Pawel Hawrylak

List of Publications by Year
in descending order

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157	6,016	76196	79541
papers	citations	40	73
		h-index	g-index

158	158	158	3956
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Electronic structure of a single MoS2 monolayer. Solid State Communications, 2012, 152, 909-913.	0.9	534
2	Continuous-wave lasing in colloidal quantum dot solids enabled by facet-selective epitaxy. Nature, 2017, 544, 75-79.	13.7	319
3	Electronic structure and magneto-optics of self-assembled quantum dots. Physical Review B, 1996, 54, 5604-5608.	1.1	315
4	Single-electron capacitance spectroscopy of few-electron artificial atoms in a magnetic field: Theory and experiment. Physical Review Letters, 1993, 71, 3347-3350.	2.9	223
5	Excitonic artificial atoms: Engineering optical properties of quantum dots. Physical Review B, 1999, 60, 5597-5608.	1.1	187
6	Optical properties of a two-dimensional electron gas: Evolution of spectra from excitons to Fermi-edge singularities. Physical Review B, 1991, 44, 3821-3828.	1.1	176
7	Negatively charged magnetoexcitons in quantum dots. Physical Review B, 1995, 51, 10880-10885.	1.1	153
8	Magnetoluminescence from correlated electrons in quantum dots. Physical Review Letters, 1993, 70, 485-488.	2.9	137
9	Charging and infrared spectroscopy of self-assembled quantum dots in a magnetic field. Physical Review B, 1996, 53, 10841-10845.	1.1	130
10	Correlated few-electron states in vertical double-quantum-dot systems. Physical Review B, 1995, 51, 1769-1777.	1.1	121
11	Charged excitons in a dilute two-dimensional electron gas in a high magnetic field. Physical Review B, 2000, 62, 4630-4637.	1.1	118
12	Theory of photoluminescence from modulation-doped self-assembled quantum dots in a magnetic field. Physical Review B, 1997, 55, 13066-13071.	1.1	115
13	Physics of lateral triple quantum-dot molecules with controlled electron numbers. Reports on Progress in Physics, 2012, 75, 114501.	8.1	105
14	Electronic structure of vertically stacked self-assembled quantum disks. Physical Review B, 2001, 63, .	1.1	104
15	Topological Hunds rules and the electronic properties of a triple lateral quantum dot molecule. Physical Review B, 2007, 75, .	1.1	99
16	Multiband theory of multi-exciton complexes in self-assembled quantum dots. Physical Review B, 2005, 71, .	1.1	98
17	Magnetic Exchange Interactions in Quantum Dots Containing Electrons and Magnetic Ions. Physical Review Letters, 2005, 95, 217206.	2.9	94
18	Fine structure and size dependence of exciton and biexciton optical spectra in CdSe nanocrystals. Physical Review B, 2010, 82, .	1.1	84

