

# Igor Goychuk

## List of Publications by Year in descending order

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95  
papers

3,875  
citations

87723

38  
h-index

133063

59  
g-index

101  
all docs

101  
docs citations

101  
times ranked

2176  
citing authors

#	ARTICLE	IF	CITATIONS
1	Resonance-like enhancement of forced nonlinear diffusion as a nonequilibrium phase transition. <i>New Journal of Physics</i> , 2022, 24, 043018.	1.2	5
2	Insufficient evidence for ageing in protein dynamics. <i>Nature Physics</i> , 2021, 17, 773-774.	6.5	3
3	Fingerprints of viscoelastic subdiffusion in random environments: Revisiting some experimental data and their interpretations. <i>Physical Review E</i> , 2021, 104, 034125.	0.8	10
4	Nonequilibrium Phase Transition to Anomalous Diffusion and Transport in a Basic Model of Nonlinear Brownian Motion. <i>Physical Review Letters</i> , 2021, 127, 110601.	2.9	12
5	Hydrodynamic memory can boost enormously driven nonlinear diffusion and transport. <i>Physical Review E</i> , 2020, 102, 012139.	0.8	13
6	Finite-range viscoelastic subdiffusion in disordered systems with inclusion of inertial effects. <i>New Journal of Physics</i> , 2020, 22, 113018.	1.2	12
7	Fractional electron transfer kinetics and a quantum breaking of ergodicity. <i>Physical Review E</i> , 2019, 99, 052136.	0.8	3
8	Fractional Hydrodynamic Memory and Superdiffusion in Tilted Washboard Potentials. <i>Physical Review Letters</i> , 2019, 123, 180603.	2.9	20
9	Goychuk Replies. <i>Physical Review Letters</i> , 2019, 123, 238902.	2.9	4
10	Perfect anomalous transport of subdiffusive cargos by molecular motors in viscoelastic cytosol. <i>BioSystems</i> , 2019, 177, 56-65.	0.9	6
11	Viscoelastic subdiffusion in a random Gaussian environment. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 24140-24155.	1.3	22
12	Sensing Magnetic Fields with Magnetosensitive Ion Channels. <i>Sensors</i> , 2018, 18, 728.	2.1	8
13	Quantum ergodicity breaking in semi-classical electron transfer dynamics. <i>Physical Chemistry Chemical Physics</i> , 2017, 19, 3056-3066.	1.3	5
14	Persistent Sinai-type diffusion in Gaussian random potentials with decaying spatial correlations. <i>Physical Review E</i> , 2017, 96, 052134.	0.8	17
15	Fractional Bhatnagar–Gross–Krook kinetic equation. <i>European Physical Journal B</i> , 2017, 90, 1.	0.6	4
16	Molecular machines operating on the nanoscale: from classical to quantum. <i>Beilstein Journal of Nanotechnology</i> , 2016, 7, 328-350.	1.5	22
17	Modeling magnetosensitive ion channels in the viscoelastic environment of living cells. <i>Physical Review E</i> , 2015, 92, 042711.	0.8	10
18	Anomalous transport of subdiffusing cargos by single kinesin motors: the role of mechanochemical coupling and anharmonicity of tether. <i>Physical Biology</i> , 2015, 12, 016013.	0.8	21

