J E Avron

List of Publications by Year in descending order

139 papers	8,527 citations	47006 47 h-index	43889 91 g-index
141 all docs	141 docs citations	141 times ranked	3997 citing authors

#	Article	IF	Citations
1	Entangled Photon Pairs from Semiconductor Quantum Dots. Physical Review Letters, 2006, 96, 130501.	7.8	761
2	Homotopy and Quantization in Condensed Matter Physics. Physical Review Letters, 1983, 51, 51-53.	7.8	486
3	SchrÃ¶dinger operators with magnetic fields. I. general interactions. Duke Mathematical Journal, 1978, 45, 847.	1.5	366
4	Separation of center of mass in homogeneous magnetic fields. Annals of Physics, 1978, 114, 431-451.	2.8	328
5	Viscosity of Quantum Hall Fluids. Physical Review Letters, 1995, 75, 697-700.	7.8	296
6	Almost periodic SchrÃ¶dinger operators II. The integrated density of states. Duke Mathematical Journal, 1983, 50, 369.	1.5	230
7	Quantization of the Hall Conductance for General, Multiparticle SchrÃ¶dinger Hamiltonians. Physical Review Letters, 1985, 54, 259-262.	7.8	221
8	Adiabatic theorems and applications to the quantum hall effect. Communications in Mathematical Physics, 1987, 110, 33-49.	2.2	207
9	Odd Viscosity. Journal of Statistical Physics, 1998, 92, 543-557.	1.2	200
10	Schrï¿½dinger operators with magnetic fields. Communications in Mathematical Physics, 1981, 79, 529-572.	2.2	190
11	Spectral and scattering theory of SchrÃ¶dinger operators related to the stark effect. Communications in Mathematical Physics, 1977, 52, 239-254.	2.2	188
12	Roughening Transition in theHe4Solid-Superfluid Interface. Physical Review Letters, 1980, 45, 814-817.	7.8	183
13	Pushmepullyou: an efficient micro-swimmer. New Journal of Physics, 2005, 7, 234-234.	2.9	180
14	Adiabatic Theorem without a Gap Condition. Communications in Mathematical Physics, 1999, 203, 445-463.	2.2	176
15	Adiabatic quantum transport in multiply connected systems. Reviews of Modern Physics, 1988, 60, 873-915.	45.6	171
16	The Index of a Pair of Projections. Journal of Functional Analysis, 1994, 120, 220-237.	1.4	157
17	A Topological Look at the Quantum Hall Effect. Physics Today, 2003, 56, 38-42.	0.3	152
18	Optimal Swimming at Low Reynolds Numbers. Physical Review Letters, 2004, 93, 186001.	7.8	146

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19	Geometry, statistics, and asymptotics of quantum pumps. Physical Review B, 2000, 62, R10618-R10621.	3.2	135
20	Singular continuous spectrum for a class of almost periodic Jacobi matrices. Bulletin of the American Mathematical Society, 1982, 6, 81-85.	1.5	126
21	Charge deficiency, charge transport and comparison of dimensions. Communications in Mathematical Physics, 1994, 159, 399-422.	2.2	125
22	Optimal Quantum Pumps. Physical Review Letters, 2001, 87, 236601.	7.8	123
23	Almost periodic Schrï¿½dinger operators. Communications in Mathematical Physics, 1981, 82, 101-120.	2.2	122
24	Relation between persistent currents and the scattering matrix. Physical Review Letters, 1991, 66, 76-79.	7.8	118
25	Roughening transition, surface tension and equilibrium droplet shapes in a two-dimensional Ising system. Journal of Physics A, 1982, 15, L81-L86.	1.6	117
26	Periodic SchrÃ¶dinger operators with large gaps and Wannier-Stark ladders. Physical Review Letters, 1994, 72, 896-899.	7.8	113
27	Chern numbers, quaternions, and Berry's phases in Fermi systems. Communications in Mathematical Physics, 1989, 124, 595-627.	2.2	109
28	The lifetime of Wannier ladder states. Annals of Physics, 1982, 143, 33-53.	2.8	92
29	Total surface energy and equilibrium shapes: Exact results for thed=2Ising crystal. Physical Review B, 1982, 25, 2042-2045.	3.2	90
30	Topological Invariants in Fermi Systems with Time-Reversal Invariance. Physical Review Letters, 1988, 61, 1329-1332.	7.8	90
31	Bender-Wu formulas for the Zeeman effect in hydrogen. Annals of Physics, 1981, 131, 73-94.	2.8	88
32	Instability of the continuous spectrum: The Nâ€band Stark ladder. Journal of Mathematical Physics, 1977, 18, 918-921.	1.1	87
33	On the measure of the spectrum for the almost Mathieu operator. Communications in Mathematical Physics, 1990, 132, 103-118.	2.2	87
34	A geometric theory of swimming: Purcell's swimmer and its symmetrized cousin. New Journal of Physics, 2008, 10, 063016.	2.9	80
35	Bender-Wu Formula, the SO(4,2) Dynamical Group, and the Zeeman Effect in Hydrogen. Physical Review Letters, 1979, 43, 691-693.	7.8	73
36	Entanglement on Demand through Time Reordering. Physical Review Letters, 2008, 100, 120501.	7.8	73