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19	Many-body effects in a layered electron gas. Physical Review B, 1988, 37, 10187-10194.	1.1	79
20	Critical Plasmons of a Quasiperiodic Semiconductor Superlattice. Physical Review Letters, 1986, 57, 380-383.	2.9	77
21	Theory of Electron Mediated Mn-Mn Interactions in Quantum Dots. Physical Review Letters, 2006, 96, 157201.	2.9	68
22	Inelastic light scattering by collective charge-density excitations in semi-infinite semiconductor superlattices. Physical Review B, 1985, 32, 5169-5176.	1.1	64
23	Coupled quantum dots as quantum exclusive-OR gate. Superlattices and Microstructures, 1997, 22, 431-436.	1.4	63
24	Tailoring Magnetism in Quantum Dots. Physical Review Letters, 2007, 98, 207203.	2.9	62
25	Spin relaxation in lateral quantum dots: Effects of spin-orbit interaction. Physical Review B, 2006, 73, .	1.1	58
26	Theory of exciton fine structure in semiconductor quantum dots: Quantum dot anisotropy and lateral electric field. Physical Review B, 2010, 81, .	1.1	57
27	Electronic and optical properties of semiconductor and graphene quantum dots. Frontiers of Physics, 2012, 7, 328-352.	2.4	57
28	Exciton-exciton interactions in highly excited quantum dots in a magnetic field. Solid State Communications, 1996, 100, 487-491.	0.9	56
29	Coupling of excitons with excitations of the Fermi sea in asymmetric quantum wells. Physical Review B, 1991, 44, 6262-6265.	1.1	55
30	Theory of photoluminescence from an interacting two-dimensional electron gas in strong magnetic fields. Physical Review B, 1997, 56, 12386-12394.	1.1	55
31	Voltage-controlled coded qubit based on electron spin. Solid State Communications, 2005, 136, 508-512.	0.9	55
32	Microscopic theory of the optical properties of colloidal graphene quantum dots. Physical Review B, 2014, 89, .	1.1	55
33	Collapse of the Zeeman gap in quantum dots due to electronic correlations. Physical Review B, 1999, 59, 2801-2806.	1.1	54
34	Atomistic theory of emission from dark excitons in self-assembled quantum dots. Physical Review B, 2013, 87, .	1.1	53
35	Spectral functions of quantum dots in the integer and fractional quantum Hall regime. Physical Review B, 1997, 56, 13227-13234.	1.1	51
36	Atomistic Design of CdSe/CdS Coreâ€“Shell Quantum Dots with Suppressed Auger Recombination. Nano Letters, 2016, 16, 6491-6496.	4.5	51

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37	Effective mass and lifetime of electrons in a layered electron gas. Physical Review Letters, 1987, 59, 485-488.	2.9	50
38	Optical hole in a two-dimensional electron gas. Physical Review B, 1990, 42, 8986-8990.	1.1	44
39	Far infrared absorption by screened Dâ^' states in quantum wells in a strong magnetic field. Solid State Communications, 1993, 88, 475-479.	0.9	41
40	Magnetoexcitons and correlated electrons in quantum dots in a magnetic field. Physical Review B, 1996, 54, 11397-11409.	1.1	40
41	Engineering photon cascades from multiexciton complexes in a self-assembled quantum dot by a lateral electric field. Physical Review B, 2009, 79, .	1.1	38
42	Intersubband collective excitations at the surface of a semiconductor superlattice. Physical Review B, 1985, 31, 7855-7858.	1.1	37
43	Electronic structure and optical properties of self-assembled quantum dots. Semiconductor Science and Technology, 1996, 11, 1516-1520.	1.0	37
44	Interacting valence holes in p-type SiGe quantum disks in a magnetic field. Physical Review B, 1997, 55, 15694-15700.	1.1	35
45	Inelastic electron scattering by collective charge-density excitations at the surface of a semiconductor superlattice. Physical Review B, 1985, 32, 4272-4274.	1.1	34
46	Excitonic ions and pseudopotentials in two-dimensional systems: Evidence for quantum Hall states of anXâ^'gas. Physical Review B, 1999, 60, 11661-11665.	1.1	34
47	Electron-hole liquids and band-gap renormalization in short-period semiconductor superlattices. Physical Review B, 1989, 39, 6264-6267.	1.1	33
48	Atomistic theory of electronic and optical properties ofInAsâ^•InPself-assembled quantum dots on patterned substrates. Physical Review B, 2005, 72, .	1.1	33
49	Magneto-optics of acceptor-doped GaAs/Ga1â^'xAlxAs heterostructures in the quantum Hall regime: Resonant magnetoexcitons and many-electron effects. Physical Review B, 1992, 46, 15193-15199.	1.1	31
50	Effective Bloch equations for strongly driven modulation-doped quantum wells. Physical Review B, 2003, 68, .	1.1	30
51	Theory of excitonic artificial atoms: InGaAs/GaAs quantum dots in strong magnetic fields. Physical Review B, 2003, 68, .	1.1	30
52	Many-electron effects on donor states in a two-dimensional electron gas in a strong magnetic field. Physical Review Letters, 1994, 72, 2943-2946.	2.9	29
53	Amplification of bulk and surface plasmons in semiconductor superlattices. Applied Physics Letters, 1986, 49, 280-282.	1.5	27
54	Many-electron effects in acceptor-related radiative recombination of quasi-two-dimensional electrons. Physical Review B, 1992, 45, 4237-4240.	1.1	27

