerical Model for Small- to Mesoscale Atmospheric Dynamics. Monthly Weather Review, 2014, 142, 4416-4438.	1.4	25
43	Preface: multiple scales in fluid dynamics and meteorology. Theoretical and Computational Fluid Dynamics, 2013, 27, 219-220.	2.2	1
44	Motion and structure of atmospheric mesoscale baroclinic vortices: dry air and weak environmental shear. Journal of Fluid Mechanics, 2012, 701, 137-170.	3.4	9
45	A scale-selective multilevel method for long-wave linear acoustics. Acta Geophysica, 2011, 59, 1076-1108.	2.0	16
46	Multiscale Asymptotics Analysis for the Mesoscale Dynamics of Cloud-Topped Boundary Layers. Journals of the Atmospheric Sciences, 2011, 68, 379-402.	1.7	5
47	Preservation of the Discrete Geostrophic Equilibrium in Shallow Water Flows. Springer Proceedings in Mathematics, 2011, , 59-67.	0.5	4
48	Scale-selective Time Integration for Long-Wave Linear Acoustics. Springer Proceedings in Mathematics, 2011, , 771-779.	0.5	0
49	Regime of Validity of Soundproof Atmospheric Flow Models. Journals of the Atmospheric Sciences, 2010, 67, 3226-3237.	1.7	53
50	Modulation of Internal Gravity Waves in a Multiscale Model for Deep Convection on Mesoscales. Journals of the Atmospheric Sciences, 2010, 67, 2504-2519.	1.7	9
51	Scale-Dependent Models for Atmospheric Flows. Annual Review of Fluid Mechanics, 2010, 42, 249-274.	25.0	123
52	Stability of a Cartesian grid projection method for zero Froude number shallow water flows. Numerische Mathematik, 2009, 113, 123-161.	1.9	13
53	Asymptotics, structure, and integration of sound-proof atmospheric flow equations. Theoretical and Computational Fluid Dynamics, 2009, 23, 161-195.	2.2	46
54	Planetary geostrophic equations for the atmosphere with evolution of the barotropic flow. Dynamics of Atmospheres and Oceans, 2009, 46, 46-61.	1.8	15

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55	Well-balanced compressible cut-cell simulation of atmospheric flow. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 4559-4575.	3.4	39
56	Metastable Decomposition of High-Dimensional Meteorological Data with Gaps. Journals of the Atmospheric Sciences, 2008, 65, 3479-3496.	1.7	20
57	A Cartesian grid finite volume method for elliptic equations with variable coefficients and embedded interfaces. Journal of Computational Physics, 2006, 219, 749-769.	3.8	71
58	Systematic multiscale models for deep convection on mesoscales. Theoretical and Computational Fluid Dynamics, 2006, 20, 525-551.	2.2	63
59	The extension of incompressible flow solvers to the weakly compressible regime. Computers and Fluids, 2003, 32, 173-196.	2.5	115
60	Extension of Finite Volume Compressible Flow Solvers to Multi-dimensional, Variable Density Zero Mach Number Flows. Journal of Computational Physics, 1999, 155, 248-286.	3.8	76
61	Semi-implicit extension of a godunov-type scheme based on low mach number asymptotics I: One-dimensional flow. Journal of Computational Physics, 1995, 121, 213-237.	3.8	256
62	On the relation between Pressure and Coupling Potential in Adaptive Resolution Simulations of Open Systems in contact with a Reservoir. Advanced Theory and Simulations, 0, , 2100212.	2.8	2