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19	Stochastic Wilson-Cowan models of neuronal network dynamics with memory and delay. <i>New Journal of Physics</i> , 2015, 17, 045029.	1.2	19
20	How Molecular Motors Work in the Crowded Environment of Living Cells: Coexistence and Efficiency of Normal and Anomalous Transport. <i>PLoS ONE</i> , 2014, 9, e91700.	1.1	76
21	Life and Death of Stationary Linear Response in Anomalous Continuous Time Random Walk Dynamics. <i>Communications in Theoretical Physics</i> , 2014, 62, 497-504.	1.1	9
22	Molecular motors pulling cargos in the viscoelastic cytosol: how power strokes beat subdiffusion. <i>Physical Chemistry Chemical Physics</i> , 2014, 16, 16524-16535.	1.3	47
23	Anomalous Features of Diffusion in Corrugated Potentials with Spatial Correlations: Faster than Normal, and Other Surprises. <i>Physical Review Letters</i> , 2014, 113, 100601.	2.9	40
24	Stochastic Modeling of Excitable Dynamics: Improved Langevin Model for Mesoscopic Channel Noise. <i>Communications in Computer and Information Science</i> , 2014, , 325-332.	0.4	2
25	Rocking Subdiffusive Ratchets: Origin, Optimization and Efficiency. <i>Mathematical Modelling of Natural Phenomena</i> , 2013, 8, 144-158.	0.9	19
26	Subdiffusive rocking ratchets in viscoelastic media: Transport optimization and thermodynamic efficiency in overdamped regime. <i>Physical Review E</i> , 2013, 87, 052119.	0.8	22
27	Flashing subdiffusive ratchets in viscoelastic media. <i>New Journal of Physics</i> , 2012, 14, 043042.	1.2	23
28	IS SUBDIFFUSIONAL TRANSPORT SLOWER THAN NORMAL?. <i>Fluctuation and Noise Letters</i> , 2012, 11, 1240009.	1.0	11
29	Fractional-time random walk subdiffusion and anomalous transport with finite mean residence times: Faster, not slower. <i>Physical Review E</i> , 2012, 86, 021113.	0.8	28
30	Fractional Brownian motors and stochastic resonance. <i>Physical Review E</i> , 2012, 85, 051131.	0.8	44
31	Markovian embedding of fractional superdiffusion. <i>Europhysics Letters</i> , 2011, 93, 20002.	0.7	32
32	Subdiffusive Dynamics in Washboard Potentials: Two Different Approaches and Different Universality Classes. , 2011, , 307-329.		4
33	Subdiffusive Brownian ratchets rocked by a periodic force. <i>Chemical Physics</i> , 2010, 375, 450-457.	0.9	37
34	Stochastic processes in physics and chemistry (in honor of Peter Hänggi). <i>Chemical Physics</i> , 2010, 375, 131-132.	0.9	4
35	Origin of Hyperdiffusion in Generalized Brownian Motion. <i>Physical Review Letters</i> , 2010, 105, 100602.	2.9	73
36	Markovian embedding of non-Markovian superdiffusion. <i>Physical Review E</i> , 2010, 81, 011136.	0.8	63

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37	Fractional Fokker-Planck subdiffusion in alternating force fields. <i>Physical Review E</i> , 2009, 79, 041137.	0.8	25
38	Noise-assisted spike propagation in myelinated neurons. <i>Physical Review E</i> , 2009, 79, 011904.	0.8	40
39	Viscoelastic subdiffusion: From anomalous to normal. <i>Physical Review E</i> , 2009, 80, 046125.	0.8	174
40	Nonstationary stochastic resonance viewed through the lens of information theory. <i>European Physical Journal B</i> , 2009, 69, 29-35.	0.6	11
41	Universal fluctuations in subdiffusive transport. <i>Europhysics Letters</i> , 2009, 86, 30009.	0.7	39
42	Non-linear Brownian motion: the problem of obtaining the thermal Langevin equation for a non-Gaussian bath. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2009, 2009, P01034.	0.9	16
43	Rectification in synthetic conical nanopores: A one-dimensional Poisson-Nernst-Planck model. <i>Physical Review E</i> , 2008, 77, 031131.	0.8	126
44	Forced synchronization of a quantum dissipative dynamics. <i>AIP Conference Proceedings</i> , 2007, , .	0.3	0
45	Use and Abuse of a Fractional Fokker-Planck Dynamics for Time-Dependent Driving. <i>Physical Review Letters</i> , 2007, 99, 120602.	2.9	81
46	Anomalous relaxation and dielectric response. <i>Physical Review E</i> , 2007, 76, 040102.	0.8	40
47	Anomalous Escape Governed by Thermal $1/f$ Noise. <i>Physical Review Letters</i> , 2007, 99, 200601.	2.9	63
48	Fractional diffusion in periodic potentials. <i>Journal of Physics Condensed Matter</i> , 2007, 19, 065114.	0.7	13
49	Quantum Stochastic Synchronization. <i>Physical Review Letters</i> , 2006, 97, 210601.	2.9	72
50	Antibody microarrays: the crucial impact of mass transport on assay kinetics and sensitivity. <i>Expert Review of Molecular Diagnostics</i> , 2006, 6, 111-124.	1.5	58
51	Optimal Design of Microarray Immunoassays to Compensate for Kinetic Limitations. <i>Molecular and Cellular Proteomics</i> , 2006, 5, 1681-1696.	2.5	74
52	Kinetics of antigen binding to antibody microspots: Strong limitation by mass transport to the surface. <i>Proteomics</i> , 2006, 6, 794-803.	1.3	102
53	Quantum two-state dynamics driven by stationary non-Markovian discrete noise: Exact results. <i>Chemical Physics</i> , 2006, 324, 160-171.	0.9	14
54	Capacitance fluctuations causing channel noise reduction in stochastic Hodgkin-Huxley systems. <i>Physical Biology</i> , 2006, 3, 248-254.	0.8	31