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55	Linear combination of harmonic orbitals and configuration interaction method for the voltage control of exchange interaction in gated lateral quantum dot networks. Physical Review B, 2007, 76, .	1.1	27
56	Donor Impurities as a Probe of Electron Correlations in a Two-Dimensional Electron Gas in High Magnetic Fields. Physical Review Letters, 1998, 81, 3499-3502.	2.9	26
57	Electron-electron interactions and topology in the electronic properties of gated graphene nanoribbon rings in MÃ¶bius and cylindrical configurations. Physical Review B, 2013, 87, .	1.1	26
58	Atomistic theory of electronic and optical properties of InAsP/InP nanowire quantum dots. Physical Review B, 2020, 101, .	1.1	26
59	Theory of the spin-singlet filling factorÎ½=2quantum Hall droplet. Physical Review B, 2003, 67, .	1.1	25
60	Configuration interaction method for Fockâ€“Darwin states. Solid State Communications, 2004, 130, 115-120.	0.9	25
61	Resonant magnetoexcitons and the Fermi-edge singularity in a magnetic field. Physical Review B, 1991, 44, 11236-11240.	1.1	24
62	Excitonic effects in optical spectra of a quasi-one-dimensional electron gas. Solid State Communications, 1992, 81, 525-527.	0.9	24
63	Fine structure of a biexciton in a single quantum dot with a magnetic impurity. Physical Review B, 2013, 87, .	1.1	24
64	Bright trion emission from semiconductor nanoplatelets. Physical Review Materials, 2020, 4, .	0.9	24
65	Optical properties of polytype semiconductor superlattices: Bulk and surface plasmons, Raman and electron-energy-loss spectra, and finite-size effects. Physical Review B, 1986, 34, 5368-5372.	1.1	23
66	Spin polarization in self-assembled quantum dots. Physical Review B, 2006, 73, .	1.1	23
67	Theory of highly excited semiconductor nanostructures including Auger coupling: Exciton-biexciton mixing in CdSe nanocrystals. Physical Review B, 2011, 84, .	1.1	23
68	Critical plasmons of a Fibonacci semiconductor superlattice: Spectrum and optical properties. Physical Review B, 1987, 36, 6501-6507.	1.1	22
69	Effects of electron-electron interactions on excitonic absorption in charged self-assembled quantum dots. Physical Review B, 2000, 61, 13753-13762.	1.1	22
70	Pairing of Spin Excitations in Lateral Quantum Dots. Physical Review Letters, 2004, 93, 206806.	2.9	22
71	Electron<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>g</mml:mi></mml:math>-factor distribution in self-assembled quantum dots. Physical Review B, 2008, 77, .	1.1	22
72	Theory of electronic properties and quantum spin blockade in a gated linear triple quantum dot with one electron spin each. Physical Review B, 2012, 85, .	1.1	22

