

Viraht Sahni

List of Publications by Year in descending order

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81
papers

2,261
citations

304743

22
h-index

233421

45
g-index

92
all docs

92
docs citations

92
times ranked

783
citing authors

#	ARTICLE	IF	CITATIONS
1	Exact differential equation for the density and ionization energy of a many-particle system. <i>Physical Review A</i> , 1984, 30, 2745-2748.	2.5	803
2	Physics of transformation from Schrödinger theory to Kohn-Sham density-functional theory: Application to an exactly solvable model. <i>Physical Review A</i> , 1998, 57, 2527-2538.	2.5	98
3	Physical interpretation of density-functional theory and of its representation of the Hartree-Fock and Hartree theories. <i>Physical Review A</i> , 1997, 55, 1846-1856.	2.5	66
4	Quantum-Mechanical interpretation of the local many-body potential of density-functional theory. <i>International Journal of Quantum Chemistry</i> , 1990, 38, 569-584.	2.0	65
5	Structure of the Fermi hole at surfaces. <i>Physical Review B</i> , 1988, 37, 745-754.	3.2	50
6	Quantal Density Functional Theory of Excited States. <i>Physical Review Letters</i> , 2001, 87, 113002.	7.8	47
7	Quantum-mechanical origin of the asymptotic effective potential at metal surfaces. <i>Physical Review B</i> , 1989, 39, 10437-10440.	3.2	44
8	Critical analysis of the Colle-Salvetti wave-function functional of the density. <i>Physical Review A</i> , 1999, 60, 4135-4139.	2.5	43
9	Quantum-mechanical interpretation of density functional theory. <i>Topics in Current Chemistry</i> , 1996, , 1-39.	4.0	40
10	Hartree-Fock theory of the inhomogeneous electron gas at metallic surfaces. <i>Surface Science</i> , 1989, 213, 226-253.	1.9	36
11	Quantal density-functional theory in the presence of a magnetic field. <i>Physical Review A</i> , 2011, 83, .	2.5	35
12	Integral coalescence conditions in $D^{\frac{3}{2}}$, dimension space. <i>Journal of Chemical Physics</i> , 2003, 119, 7083-7086.	3.0	33
13	Coulomb holes and correlation potentials in the helium atom. <i>Physical Review A</i> , 1995, 51, 2815-2825.	2.5	32
14	Analytical properties of the Kohn-Sham theory exchange and correlation energy and potential via quantal density functional theory. <i>International Journal of Quantum Chemistry</i> , 2000, 80, 555-566.	2.0	31
15	Quantum-mechanical interpretation of time-dependent density-functional theory. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1998, 247, 303-308.	2.1	29
16	Quantal density functional theory of excited states: Application to an exactly solvable model. <i>International Journal of Quantum Chemistry</i> , 2001, 85, 436-448.	2.0	28
17	Time-dependent differential virial theorems. <i>International Journal of Quantum Chemistry</i> , 2000, 78, 341-347.	2.0	26
18	Quantal Density Functional Theory of Degenerate States. <i>Physical Review Letters</i> , 2003, 90, 123001.	7.8	26

