

# Andrey Kolovsky

## List of Publications by Year in descending order

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113  
papers

2,102  
citations

279798

23  
h-index

276875

41  
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113  
all docs

113  
docs citations

113  
times ranked

1177  
citing authors

#	ARTICLE	IF	CITATIONS
1	Wannier-Stark resonances in optical and semiconductor superlattices. <i>Physics Reports</i> , 2002, 366, 103-182.	25.6	275
2	Creating artificial magnetic fields for cold atoms by photon-assisted tunneling. <i>Europhysics Letters</i> , 2011, 93, 20003.	2.0	144
3	Interaction-Induced Decoherence of Atomic Bloch Oscillations. <i>Physical Review Letters</i> , 2003, 91, 253002.	7.8	114
4	Quantum chaos in the Bose-Hubbard model. <i>Europhysics Letters</i> , 2004, 68, 632-638.	2.0	90
5	Bloch oscillations of cold atoms in two-dimensional optical lattices. <i>Physical Review A</i> , 2003, 67, .	2.5	54
6	Atomic Current across an Optical Lattice. <i>Physical Review Letters</i> , 2006, 96, 050404.	7.8	54
7	Floquet-Bloch operator for the Bose-Hubbard model with static field. <i>Physical Review E</i> , 2003, 68, 056213.	2.1	51
8	Bloch oscillations of Bose-Einstein condensates: Quantum counterpart of dynamical instability. <i>Physical Review A</i> , 2009, 80, .	2.5	47
9	Nonlinearity-induced destruction of resonant tunneling in the Wannier-Stark problem. <i>Physical Review A</i> , 2005, 72, .	2.5	46
10	BLOCH OSCILLATIONS OF COLD ATOMS IN OPTICAL LATTICES. <i>International Journal of Modern Physics B</i> , 2004, 18, 1235-1260.	2.0	43
11	New Bloch Period for Interacting Cold Atoms in 1D Optical Lattices. <i>Physical Review Letters</i> , 2003, 90, 213002.	7.8	38
12	Lifetime of Wannier-Stark States. <i>Physical Review Letters</i> , 1999, 83, 891-894.	7.8	37
13	Bose-Einstein condensates on tilted lattices: Coherent, chaotic, and subdiffusive dynamics. <i>Physical Review A</i> , 2010, 81, .	2.5	36
14	On the spectrum of the system of interacting quantum nonlinear resonances. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1982, 87, 152-156.	2.1	35
15	Semiclassical Quantization of the Bogoliubov Spectrum. <i>Physical Review Letters</i> , 2007, 99, 020401.	7.8	34
16	Topological flat Wannier-Stark bands. <i>Physical Review B</i> , 2018, 97, .	3.2	31
17	Bloch Particle in the Presence of dc and ac Fields: Statistics of the Wigner Delay Time. <i>Physical Review Letters</i> , 1999, 82, 1534-1537.	7.8	29
18	Condition of Correspondence between Quantum and Classical Dynamics for a Chaotic System. <i>Physical Review Letters</i> , 1996, 76, 340-343.	7.8	28