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73	Raman scattering by correlated electrons in quantum dots in a magnetic field. Solid State Communications, 1995, 93, 915-920.	0.9	21
74	Theory of biexcitons and biexciton-exciton cascade in graphene quantum dots. Physical Review B, 2015, 91, .	1.1	21
75	Gate-controlled spin-spin interactions in lateral quantum dot molecules. Physical Review B, 2008, 78, .	1.1	20
76	Charged-impurity-induced dephasing of a voltage-controlled coded qubit based on electron spin in a triple quantum dot. Physical Review B, 2009, 79, .	1.1	20
77	Quantum circuits based on coded qubits encoded in chirality of electron spin complexes in triple quantum dots. Physical Review B, 2010, 82, .	1.1	20
78	Electronic states of magnetic quantum dots. New Journal of Physics, 2007, 9, 353-353.	1.2	19
79	Theory of optical properties of graphene quantum dots. Physica Status Solidi - Rapid Research Letters, 2016, 10, 102-110.	1.2	19
80	Uniaxial transition dipole moments in semiconductor quantum rings caused by broken rotational symmetry. Nature Communications, 2019, 10, 3253.	5.8	19
81	Incompressible states of negatively charged magneto-excitons. Physica B: Condensed Matter, 1998, 256-258, 490-493.	1.3	18
82	Herzberg circuit and Berry's phase in chirality-based coded qubit in a triangular triple quantum dot. Physical Review B, 2012, 86, .	1.1	18
83	Depolarization of Electronic Spin Qubits Confined in Semiconductor Quantum Dots. Physical Review X, 2018, 8, .	2.8	18
84	Wave propagation in a nonlinear periodic medium. Physical Review B, 1990, 41, 5783-5791.	1.1	17
85	Real space Hartree-Fock configuration interaction method for complex lateral quantum dot molecules. Journal of Chemical Physics, 2006, 125, 034707.	1.2	17
86	Electronic properties and electronâ€“electron interactions in graphene quantum dots. Physica Status Solidi - Rapid Research Letters, 2016, 10, 13-23.	1.2	17
87	Probing negatively charged and neutral excitons in MoS₂/hBN and hBN/MoS₂/hBN van der Waals heterostructures. Nanotechnology, 2021, 32, 145717.	1.3	17
88	Optically detected oscillations of screening by a two-dimensional electron gas in a magnetic field. Physical Review B, 1997, 55, 7685-7689.	1.1	16
89	Ultrafast Carrier Trapping in Thick-Shell Colloidal Quantum Dots. Journal of Physical Chemistry Letters, 2017, 8, 3179-3184.	2.1	16
90	Valence holes as Luttinger spinor based qubits in quantum dots. Physical Review B, 2009, 80, .	1.1	15

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91	Geometry, chirality, topology and electronâ€“electron interactions in the quadruple quantum dot molecule. Solid State Communications, 2013, 172, 15-19.	0.9	15
92	Biexciton Binding of Dirac fermions Confined in Colloidal Graphene Quantum Dots. Nano Letters, 2015, 15, 5472-5476.	4.5	15
93	Gate-controlled quantum dots in monolayer WSe2. Applied Physics Letters, 2021, 119, .	1.5	15
94	Tunneling in a periodic array of semimagnetic quantum dots. Physical Review B, 1991, 44, 13082-13084.	1.1	14
95	Artificial impurity in interacting electron droplets in a strong magnetic field. Physical Review B, 1995, 51, 17708-17712.	1.1	14
96	Theory of luminescence from highly excited self-assembled quantum dots. Physica E: Low-Dimensional Systems and Nanostructures, 1998, 2, 603-608.	1.3	14
97	Energy spectra and photoluminescence of charged magneto-excitons. Physica E: Low-Dimensional Systems and Nanostructures, 2000, 8, 254-259.	1.3	14
98	Spinâ€“orbit interaction and spin relaxation in a lateral quantum dot. Physica E: Low-Dimensional Systems and Nanostructures, 2004, 22, 414-417.	1.3	14
99	Quantum Hall Ferrimagnetism in Lateral Quantum Dot Molecules. Physical Review Letters, 2006, 97, 186802.	2.9	14
100	Cyclotron resonance in the paramagnetic and ferromagnetic phase of a two-dimensional electron gas with even-integer filling factors. Physical Review B, 1985, 31, 6592-6596.	1.1	13
101	Hydrogenic impurity in a parabolic quantum wire in a magnetic field: Quantum chaos and optical properties. Physical Review B, 1994, 49, 8174-8177.	1.1	13
102	Quantum strain sensor with a topological insulator HgTe quantum dot. Scientific Reports, 2014, 4, 4903.	1.6	13
103	Electronic structure of artificial atoms in intense AC terahertz and strong magnetic fields. Solid State Communications, 1995, 93, 909-914.	0.9	12
104	Greenberger-Horne-Zeilinger states in a quantum dot molecule. Physical Review B, 2011, 83, .	1.1	12
105	Screened Coulombic impurity bound states in semi-infinite multiple-quantum-well systems. Physical Review B, 1986, 33, 8264-8268.	1.1	11
106	Self-induced gaps and optical bistability in semiconductor superlattices. Physical Review B, 1989, 40, 8013-8016.	1.1	11
107	Ab initio calculation of band edges modified by (001) biaxial strain in group IIIAâ€“VA and group IIBâ€“VIA semiconductors: Application to quasiparticle energy levels of strained InAs/InP quantum dot. Journal of Applied Physics, 2010, 107, .	1.1	11
108	Absolute deformation potentials and robust ab initio model for band shifts induced by (001) biaxial strain in group IIIA-VA semiconductors. Applied Physics Letters, 2011, 98, .	1.5	11