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37	A frictionless microswimmer. New Journal of Physics, 2007, 9, 145-145.	2.9	67
38	Hofstadter butterfly as quantum phase diagram. Journal of Mathematical Physics, 2001, 42, 5665-5671.	1.1	65
39	The Zeeman effect revisited. Physics Letters, Section A: General, Atomic and Solid State Physics, 1977, 62, 214-216.	2.1	60
40	Adiabatic Theorems for Generators of Contracting Evolutions. Communications in Mathematical Physics, 2012, 314, 163-191.	2.2	59
41	Transient and recurrent spectrum. Journal of Functional Analysis, 1981, 43, 1-31.	1.4	58
42	Optically Induced Rotation of an Exciton Spin in a Semiconductor Quantum Dot. Physical Review Letters, 2011, 107, 087401.	7.8	55
43	Quantum response of dephasing open systems. New Journal of Physics, 2011, 13, 053042.	2.9	54
44	The asymptotics of the gap in the Mathieu equation. Annals of Physics, 1981, 134, 76-84.	2.8	53
45	Transport and Dissipation in Quantum Pumps. Journal of Statistical Physics, 2004, 116, 425-473.	1.2	51
46	Adiabatic Response for Lindblad Dynamics. Journal of Statistical Physics, 2012, 148, 800-823.	1.2	51
47	The summertop construction: Crystals in a corner. Journal of Statistical Physics, 1988, 50, 727-736.	1.2	49
48	Formation of Negative Ions in Magnetic Fields. Physical Review Letters, 1977, 39, 1068-1070.	7.8	47
49	Analytic properties of band functions. Annals of Physics, 1978, 110, 85-101.	2.8	45
50	Almost Periodic Hill's Equation and the Rings of Saturn. Physical Review Letters, 1981, 46, 1166-1168.	7.8	45
51	Fredholm Determinants and the Statistics of Charge Transport. Communications in Mathematical Physics, 2008, 280, 807-829.	2.2	45
52	Quantum Hall effect and the relative index for projections. Physical Review Letters, 1990, 65, 2185-2188.	7.8	44
53	Strongly bound states of hydrogen in intense magnetic field. Physical Review A, 1979, 20, 2287-2296.	2.5	42
54	Geometry and foams: 2D dynamics and 3D statics. Physical Review Letters, 1992, 69, 208-211.	7.8	39

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55	Model Calculation of Stark Ladder Resonances. Physical Review Letters, 1976, 37, 1568-1571.	7.8	37
56	Hall conductance and adiabatic charge transport of leaky tori. Physical Review Letters, 1992, 69, 128-131.	7.8	36
57	Adiabatic quantum transport in networks with macroscopic components. Annals of Physics, 1991, 206, 440-493.	2.8	33
58	Swimming, pumping and gliding at low Reynolds numbers. New Journal of Physics, 2007, 9, 437-437.	2.9	32
59	Equilibrium shapes of crystals in a gravitational field: Crystals on a table. Journal of Statistical Physics, 1983, 33, 493-522.	1.2	30
60	Spectra of atomic Hamiltonians in DC fields: use of the numerical range to investigate the effect of a dilatation transformation. Journal of Physics B: Atomic and Molecular Physics, 1978, 11, L201-L205.	1.6	28
61	Stability of gaps for periodic potentials under variation of a magnetic field. Journal of Physics A, 1985, 18, 2199-2205.	1.6	28
62	Semiclassical Analysis and the Magnetization of the Hofstadter Model. Physical Review Letters, 2003, 91, 186801.	7.8	28
63	Classification scheme for toroidal molecules. Journal of the Chemical Society, Faraday Transactions, 1995, 91, 4037.	1.7	27
64	Tiling rules for toroidal molecules. Physical Review A, 1995, 51, 1146-1149.	2.5	26
65	Time-energy coherent states and adiabatic scattering. Journal of Mathematical Physics, 2002, 43, 3415-3424.	1.1	26
66	Energy uncertainty in â€œStark laddersâ€• Solid State Communications, 1975, 16, 189-191.	1.9	25
67	Paramagnetism for Nonrelativistic Electrons and Euclidean Massless Dirac Particles. Physical Review Letters, 1979, 42, 931-934.	7.8	25
68	Bender-Wu formulas for degenerate eigenvalues. Physical Review A, 1980, 21, 1914-1916.	2.5	25
69	Ground state degeneracy and ferromagnetism in a spin glass. Journal of Statistical Physics, 1981, 26, 25-36.	1.2	24
70	Adiabatic charge pumping in open quantum systems. Communications on Pure and Applied Mathematics, 2004, 57, 528-561.	3.1	24
71	Radiative cascade from quantum dot metastable spin-blockaded biexciton. Physical Review B, 2010, 82, .	3.2	24
72	Diophantine Equation for the Hall Conductance of Interacting Electrons on a Torus. Physical Review Letters, 1986, 56, 2084-2087.	7.8	23

