

Ruslan Davidchack

List of Publications by Year in descending order

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64
papers

2,512
citations

218677

26
h-index

197818

49
g-index

66
all docs

66
docs citations

66
times ranked

1865
citing authors

#	ARTICLE	IF	CITATIONS
1	Direct Calculation of the Hard-Sphere Crystal/Melt Interfacial Free Energy. <i>Physical Review Letters</i> , 2000, 85, 4751-4754.	7.8	245
2	Langevin thermostat for rigid body dynamics. <i>Journal of Chemical Physics</i> , 2009, 130, 234101.	3.0	242
3	Simulation of the hard-sphere crystal-melt interface. <i>Journal of Chemical Physics</i> , 1998, 108, 9452-9462.	3.0	201
4	Direct calculation of the crystal-melt interfacial free energies for continuous potentials: Application to the Lennard-Jones system. <i>Journal of Chemical Physics</i> , 2003, 118, 7651.	3.0	173
5	The anisotropic hard-sphere crystal-melt interfacial free energy from fluctuations. <i>Journal of Chemical Physics</i> , 2006, 125, 094710.	3.0	119
6	Atomistics of pre-nucleation layering of liquid metals at the interface with poor nucleants. <i>Communications Chemistry</i> , 2019, 2, .	4.5	115
7	A molecular dynamics study of sintering between nanoparticles. <i>Computational Materials Science</i> , 2009, 45, 247-256.	3.0	107
8	Crystal Structure and Interaction Dependence of the Crystal-Melt Interfacial Free Energy. <i>Physical Review Letters</i> , 2005, 94, 086102.	7.8	104
9	Direct Calculation of the Crystal-Melt Interfacial Free Energy via Molecular Dynamics Computer Simulation. <i>Journal of Physical Chemistry B</i> , 2005, 109, 17802-17812.	2.6	75
10	Direct Calculation of Solid-Liquid Interfacial Free Energy for Molecular Systems: TIP4P Ice-Water Interface. <i>Physical Review Letters</i> , 2008, 100, 036104.	7.8	73
11	Efficient algorithm for detecting unstable periodic orbits in chaotic systems. <i>Physical Review E</i> , 1999, 60, 6172-6175.	2.1	72
12	On the State Space Geometry of the Kuramoto-Sivashinsky Flow in a Periodic Domain. <i>SIAM Journal on Applied Dynamical Systems</i> , 2010, 9, 1-33.	1.6	72
13	Estimating generating partitions of chaotic systems by unstable periodic orbits. <i>Physical Review E</i> , 2000, 61, 1353-1356.	2.1	65
14	Determination of the solid-liquid interfacial free energy along a coexistence line by Gibbs-Cahn integration. <i>Journal of Chemical Physics</i> , 2009, 131, 114110.	3.0	62
15	Challenges in molecular simulation of homogeneous ice nucleation. <i>Journal of Physics Condensed Matter</i> , 2008, 20, 494243.	1.8	59
16	Hard spheres revisited: Accurate calculation of the solid-liquid interfacial free energy. <i>Journal of Chemical Physics</i> , 2010, 133, 234701.	3.0	49
17	Ice I _h -Water Interfacial Free Energy of Simple Water Models with Full Electrostatic Interactions. <i>Journal of Chemical Theory and Computation</i> , 2012, 8, 2383-2390.	5.3	45
18	Towards complete detection of unstable periodic orbits in chaotic systems. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2001, 287, 99-104.	2.1	42

#	ARTICLE	IF	CITATIONS
19	New Langevin and gradient thermostats for rigid body dynamics. Journal of Chemical Physics, 2015, 142, 144114.	3.0	37
20	Noise scaling of phase synchronization of chaos. Physical Review E, 2000, 61, 3230-3233.	2.1	31
21	Calculation of the interfacial free energy of a fluid at a static wall by Gibbs-Cahn integration. Journal of Chemical Physics, 2010, 132, 204101.	3.0	31
22	Wall-Induced Prefreezing in Hard Spheres: A Thermodynamic Perspective. Journal of Physical Chemistry C, 2007, 111, 15952-15956.	3.1	30
23	Reduction of SO(2) Symmetry for Spatially Extended Dynamical Systems. Physical Review Letters, 2015, 114, 084102.	7.8	29
24	Weighted-density approximation for general nonuniform fluid mixtures. Physical Review E, 1999, 60, 3417-3420.	2.1	28
25	Interfacial free energy of a hard-sphere fluid in contact with curved hard surfaces. Physical Review E, 2012, 86, 060602.	2.1	28
26	A molecular dynamics study of Young's modulus change of semi-crystalline polymers during degradation by chain scissions. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 5, 224-230.	3.1	27
27	Simulation of the binary hard-sphere crystal/melt interface. Physical Review E, 1996, 54, R5905-R5908.	2.1	26
28	Discretization errors in molecular dynamics simulations with deterministic and stochastic thermostats. Journal of Computational Physics, 2010, 229, 9323-9346.	3.8	25
29	Characterization of transition to chaos with multiple positive Lyapunov exponents by unstable periodic orbits. Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 270, 308-313.	2.1	23
30	Molecular dynamics simulation of binary hard sphere crystal/melt interfaces. Molecular Physics, 1999, 97, 833-839.	1.7	19
31	Least squares acceleration filtering for the estimation of signal derivatives and sharpness at extrema [and application to biological signals]. IEEE Transactions on Biomedical Engineering, 1999, 46, 971-977.	4.2	18
32	Chaotic transitions and low-frequency fluctuations in semiconductor lasers with optical feedback. Physica D: Nonlinear Phenomena, 2000, 145, 130-143.	2.8	17
33	Regular dynamics of low-frequency fluctuations in external cavity semiconductor lasers. Physical Review E, 2001, 63, 056206.	2.1	15
34	Out-of-band and adjacent-channel interference reduction by analog nonlinear filters. Eurasip Journal on Advances in Signal Processing, 2015, 2015, .	1.7	14
35	Multiscale, Multiphysics Numerical Modeling of Fusion Welding with Experimental Characterization and Validation. Jom, 2013, 65, 99-106.	1.9	13
36	Dynamical origin of low frequency fluctuations in external cavity semiconductor lasers. Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 267, 350-356.	2.1	12