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109	Optical Signatures of Spin Polarization of Carriers in Quantum Dots. Physical Review Letters, 2008, 101, 027205.	2.9	10
110	Theory of fine structure of correlated exciton states in self-assembled semiconductor quantum dots in a magnetic field. Physical Review B, 2011, 84, .	1.1	10
111	Prevalence of oxygen defects in an in-plane anisotropic transition metal dichalcogenide. Physical Review B, 2020, 102, .	1.1	10
112	Theory of a two-level artificial molecule in laterally coupled quantum Hall droplets. Physical Review B, 2006, 73, .	1.1	9
113	Artificial Haldane gap material on a semiconductor chip. Solid State Communications, 2010, 150, 2065-2068.	0.9	9
114	Theory of optical properties of II-VI semiconductor quantum dots containing a single magnetic ion in a strong magnetic field. Physical Review B, 2012, 85, .	1.1	9
115	Systematic study of the emission spectra of nanowire quantum dots. Applied Physics Letters, 2021, 118, .	1.5	9
116	Macroscopic Singlet-Triplet Qubit in Synthetic Spin-One Chain in Semiconductor Nanowires. Scientific Reports, 2017, 7, 5529.	1.6	8
117	Magneto-excitons in droplets of a chiral Luttinger liquid formed in quantum dots in a magnetic field. Solid State Communications, 1996, 98, 847-851.	0.9	7
118	The role of finite hole mass in the negatively charged exciton in two dimensions. Physica E: Low-Dimensional Systems and Nanostructures, 2001, 9, 716-722.	1.3	7
119	Electronic and optical properties of InAs/InP self-assembled quantum dots on patterned substrates. Physica E: Low-Dimensional Systems and Nanostructures, 2006, 32, 1-4.	1.3	7
120	Band engineering in nanowires:Ab initiomodel of band edges modified by (111) biaxial strain in group IIIA-VA semiconductors. Physical Review B, 2012, 86, .	1.1	7
121	Spin Textures in Strongly Coupled Electron Spin and Magnetic or Nuclear Spin Systems in Quantum Dots. Physical Review Letters, 2012, 108, 247203.	2.9	7
122	The two-dimensional Dâ^' complex in intense AC and strong magnetic fields. Physica E: Low-Dimensional Systems and Nanostructures, 1998, 3, 198-204.	1.3	6
123	Hidden symmetry and correlated states of electrons and holes in quantum dots. Solid State Communications, 2003, 127, 793-798.	0.9	6
124	Plasmon and electron-hole-pair damping of excited vibrational and electronic states in quasi-two-dimensional electron systems. Physical Review B, 1987, 35, 3818-3822.	1.1	5
125	Multi-charged acceptor centers in p-doped Si/Si1â^'xGex/Si quantum wells in the presence of a magnetic field. Physica E: Low-Dimensional Systems and Nanostructures, 1998, 2, 785-788.	1.3	5
126	Electron-electron interactions, topological phase, and optical properties of a charged artificial benzene ring. Physical Review B, 2015, 92, .	1.1	5