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19	Nucleation in Finite Topological Systems During Continuous Metastable Quantum Phase Transitions. Physical Review Letters, 2012, 108, 250402.	7.8	26
20	Correlation function behavior in quantum systems which are classically chaotic. Physica D: Nonlinear Phenomena, 1983, 8, 117-141.	2.8	25
21	Bose-Hubbard Hamiltonian: Quantum chaos approach. International Journal of Modern Physics B, 2016, 30, 1630009.	2.0	25
22	Wannier-Stark states and Bloch oscillations in the honeycomb lattice. Physical Review A, 2013, 87, .	2.5	24
23	Damped Bloch oscillations of cold atoms in optical lattices. Physical Review A, 2002, 66, .	2.5	23
24	Quantum Chaos, Transport, and Control in Quantum Optics. Advances in Atomic, Molecular and Optical Physics, 2006, 53, 33-73.	2.3	23
25	Number of degrees of freedom for a thermostat. Physical Review E, 1994, 50, 3569-3576.	2.1	22
26	Quantum coherence, evolution of the Wigner function, and transition from quantum to classical dynamics for a chaotic system. Chaos, 1996, 6, 534-542.	2.5	22
27	Driven Harper model. Physical Review B, 2012, 86, .	3.2	21
28	A Remark on the Problem of Quantum-Classical Correspondence in the Case of Chaotic Dynamics. Europhysics Letters, 1994, 27, 79-84.	2.0	20
29	Wannier-Stark resonances in semiconductor superlattices. Physical Review B, 2002, 65, .	3.2	20
30	Structure and stability of the quasi-energy spectrum of two interacting quantum nonlinear resonances. Physics Letters, Section A: General, Atomic and Solid State Physics, 1983, 95, 15-18.	2.1	19
31	Persistent current of atoms in a ring optical lattice. New Journal of Physics, 2006, 8, 197-197.	2.9	19
32	NOON state of Bose atoms in the double-well potential via an excited-state quantum phase transition. Physical Review A, 2018, 97, .	2.5	19
33	Quantum modifications of classical diffusion in coordinate space for chaotic systems. Physical Review E, 1994, 49, 70-78.	2.1	18
34	Wannier-Stark States of a Quantum Particle in 2D Lattices. Physical Review Letters, 2001, 86, 3116-3119.	7.8	18
35	Bloch oscillations in the Mott-insulator regime. Physical Review A, 2004, 70, .	2.5	18
36	Bright solitons and self-trapping with a Bose-Einstein condensate of atoms in driven tilted optical lattices. Physical Review A, 2010, 82, .	2.5	17

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37	Dynamical thermalization in isolated quantum dots and black holes. Europhysics Letters, 2017, 117, 10003.	2.0	17
38	Landauer-Büttiker equation for bosonic carriers. Physical Review A, 2018, 98, .	2.5	17
39	Cyclotron-Bloch dynamics of a quantum particle in a two-dimensional lattice. Physical Review E, 2011, 83, 041123.	2.1	16
40	Lifetime statistics for a Bloch particle in ac and dc fields. Physical Review E, 1999, 60, 247-258.	2.1	15
41	Bogoliubov depletion of the fragmented condensate in the bosonic flux ladder. Physical Review A, 2017, 95, .	2.5	15
42	Topological phase transitions in tilted optical lattices. Physical Review A, 2018, 98, .	2.5	14
43	Dynamics of classically chaotic quantum systems in Wigner representation. Physica D: Nonlinear Phenomena, 1985, 17, 183-197.	2.8	13
44	Diffusion on a chaotic attractor. Physica D: Nonlinear Phenomena, 1998, 116, 283-288.	2.8	13
45	Emergence of superfluid transport in a dynamical system of ultra-cold atoms. European Physical Journal D, 2007, 41, 331-336.	1.3	13
46	Open Bose-Hubbard chain: Pseudoclassical approach. Physical Review E, 2020, 101, 012208.	2.1	13
47	Dynamical localization for a kicked atom in two standing waves. Physics Letters, Section A: General, Atomic and Solid State Physics, 1996, 222, 47-49.	2.1	12
48	Wannier-Stark ladders in driven optical lattices. Physical Review A, 2000, 61, .	2.5	12
49	Dipole and Bloch oscillations of cold atoms in a parabolic lattice. Laser Physics, 2006, 16, 367-370.	1.2	12
50	Atomic current in optical lattices: Reexamination of the Esaki-Tsu equation. Physical Review A, 2008, 77, .	2.5	12
51	Quantum particle in a parabolic lattice in the presence of a gauge field. Physical Review A, 2014, 89, .	2.5	12
52	Microscopic models of source and sink for atomtronics. Physical Review A, 2017, 96, .	2.5	12
53	Quantum entanglement and the Born-Markov approximation for an open quantum system. Physical Review E, 2020, 101, 062116.	2.1	12
54	Renormalization method for the quantum system of interacting resonances. Physics Letters, Section A: General, Atomic and Solid State Physics, 1987, 125, 188-192.	2.1	11