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37	Signal analysis through analog representation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2003, 459, 1171-1192.	2.1	12
38	Adaptive approximation of feedback rank filters for continuous signals. Signal Processing, 2004, 84, 805-811.	3.7	12
39	Unveiling the influence of interfacial bonding and dynamics on solid/liquid interfacial structures: An <i>ab initio</i> molecular dynamics study of (0001) sapphire-liquid Al interfaces. Physical Review Materials, 2020, 4, .	2.4	12
40	The effect of pulse pile-up on threshold crossing rates in a system with a known impulse response. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1998, 411, 159-171.	1.6	11
41	Efficient Detection of Periodic Orbits in Chaotic Systems by Stabilizing Transformations. SIAM Journal of Scientific Computing, 2006, 28, 1275-1288.	2.8	10
42	Hidden Outlier Noise and its Mitigation. IEEE Access, 2019, 7, 87873-87886.	4.2	10
43	Shuttleworth equation: A molecular simulations perspective. Journal of Chemical Physics, 2020, 153, 154705.	3.0	10
44	Characterization of melting properties of several Fe-C model potentials. Computational Materials Science, 2018, 144, 273-279.	3.0	8
45	Surface free energy of a hard-sphere fluid at curved walls: Deviations from morphometric thermodynamics. Journal of Chemical Physics, 2018, 149, 174706.	3.0	8
46	Analog-Domain Mitigation of Outlier Noise in the Process of Analog-to-Digital Conversion. , 2018, , .		7
47	Pulsed Waveforms and Intermittently Nonlinear Filtering in Synthesis of Low-SNR and Covert Communications. IEEE Access, 2020, 8, 173250-173266.	4.2	7
48	Geometric integrator for Langevin systems with quaternion-based rotational degrees of freedom and hydrodynamic interactions. Journal of Chemical Physics, 2017, 147, 224103.	3.0	6
49	Properties of the hard-sphere fluid at a planar wall using virial series and molecular-dynamics simulation. Journal of Chemical Physics, 2018, 149, 014704.	3.0	6
50	Complementary Intermittently Nonlinear Filtering for Mitigation of Hidden Outlier Interference. , 2019, , .		6
51	An integrated framework for multi-scale multi-physics numerical modelling of interface evolution in welding. IOP Conference Series: Materials Science and Engineering, 2012, 33, 012029.	0.6	5
52	Adaptive Analog Nonlinear Algorithms and Circuits for Improving Signal Quality in the Presence of Technogenic Interference. , 2013, , .		5
53	A Multi-Scale Approach to Simulate Solidification Structure Evolution and Solute Segregation in a Weld Pool. Journal of Algorithms and Computational Technology, 2013, 7, 489-507.	0.7	5
54	Parameterising the surface free energy and excess adsorption of a hard-sphere fluid at a planar hard wall. Molecular Physics, 2015, 113, 1091-1096.	1.7	5

#	ARTICLE	IF	CITATIONS
55	Blind adaptive analog nonlinear filters for noise mitigation in powerline communication systems. , 2015, , .		5
56	On the use of stabilizing transformations for detecting unstable periodic orbits in high-dimensional flows. Chaos, 2009, 19, 033138.	2.5	4
57	Nonlinear rank-based analog loop filters in delta-sigma analog-to-digital converters for mitigation of technogenic interference. , 2017, , .		4
58	M-ary Aggregate Spread Pulse Modulation in LPWANs for IoT applications. , 2021, , .		3
59	Many-fold coincidence pileup in silicon detectors: Solar X-ray response of charged particle detector systems for space. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1997, 386, 431-438.	1.6	2
60	Analog multivariate counting analyzers. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2003, 496, 465-480.	1.6	2
61	Cleaving Method for Molecular Crystals and Its Application to Calculation of the Surface Free Energy of Crystalline β -Mannitol at Room Temperature. Journal of Physical Chemistry A, 2022, 126, 2134-2141.	2.5	2
62	Gauge invariance in a superconducting mixed charge system. Physics Letters, Section A: General, Atomic and Solid State Physics, 1995, 208, 171-175.	2.1	1
63	Bandwidth Is Not Enough: "Hidden" Outlier Noise and Its Mitigation. , 2019, , .		0
64	EXPERIMENTAL MANIFESTATIONS OF PHASE AND LAG SYNCHRONIZATIONS IN COUPLED CHAOTIC SYSTEMS. , 2001, , .		0