Ruslan Davidchack

List of Publications by Year
in descending order

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	Cleaving Method for Molecular Crystals and Its Application to Calculation of the Surface Free Energy of Crystalline β-<scp>d</scp>-Mannitol at Room Temperature. Journal of Physical Chemistry A, 2022, 126, 2134-2141.	2.5	2
2	M-ary Aggregate Spread Pulse Modulation in LPWANs for IoT applications. , 2021, , .		3
3	Shuttleworth equation: A molecular simulations perspective. Journal of Chemical Physics, 2020, 153, 154705.	3.0	10
4	Pulsed Waveforms and Intermittently Nonlinear Filtering in Synthesis of Low-SNR and Covert Communications. IEEE Access, 2020, 8, 173250-173266.	4.2	7
5	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
6	Hidden Outlier Noise and its Mitigation. IEEE Access, 2019, 7, 87873-87886.	4.2	10
7	Complementary Intermittently Nonlinear Filtering for Mitigation of Hidden Outlier Interference. , 2019, , .		6
8	Bandwidth Is Not Enough: "Hidden" Outlier Noise and Its Mitigation. , 2019, , .		0
9	Atomistics of pre-nucleation layering of liquid metals at the interface with poor nucleants. Communications Chemistry, 2019, 2, .	4.5	115
10	Characterization of melting properties of several Fe-C model potentials. Computational Materials Science, 2018, 144, 273-279.	3.0	8
11	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
12	Analog-Domain Mitigation of Outlier Noise in the Process of Analog-to-Digital Conversion. , 2018, , .		7
13	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
14	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
15	Nonlinear rank-based analog loop filters in delta-sigma analog-to-digital converters for mitigation of technogenic interference. , 2017, , .		4
16	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
17	Reduction of SO(2) Symmetry for Spatially Extended Dynamical Systems. Physical Review Letters, 2015, 114, 084102.	7.8	29
18	Out-of-band and adjacent-channel interference reduction by analog nonlinear filters. Eurasip Journal on Advances in Signal Processing, 2015, 2015, .	1.7	14

#	ARTICLE	IF	CITATIONS
19	New Langevin and gradient thermostats for rigid body dynamics. Journal of Chemical Physics, 2015, 142, 144114.	3.0	37
20	Blind adaptive analog nonlinear filters for noise mitigation in powerline communication systems. , 2015, , .		5
21	Multiscale, Multiphysics Numerical Modeling of Fusion Welding with Experimental Characterization and Validation. Jom, 2013, 65, 99-106.	1.9	13
22	Adaptive Analog Nonlinear Algorithms and Circuits for Improving Signal Quality in the Presence of Technogenic Interference. , 2013, , .		5
23	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
24	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
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	Ice I_h–Water Interfacial Free Energy of Simple Water Models with Full Electrostatic Interactions. Journal of Chemical Theory and Computation, 2012, 8, 2383-2390.	5.3	45
27	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
28	Discretization errors in molecular dynamics simulations with deterministic and stochastic thermostats. Journal of Computational Physics, 2010, 229, 9323-9346.	3.8	25
29	On the State Space Geometry of the Kuramoto–Sivashinsky Flow in a Periodic Domain. SIAM Journal on Applied Dynamical Systems, 2010, 9, 1-33.	1.6	72
30	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
31	Hard spheres revisited: Accurate calculation of the solid–liquid interfacial free energy. Journal of Chemical Physics, 2010, 133, 234701.	3.0	49
32	On the use of stabilizing transformations for detecting unstable periodic orbits in high-dimensional flows. Chaos, 2009, 19, 033138.	2.5	4
33	A molecular dynamics study of sintering between nanoparticles. Computational Materials Science, 2009, 45, 247-256.	3.0	107
34	Determination of the solid-liquid interfacial free energy along a coexistence line by Gibbs–Cahn integration. Journal of Chemical Physics, 2009, 131, 114110.	3.0	62
35	Langevin thermostat for rigid body dynamics. Journal of Chemical Physics, 2009, 130, 234101.	3.0	242
36	Direct Calculation of Solid-Liquid Interfacial Free Energy for Molecular Systems: TIP4P Ice-Water Interface. Physical Review Letters, 2008, 100, 036104.	7.8	73

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37	Challenges in molecular simulation of homogeneous ice nucleation. Journal of Physics Condensed Matter, 2008, 20, 494243.	1.8	59
38	Wall-Induced Prefreezing in Hard Spheres:‰ A Thermodynamic Perspective. Journal of Physical Chemistry C, 2007, 111, 15952-15956.	3.1	30
39	Efficient Detection of Periodic Orbits in Chaotic Systems by Stabilizing Transformations. SIAM Journal of Scientific Computing, 2006, 28, 1275-1288.	2.8	10
40	The anisotropic hard-sphere crystal-melt interfacial free energy from fluctuations. Journal of Chemical Physics, 2006, 125, 094710.	3.0	119
41	Crystal Structure and Interaction Dependence of the Crystal-Melt Interfacial Free Energy. Physical Review Letters, 2005, 94, 086102.	7.8	104
42	Direct Calculation of the Crystalˆ’Melt Interfacial Free Energy via Molecular Dynamics Computer Simulation. Journal of Physical Chemistry B, 2005, 109, 17802-17812.	2.6	75
43	Adaptive approximation of feedback rank filters for continuous signals. Signal Processing, 2004, 84, 805-811.	3.7	12
44	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
45	Signal analysis through analog representation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2003, 459, 1171-1192.	2.1	12
46	Direct calculation of the crystal€"melt interfacial free energies for continuous potentials: Application to the Lennard-Jones system. Journal of Chemical Physics, 2003, 118, 7651.	3.0	173
47	Regular dynamics of low-frequency fluctuations in external cavity semiconductor lasers. Physical Review E, 2001, 63, 056206.	2.1	15
48	Towards complete detection of unstable periodic orbits in chaotic systems. Physics Letters, Section A: General, Atomic and Solid State Physics, 2001, 287, 99-104.	2.1	42
49	EXPERIMENTAL MANIFESTATIONS OF PHASE AND LAG SYNCHRONIZATIONS IN COUPLED CHAOTIC SYSTEMS. , 2001, , .		0
50	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
51	Chaotic transitions and low-frequency fluctuations in semiconductor lasers with optical feedback. Physica D: Nonlinear Phenomena, 2000, 145, 130-143.	2.8	17
52	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
53	Noise scaling of phase synchronization of chaos. Physical Review E, 2000, 61, 3230-3233.	2.1	31
54	Estimating generating partitions of chaotic systems by unstable periodic orbits. Physical Review E, 2000, 61, 1353-1356.	2.1	65

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55	Direct Calculation of the Hard-Sphere Crystal/Melt Interfacial Free Energy. Physical Review Letters, 2000, 85, 4751-4754.	7.8	245
56	Weighted-density approximation for general nonuniform fluid mixtures. Physical Review E, 1999, 60, 3417-3420.	2.1	28
57	Efficient algorithm for detecting unstable periodic orbits in chaotic systems. Physical Review E, 1999, 60, 6172-6175.	2.1	72
58	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
59	Molecular dynamics simulation of binary hard sphere crystal/melt interfaces. Molecular Physics, 1999, 97, 833-839.	1.7	19
60	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
61	Simulation of the hard-sphere crystalâ€"melt interface. Journal of Chemical Physics, 1998, 108, 9452-9462.	3.0	201
62	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
63	Simulation of the binary hard-sphere crystal/melt interface. Physical Review E, 1996, 54, R5905-R5908.	2.1	26
64	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