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73	Entanglement and the geometry of two qubits. Annals of Physics, 2009, 324, 470-496.	2.8	23
74	Landau-Zener Tunneling for Dephasing Lindblad Evolutions. Communications in Mathematical Physics, 2011, 305, 633-639.	2.2	22
75	Adiabatic theorems for dense point spectra. Communications in Mathematical Physics, 1990, 128, 497-507.	2.2	21
76	Adiabatic theorem without a gap condition: Two-level system coupled to quantized radiation field. Physical Review A, 1998, 58, 4300-4306.	2.5	21
77	Adiabatic Quantum Transport: Quantization and Fluctuations. Physical Review Letters, 1994, 73, 3255-3257.	7.8	20
78	Fredholm indices and the phase diagram of quantum Hall systems. Journal of Mathematical Physics, 2001, 42, 1-14.	1.1	19
79	Magnetic fingerprints of fractal spectra and the duality of Hofstadter models. New Journal of Physics, 2003, 5, 44-44.	2.9	19
80	Born-Oppenheimer wave function near level crossing. Physical Review A, 2000, 62, .	2.5	18
81	Visualizing two qubits. Journal of Mathematical Physics, 2007, 48, 102107.	1.1	16
82	On the spectrum of p2+V(x)+ Ïµx, with V periodic and Ïµ complex. Journal of Physics A, 1979, 12, 2393-2398.	1.6	15
83	Chern numbers and adiabatic transport in networks with leads. Physical Review Letters, 1989, 62, 3082-3084.	7.8	15
84	Hamiltonians in one-electron theory of solids. I. Reports on Mathematical Physics, 1974, 5, 113-120.	0.8	14
85	Optimal time schedule for adiabatic evolution. Physical Review A, 2010, 82, .	2.5	14
86	A counterexample to the paramagnetic conjecture. Physics Letters, Section A: General, Atomic and Solid State Physics, 1979, 75, 41-42.	2.1	13
87	Piezoelectricity: Quantized Charge Transport Driven by Adiabatic Deformations. Physical Review Letters, 1997, 78, 511-514.	7.8	13
88	Born-Oppenheimer Approximation near Level Crossing. Physical Review Letters, 2000, 85, 34-37.	7.8	13
89	A study of the ambiguity in the solutions to the Diophantine equation for Chern numbers. Journal of Physics A: Mathematical and Theoretical, 2014, 47, 185202.	2.1	13
90	Is the number of photons a classical invariant?. European Journal of Physics, 1999, 20, 153-159.	0.6	12

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91	Quantum response at finite fields and breakdown of Chern numbers. Journal of Physics A, 1999, 32, 6097-6113.	1.6	12
92	Spectral properties of reduced Bloch Hamiltonians. Annals of Physics, 1977, 103, 47-63.	2.8	11
93	Coincident anharmonic oscillators. Physical Review D, 1981, 23, 1316-1320.	4.7	11
94	Swimming in curved space or the Baron and the cat. New Journal of Physics, 2006, 8, 68-68.	2.9	11
95	Comment on â€œOptimal Stroke Patterns for Purcellâ€™s Three-Link Swimmerâ€• Physical Review Letters, 2008, 100, 029801; discussion 029802.	7.8	11
96	Quantum advantage and noise reduction in distributed quantum computing. Physical Review A, 2021, 104, .	2.5	11
97	Stability of band structure for external fields. Physical Review B, 1974, 9, 658-663.	3.2	10
98	The relativistic Kronig-Penney Hamiltonian. Physics Letters, Section A: General, Atomic and Solid State Physics, 1976, 56, 55-57.	2.1	10
99	Integer charge transport in Josephson junctions. Physical Review B, 1989, 39, 756-758.	3.2	10
100	Quasienergies, Stark Hamiltonians, and growth of energy for driven quantum rings. Physical Review Letters, 1992, 68, 2212-2215.	7.8	10
101	Correlated and entangled pairs of single photons from semiconductor quantum dots. Journal of Applied Physics, 2007, 101, 081712.	2.5	10
102	Distilling entanglement from random cascades with partial â€œwhich pathâ€•ambiguity. Physical Review A, 2008, 77, .	2.5	10
103	Quantum Conductance in Networks. Physical Review Letters, 1987, 58, 2110-2113.	7.8	9
104	Transmutation of the vicinal surface exponent due to gravity. Physical Review B, 1988, 37, 6611-6614.	3.2	9
105	Generalized Sagnac-Wang-Fizeau formula. Physical Review A, 2016, 94, .	2.5	9
106	From Mathematical Physics to Analysis: A Walk in Barry Simon's Mathematical Garden, II. Notices of the American Mathematical Society, 2016, 63, 878-889.	0.2	8
107	Large coupling behaviour of the Lyapunov exponent for tight binding one-dimensional random systems. Journal of Physics A, 1983, 16, L209-L211.	1.6	7
108	Adiabatic Swimming in an Ideal Quantum Gas. Physical Review Letters, 2006, 96, 130602.	7.8	7