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127	Optical Properties of Quantum Dots. , 2000, , 319-336.		5
128	Excitonic artificial atoms in a quantum dot. Physica E: Low-Dimensional Systems and Nanostructures, 2001, 9, 94-98.	1.3	4
129	Theory of atomic scale quantum dots in silicon: Dangling bond quantum dots on silicon surface. Solid State Communications, 2020, 305, 113752.	0.9	4
130	Quantum simulator of extended bipartite Hubbard model with broken sublattice symmetry: Magnetism, correlations, and phase transitions. Physical Review B, 2022, 105, .	1.1	4
131	Inelastic electron scattering by collective charge density excitations at the surface of a semiconductor superlattice. Surface Science, 1986, 170, 501-505.	0.8	3
132	Intrinsic dephasing times of photoexcited electronâ€“valence-hole pairs near the Fermi edge of a degenerate electron gas in quantum wells. Physical Review B, 1994, 49, 13624-13628.	1.1	3
133	Spin transitions induced by a magnetic field in quantum dot molecules. Physical Review B, 2008, 77, .	1.1	3
134	Accurate and efficient description of interacting carriers in quantum nanostructures by selected configuration interaction and perturbation theory. Physical Review B, 2020, 101, .	1.1	3
135	Electrons and excitons in quantum dots. Physica E: Low-Dimensional Systems and Nanostructures, 2001, 11, 53-58.	1.3	2
136	Quantum Hall droplet at excitonic filling factorÎ½=2in a self-assembled quantum dot. Physical Review B, 2006, 73, .	1.1	2
137	A spin-polarized bi-exciton in a semiconductor quantum dot. Journal of Physics Condensed Matter, 2008, 20, 454213.	0.7	2
138	Magnetic Ionâ€“Carrier Interactions in Quantum Dots. Springer Series in Materials Science, 2010, , 191-219.	0.4	2
139	Electron-electron interaction mediated indirect coupling of electron and magnetic ion or nuclear spins in self-assembled quantum dots. Physical Review B, 2014, 89, .	1.1	2
140	Electronic and magnetic properties of many-electron complexes in charged <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>In</mml:mi><mml:msub><mml:mi>As</mml:mi><mml:mi mathvariant="normal">P</mml:mi><mml:mrow><mml:mn>1</mml:mn><mml:mo>â^’</mml:mo><mml:mi>x</mml:mi></mml:mrow></mml:msub></mml:mrow></mml:math> quantum dots in InP nanowires. Physical Review B, 2021, 104, .	1.1	2
141	Coded Qubit Based on Electron Spin. , 0, , 3-32.		2
142	Magnetic Properties of Gated Graphene Nanostructures. Nanoscience and Technology, 2014, , 111-144.	1.5	2
143	Nonlinear polariton excitations in quantum dot arrays. Physics Letters, Section A: General, Atomic and Solid State Physics, 1992, 165, 148-152.	0.9	1
144	Magneto-optics of interacting electrons in quantum dots. Surface Science, 1994, 305, 597-600.	0.8	1

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145	Quantum single electron transistor. , 1996, , 59-74.		1
146	Optical Properties of Graphene Nanostructures. Nanoscience and Technology, 2014, , 145-168.	1.5	1
147	Nonlinear Response of Virtual Excitations in Semiconductor Superlattices. NATO ASI Series Series B: Physics, 1991, , 479-490.	0.2	1
148	Single-Particle Properties of Graphene Quantum Dots. Nanoscience and Technology, 2014, , 39-90.	1.5	1
149	Nonlinear optical transmission through a multiple quantum well system. Surface Science, 1990, 228, 144-146.	0.8	0
150	Interband transitions inAlxGa1â^'xAs/AlAs quantum-well structures. Physical Review B, 1996, 53, 12912-12916.	1.1	0
151	Electron correlations in quasi-2D structures at high magnetic fields in the presence of embedded donor impurities. Physica B: Condensed Matter, 1998, 256-258, 431-440.	1.3	0
152	Electronic Correlations in Semiconductor Quantum Dots. , 2002, , 497-501.		0
153	Microscopic approach to many-exciton complexes in self-assembled InGaAs/GaAs quantum dots. Physica E: Low-Dimensional Systems and Nanostructures, 2005, 26, 267-270.	1.3	0
154	Quantum Hall droplets in coupled lateral quantum dots. Physica E: Low-Dimensional Systems and Nanostructures, 2006, 34, 636-639.	1.3	0
155	Dynamical magnetic and nuclear polarization in complex spin systems: semi-magnetic IIâ€“VI quantum dots. New Journal of Physics, 2013, 15, 063039.	1.2	0
156	Spin Effects in Quantum Hall Droplets. , 2003, , 211-222.		0
157	Electronâ€“Electron Interactions in Graphene Quantum Dots. Nanoscience and Technology, 2014, , 91-110.	1.5	0