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19	Density and physical current density functional theory. International Journal of Quantum Chemistry, 2010, 110, 2833-2843.	2.0	26
20	Analytical asymptotic structure of the Pauli, Coulomb, and correlation-kinetic components of the Kohn-Sham theory exchange-correlation potential in atoms. International Journal of Quantum Chemistry, 1998, 70, 671-680.	2.0	25
21	Analytical asymptotic structure of the Kohn-Sham exchange potential at a metal surface. Physical Review B, 1997, 56, 3655-3658.	3.2	24
22	Sum rules and properties in time-dependent density-functional theory. Physical Review A, 2001, 63, .	2.5	23
23	Analytical asymptotic structure of the exchange and correlation potentials at a metal surface. Physics Letters, Section A: General, Atomic and Solid State Physics, 1996, 212, 263-269.	2.1	22
24	Analytical Asymptotic Structure of the Slater Exchange and Kohn-Sham Exchange and Correlation Potentials at a Metal Surface. Annals of Physics, 1997, 259, 97-119.	2.8	21
25	Origin of the derivative discontinuity in density functional theory. Physical Review B, 2000, 62, 16364-16369.	3.2	21
26	Criticality of the electron-nucleus cusp condition to local effective potential-energy theories. Physical Review A, 2003, 67, .	2.5	21
27	Determination of a Wave Function Functional. Physical Review Letters, 2004, 93, 130401.	7.8	19
28	Quantal Density Functional Theory II. , 2009, , .		19
29	Hohenberg-Kohn theorems in electrostatic and uniform magnetostatic fields. Journal of Chemical Physics, 2015, 143, 174105.	3.0	18
30	Proof of finiteness of Kohn-Sham theory electron interaction potential at the nucleus of atoms. International Journal of Quantum Chemistry, 2000, 79, 205-208.	2.0	17
31	New perspectives on the fundamental theorem of density functional theory. International Journal of Quantum Chemistry, 2008, 108, 2756-2762.	2.0	16
32	Quantal density-functional theory of excited states: The state arbitrariness of the model noninteracting system. Physical Review A, 2003, 68, .	2.5	15
33	Quantal Density Functional Theory. , 2016, , .		15
34	Asymptotic structure of the Kohn-Sham effective potential at metal surfaces. International Journal of Quantum Chemistry, 1993, 48, 101-109.	2.0	14
35	Quantum mechanics of asymptotic effective potential and image charge at metal surfaces. Progress in Surface Science, 1997, 54, 115-163.	8.3	14
36	Quantum mechanical image potential theory. Physical Review B, 2002, 66, .	3.2	14

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37	Exact electronic properties in the classically forbidden region of a metal surface. International Journal of Quantum Chemistry, 2005, 104, 929-945.	2.0	14
38	Hohenberg-Kohn and Percus-Levy-Lieb proofs of density-functional theory. Physical Review A, 2012, 85, .	2.5	14
39	Electron correlations in an excited state of a quantum dot in a uniform magnetic field. Computational and Theoretical Chemistry, 2017, 1114, 125-139.	2.5	14
40	Structure of the correlation-kinetic component of the Kohn-Sham exchange potential in atoms and at metal surfaces. International Journal of Quantum Chemistry, 1997, 65, 893-906.	2.0	13
41	Wigner high-electron-correlation regime of nonuniform density systems: A quantal-density-functional-theory study. Physical Review A, 2014, 90, .	2.5	13
42	Corollary to the Hohenberg-Kohn theorem. International Journal of Quantum Chemistry, 2003, 95, 387-393.	2.0	12
43	Demonstration of the Gunnarsson-Lundqvist theorem and the multiplicity of potentials for excited states. Physical Review A, 2012, 85, .	2.5	12
44	Generalization of the Hohenberg-Kohn theorem to the presence of a magnetostatic field. Journal of Physics and Chemistry of Solids, 2012, 73, 630-634.	4.0	12
45	Wigner high electron correlation regime in nonuniform electron density systems: Kinetic and correlation-kinetic aspects. Computational and Theoretical Chemistry, 2014, 1035, 14-18.	2.5	12
46	The work formalism of electronic structure. International Journal of Quantum Chemistry, 1995, 56, 265-283.	2.0	11
47	Electron Correlations in Local Effective Potential Theory. Computation, 2016, 4, 30.	2.0	11
48	<scp>Schrödinger's Pauli</scp> theory of electrons: New perspectives. International Journal of Quantum Chemistry, 2021, 121, e26556.	2.0	11
49	Generalized gradient-expansion approximation for the exchange energy. Physical Review B, 1991, 44, 10921-10924.	3.2	10
50	The gradient expansion approximation for exchange: A physical perspective. International Journal of Quantum Chemistry, 1992, 44, 333-345.	2.0	10
51	Wave function for harmonically confined electrons in time-dependent electric and magnetostatic fields. Journal of Chemical Physics, 2014, 140, 024318.	3.0	10
52	Triplet 23S state of a quantum dot in a magnetic field: A Quantal Newtonian™ first law study. Chemical Physics, 2021, 546, 111073.	1.9	10
53	Recent Developments in the Electronic Structure of Metal Surfaces. Advances in Quantum Chemistry, 1998, 33, 241-271.	0.8	9
54	Quantal density functional theory of the hydrogen molecule. Journal of Chemical Physics, 2004, 120, 5642-5649.	3.0	9