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55	Resonant tunnelling of Wannier-Stark states. <i>Journal of Optics B: Quantum and Semiclassical Optics</i> , 2000, 2, 694-703.	1.4	11
56	Interplay between Anderson and Stark Localization in 2D Lattices. <i>Physical Review Letters</i> , 2008, 101, 190602.	7.8	11
57	Energetically constrained co-tunneling of cold atoms. <i>New Journal of Physics</i> , 2012, 14, 075002.	2.9	11
58	Probing quantum chaos in many-body quantum systems by the induced dissipation. <i>Physical Review A</i> , 2019, 100, .	2.5	11
59	Spectral statistics for the evolution operator of a quantum particle showing chaotic diffusion of the coordinate. <i>Physical Review E</i> , 1997, 56, 2261-2264.	2.1	10
60	Bloch particle in the presence of dc and ac fields. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1998, 249, 483-488.	2.1	10
61	Induced transitions between Wannier ladders. <i>Journal of Optics B: Quantum and Semiclassical Optics</i> , 2000, 2, 612-617.	1.4	9
62	Cyclotron-Bloch dynamics of a quantum particle in a two-dimensional lattice. II. Arbitrary electric field directions. <i>Physical Review E</i> , 2012, 86, 041146.	2.1	9
63	Wannier-Stark states in double-periodic lattices. I. One-dimensional lattices. <i>Physical Review A</i> , 2015, 91, .	2.5	9
64	Quantum chaos and peculiarities of diffusion in Wigner representation. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1988, 152, 273-286.	2.6	8
65	Regular and chaotic dynamics of a molecule affected by an external resonance field. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1991, 157, 474-480.	2.1	8
66	Quasienergy-band structure of a periodically driven system with translational symmetry. <i>Physical Review E</i> , 1994, 50, 910-916.	2.1	8
67	Adiabatic scattering of atoms by a standing laser wave. <i>Physical Review A</i> , 1997, 55, 4433-4437.	2.5	8
68	Fractal stabilization of Wannier-Stark resonances. <i>Europhysics Letters</i> , 2000, 51, 255-260.	2.0	8
69	Semiclassical analysis of the Bogoliubov spectrum in the Bose-Hubbard model. <i>Physical Review E</i> , 2007, 76, 026207.	2.1	8
70	Hall conductivity beyond the linear response regime. <i>Europhysics Letters</i> , 2011, 96, 50002.	2.0	8
71	Mott-insulator state of cold atoms in tilted optical lattices: Doublon dynamics and multilevel Landau-Zener tunneling. <i>Physical Review A</i> , 2016, 94, .	2.5	8
72	Chaotic Wannier-Bloch resonance states. <i>Physical Review E</i> , 1998, 58, 6835-6838.	2.1	7

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73	Interference of cold atoms released from an optical lattice. <i>Europhysics Letters</i> , 2004, 68, 330-336.	2.0	7
74	Escape dynamics of a Bose-Hubbard dimer out of a trap. <i>Physical Review A</i> , 2014, 89, .	2.5	7
75	Steady-state regime for the rotational dynamics of a molecule at the condition of quantum chaos. <i>Physical Review A</i> , 1993, 48, 3072-3081.	2.5	6
76	Gradient force and chaotic acceleration of a dipole molecule in a standing wave. <i>Physical Review A</i> , 1995, 51, 4005-4009.	2.5	6
77	Perturbation theory for Wannier resonance states affected by ac field. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1999, 258, 383-393.	2.1	6
78	Landau-Zener tunnelling in 2D periodic structures in the presence of a gauge field: II. Electric breakdown. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2013, 46, 145302.	1.5	6
79	Wannier-Stark states in double-periodic lattices. II. Two-dimensional lattices. <i>Physical Review A</i> , 2015, 91, .	2.5	6
80	Quantum phase transitions in two-dimensional tilted optical lattices. <i>Physical Review A</i> , 2016, 93, .	2.5	6
81	Reply to the Comment by J. C. Flores. <i>Europhysics Letters</i> , 1995, 29, 655-655.	2.0	5
82	About universality of lifetime statistics in quantum chaotic scattering. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2001, 9, 478-483.	2.7	5
83	Branched classical and quantum flow in two-dimensional Wannier-Stark systems. <i>Physical Review A</i> , 2002, 66, .	2.5	5
84	Quantum diffusion in a biased kicked Harper system. <i>Physical Review E</i> , 2003, 68, 046202.	2.1	5
85	Conductivity with cold atoms in optical lattices. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2009, 2009, P02018.	2.3	5
86	Simulating cyclotron-Bloch dynamics of a charged particle in a 2D lattice by means of cold atoms in driven quasi-1D optical lattices. <i>Frontiers of Physics</i> , 2012, 7, 3-7.	5.0	5
87	Induced tunneling and localization for a quantum particle in tilted two-dimensional lattices. <i>Physical Review B</i> , 2014, 89, .	3.2	5
88	A non-linear resonance in a system of surface-state electrons bound to the helium surface. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1984, 105, 483-486.	2.1	4
89	Bloch oscillations of atoms in a near-resonant standing laser wave. <i>Journal of Optics B: Quantum and Semiclassical Optics</i> , 2002, 4, 218-221.	1.4	4
90	Landau-Zener tunnelling in 2D periodic structures in the presence of a gauge field: I. Tunnelling rates. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2013, 46, 145301.	1.5	4