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109	An elementary introduction to the geometry of quantum states with pictures. Reviews in Mathematical Physics, 2020, 32, 2030001.	1.7	7
110	Bender-Wu formulas and classical trajectories: Higher dimensions and degeneracies. International Journal of Quantum Chemistry, 1982, 21, 119-124.	2.0	6
111	The reflection from a semi-infinite crystal of point scatterers. Physics Letters, Section A: General, Atomic and Solid State Physics, 1983, 94, 42-44.	2.1	5
112	On the quantum Hall effect. Journal of Geometry and Physics, 1984, 1, 13-23.	1.4	5
113	Optimal Rotations of Deformable Bodies and Orbits in Magnetic Fields. Physical Review Letters, 2004, 92, 040201.	7.8	5
114	AvronetÂal.Reply:. Physical Review Letters, 2009, 103, .	7.8	5
115	Lindbladians for controlled stochastic Hamiltonians. New Journal of Physics, 2015, 17, 043009.	2.9	5
116	Binding of one-dimensional Bloch electrons by external fields. Physical Review B, 1977, 16, 711-713.	3.2	4
117	High-temperature expansion for the Coulomb lattice. Annals of Physics, 1977, 108, 448-453.	2.8	4
118	Colored Hofstadter Butterflies. , 2004, , 11-22.		4
119	Adiabatic curvature and theS-matrix. Communications in Mathematical Physics, 1996, 181, 685-702.	2.2	3
120	Braiding fluxes in Pauli Hamiltonian. Annals of Physics, 2014, 349, 325-349.	2.8	3
121	Roughening transition, surface tension and equilibrium droplet shapes in a two-dimensional Ising system. Journal of Physics A, 1982, 15, 1055-1055.	1.6	2
122	Drift and density of states in homogeneous fields without gauge fixing. Physical Review B, 1983, 27, 7763-7764.	3.2	2
123	Geometry and quantum transport. Journal D'Analyse Mathematique, 1992, 58, 1-7.	0.8	2
124	The Longuet-Higgins phase and charge transport in molecular rings. Chemical Physics Letters, 1998, 294, 13-18.	2.6	2
125	An Adiabatic Theorem without a Gap Condition. , 1999, , 3-12.		2
126	Geometric Forces on Point Fluxes in Quantum Hall Fluids. Journal of Statistical Physics, 1998, 92, 1193-1201.	1.2	1

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127	Toroidal Graphitic Molecules. Fullerenes, Nanotubes, and Carbon Nanostructures, 1998, 6, 31-37.	0.6	1
128	Smooth adiabatic evolutions with leaky power tails. Journal of Physics A, 1999, 32, L537-L546.	1.6	1
129	Quantum transport in molecular rings and chains. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 1999, 455, 2729-2750.	2.1	1
130	Entangled photon pairs from radiative cascades in semiconductor quantum dots. Physica Status Solidi (B): Basic Research, 2006, 243, 3900-3904.	1.5	1
131	Relativistically exact eikonal equation for optical fibers with application to adiabatically deforming ring interferometers. Physical Review A, 2016, 94, .	2.5	1
132	The determination of one-dimensional bands by fibres. Journal of Physics A, 1977, 10, 339-342.	1.6	0
133	Recombination in steady supersonic flow in devices for laser isotope separation. Applied Physics Berlin, 1979, 18, 205-209.	1.4	0
134	Entangled photon pairs from radiative cascades in semiconductor quantum dots. , 2006, , .		0
135	The Wigner Medal 2014. Journal of Physics: Conference Series, 2015, 597, 011004.	0.4	0
136	Teleportation for Septuagenarians. Journal of Statistical Physics, 2018, 172, 555-561.	1.2	0
137	Entangled States of Photon Pairs from Radiative Cascades in Semiconductor Quantum Dots. , 2007, , .		0
138	Entanglement on demand through time reordering. , 2008, , .		0
139	The Zeeman Effect Revisited. Current Physics Sources and Comments, 1990, 7, 244-246.	0.0	0