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55	Schrödinger Theory of Electrons in Electromagnetic Fields: New Perspectives. <i>Computation</i> , 2017, 5, 15.	2.0	9
56	Analysis of the density-gradient-expansion approximation for the exchange-correlation energy of density-functional theory. <i>International Journal of Quantum Chemistry</i> , 1991, 40, 235-248.	2.0	8
57	State arbitrariness of the noninteracting fermion model in quantal density functional theory. <i>International Journal of Quantum Chemistry</i> , 2004, 100, 858-866.	2.0	8
58	Local effective potential theory: Nonuniqueness of potential and wave function. <i>Journal of Chemical Physics</i> , 2007, 126, 204106.	3.0	8
59	Structure of the Pauli and Correlation-Kinetic Components of the Kohn-Sham Exchange Potential at a Metal Surface. <i>Annals of Physics</i> , 1998, 268, 149-171.	2.8	7
60	Electron correlations in Kohn-Sham exchange-only theory. <i>International Journal of Quantum Chemistry</i> , 1999, 71, 473-480.	2.0	7
61	Determination of wave-function functionals: The constrained-search variational method. <i>Physical Review A</i> , 2005, 72, .	2.5	7
62	Asymptotic near-nucleus structure of the electron-interaction potential in local effective potential theories. <i>Physical Review A</i> , 2007, 75, .	2.5	7
63	Hohenberg-Kohn theorem including electron spin. <i>Physical Review A</i> , 2012, 86, .	2.5	7
64	Generalization of the Schrödinger Theory of Electrons. <i>Journal of Computational Chemistry</i> , 2018, 39, 1083-1089.	3.3	7
65	Derivation and reinterpretation of approximations in Schrödinger and Kohn-Sham theory via a hierarchy within the work formalism. <i>International Journal of Quantum Chemistry</i> , 1995, 53, 591-606.	2.0	6
66	Reply to the comment by Vignale et al. <i>International Journal of Quantum Chemistry</i> , 2013, 113, 1424-1425.	2.0	6
67	Comment on "Density and physical current density functional theory" <i>International Journal of Quantum Chemistry</i> , 2014, 114, 233-236.	2.0	6
68	Particle number and probability density functional theory and A-representability. <i>Journal of Chemical Physics</i> , 2010, 132, 164116.	3.0	5
69	Kinetic effects in 2D and 3D quantum dots: Comparison between high and low electron correlation regimes. <i>Computational and Theoretical Chemistry</i> , 2018, 1138, 140-157.	2.5	5
70	Wave function identity: A new symmetry for 2-electron systems in an electromagnetic field. <i>Chemical Physics</i> , 2022, 556, 111453.	1.9	4
71	Quantal density functional theory: Wave function arbitrariness of the noninteracting fermion model. <i>International Journal of Quantum Chemistry</i> , 2006, 106, 3087-3096.	2.0	3
72	Normalization and Fermi-Coulomb and Coulomb hole sum rules for approximate wave functions. <i>International Journal of Quantum Chemistry</i> , 2007, 107, 816-823.	2.0	3

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73	On Ehrenfest's theorem. International Journal of Quantum Chemistry, 2004, 97, 953-960.	2.0	2
74	Study of the kinetic energy densities of electrons as applied to quantum dots in a magnetic field. International Journal of Quantum Chemistry, 2019, 119, e25818.	2.0	2
75	Reinterpretation of Electron Correlations within Density Functional Theory: Hartree, Local Density and Gradient Expansion Approximations via the Work Formalism of Electronic Structure. Recent Advances in Computational, 1995, , 79-128.	0.8	1
76	Dissipation Effects in Schrödinger and Quantal Density Functional Theories of Electrons in an Electromagnetic Field. Computation, 2018, 6, 25.	2.0	1
77	Schrödinger Theory from the "Newtonian" Perspective of "Classical" Fields Derived from Quantal Sources. , 2016, , 15-65.		1
78	The "Quantal Newtonian" First Law: A Complementary Perspective to the Stationary State Quantum Theory of Electrons. ChemPhysChem, 2022, , .	2.1	1
79	Hohenberg-Kohn, Kohn-Sham, and Runge-Gross Density Functional Theories. , 2016, , 135-183.		0
80	Generalized Hohenberg-Kohn Theorems in Electrostatic and Magnetostatic Fields. , 2016, , 253-282.		0
81	Quantal Density Functional Theory. , 2016, , 67-133.		0