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91	Open Fermi-Hubbard model: Landauer's versus master equation approaches. Physical Review B, 2020, 102, .	3.2	4
92	Resonant transport of bosonic carriers through a quantum device. Physical Review A, 2022, 105, .	2.5	4
93	Bragg scattering of an atomic beam by a standing laser wave with time-periodic amplitude modulation. Physical Review A, 1998, 57, 3763-3769.	2.5	3
94	Landau-Stark states in finite lattices and edge-induced Bloch oscillations. Europhysics Letters, 2014, 106, 50001.	2.0	3
95	Evaporative Cooling and Self-thermalization in an Open System of Interacting Fermions. Annalen Der Physik, 2019, 531, 1900231.	2.4	3
96	Quantum State of the Fermionic Carriers in a Transport Channel Connecting Particle Reservoirs. Condensed Matter, 2019, 4, 85.	1.8	3
97	A quantum nonlinear resonance with account of relaxation processes. Physica A: Statistical Mechanics and Its Applications, 1987, 141, 602-612.	2.6	2
98	Stationary response of a multilevel quantum system in the regime of quantum chaos. Physics Letters, Section A: General, Atomic and Solid State Physics, 1990, 148, 72-77.	2.1	2
99	A quantum cable car for Wannier-Stark ladders. Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 276, 167-174.	2.1	2
100	Chaotic and regular dynamics in the three-site Bose-Hubbard model. AIP Conference Proceedings, 2020, , .	0.4	2
101	Resonant transmission of fermionic carriers: Comparison between solid-state physics and quantum optics approaches. Physical Review B, 2021, 104, .	3.2	2
102	Dynamic orientation of molecules by an external periodic field. Optics Communications, 1991, 82, 466-472.	2.1	1
103	Relativistic chaos for an electron in a standing microwave field. Europhysics Letters, 1998, 41, 257-260.	2.0	1
104	Transport of cold atoms in optical lattices. European Physical Journal: Special Topics, 2007, 151, 103-112.	2.6	1
105	Effect of the lattice alignment on Bloch oscillations of a Bose-Einstein condensate in a square optical lattice. European Physical Journal D, 2008, 47, 421-425.	1.3	1
106	Decay of symmetry-protected quantum states. Physical Review A, 2020, 102, .	2.5	1
107	Quantum chaos: double resonance model and its physical applications. , 1995, , 461-469.		1
108	Treating Many-Body Quantum Systems by Means of Classical Mechanics. Springer Proceedings in Physics, 2017, , 37-48.	0.2	1

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109	Chaotic diffusion and ballistic transport of ultra-cooled atoms in a time-modulated standing laser wave. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1997, 231, 144-148.	2.1	0
110	Multiparticle quantum chaos in tilted optical lattices. <i>Journal of Modern Optics</i> , 2004, 51, 999-1003.	1.3	0
111	Master equation approach to conductivity of bosonic and fermionic carriers in one- and two-dimensional lattices. <i>Annalen Der Physik</i> , 2014, 526, 102-111.	2.4	0
112	Multiparticle quantum chaos in tilted optical lattices. <i>Journal of Modern Optics</i> , 2004, 51, 999-1003.	1.3	0
113	Bistability and chaos-assisted tunneling in dissipative quantum systems. <i>Physical Review E</i> , 2022, 106, .	2.1	0