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55	Chemically driven electron tunnelling pumps. <i>Molecular Simulation</i> , 2006, 32, 717-725.	0.9	3
56	Fractional Fokker-Planck dynamics: Numerical algorithm and simulations. <i>Physical Review E</i> , 2006, 73, 046133.	0.8	91
57	Current and universal scaling in anomalous transport. <i>Physical Review E</i> , 2006, 73, 020101.	0.8	58
58	Non-Markovian stochastic resonance: Three-state model of ion channel gating. <i>Physical Review E</i> , 2005, 71, 061906.	0.8	42
59	Theory of frequency and phase synchronization in a rocked bistable stochastic system. <i>Physical Review E</i> , 2005, 71, 011101.	0.8	27
60	Rate processes with non-Markovian dynamical disorder. <i>Journal of Chemical Physics</i> , 2005, 122, 164506.	1.2	12
61	Quantum dynamics in strong fluctuating fields. <i>Advances in Physics</i> , 2005, 54, 525-584.	35.9	63
62	Theory of non-Markovian stochastic resonance. <i>Physical Review E</i> , 2004, 69, 021104.	0.8	50
63	STOCHASTIC RESONANCE AND OPTIMAL CLUSTERING FOR ASSEMBLIES OF ION CHANNELS. <i>Fluctuation and Noise Letters</i> , 2004, 04, L33-L42.	1.0	38
64	Controlling the spiking activity in excitable membranes via poisoning. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 344, 665-670.	1.2	51
65	Effect of channel block on the spiking activity of excitable membranes in a stochastic Hodgkin-Huxley model. <i>Physical Biology</i> , 2004, 1, 61-66.	0.8	110
66	Quantum dynamics with non-Markovian fluctuating parameters. <i>Physical Review E</i> , 2004, 70, 016109.	0.8	27
67	Fractional diffusion modeling of ion channel gating. <i>Physical Review E</i> , 2004, 70, 051915.	0.8	102
68	Non-Markovian Stochastic Resonance. <i>Physical Review Letters</i> , 2003, 91, 070601.	2.9	91
69	The role of conformational diffusion in ion channel gating. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2003, 325, 9-18.	1.2	30
70	Channel noise and synchronization in excitable membranes. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2003, 325, 165-175.	1.2	73
71	The role of different reorganization energies within the Zusman theory of electron transfer. <i>Journal of Chemical Physics</i> , 2003, 118, 291-303.	1.2	19
72	Membrane Clusters of Ion Channels: Size Effects for Stochastic Resonance. <i>Lecture Notes in Physics</i> , 2003, , 195-206.	0.3	12

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73	Ion channel gating based on Kramers theory. , 2003, 5110, 41.		0
74	Excitable Membranes: Channel Noise, Synchronization, and Stochastic Resonance. , 2002, , 359-370.		12
75	Ion channel gating: A first-passage time analysis of the Kramers type. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 3552-3556.	3.3	98
76	Solvent controlled charge transfer dynamics on diabatic surfaces with different curvatures. Chemical Physics Letters, 2002, 360, 333-339.	1.2	12
77	Information transfer with rate-modulated Poisson processes: A simple model for nonstationary stochastic resonance. Physical Review E, 2001, 64, 021909.	0.8	28
78	Minimal Quantum Brownian Rectifiers. Journal of Physical Chemistry B, 2001, 105, 6642-6647.	1.2	40
79	Semiclassical electron transfer: Zusman equations versus Langevin approach. Chemical Physics, 2001, 268, 151-164.	0.9	9
80	Stochastic resonance as a collective property of ion channel assemblies. Europhysics Letters, 2001, 56, 22-28.	0.7	275
81	Driven tunneling dynamics: Bloch-Redfield theory versus path-integral approach. Physical Review E, 2000, 61, R4687-R4690.	0.8	86
82	Controlling electron transfer in strong time-dependent fields: Theory beyond the Golden Rule approximation. Journal of Chemical Physics, 2000, 113, 11159-11175.	1.2	39
83	Stochastic resonance in ion channels characterized by information theory. Physical Review E, 2000, 61, 4272-4280.	0.8	117
84	Directed Current Without Dissipation: Reincarnation of a Maxwell's Loschmidt Demon. , 2000, , 7-20.		9
85	Quantum stochastic resonance in parallel. New Journal of Physics, 1999, 1, 14-14.	1.2	15
86	Quantum stochastic resonance in symmetric systems. Physical Review E, 1999, 59, 5137-5141.	0.8	49
87	Noise-induced current reversal in a stochastically driven dissipative tight-binding model. Physics Letters, Section A: General, Atomic and Solid State Physics, 1998, 238, 59-65.	0.9	22
88	Nonadiabatic Quantum Brownian Rectifiers. Physical Review Letters, 1998, 81, 649-652.	2.9	39
89	Quantum rectifiers from harmonic mixing. Europhysics Letters, 1998, 43, 503-509.	0.7	105
90	Kinetic equations for a dissipative quantum system driven by dichotomous noise: An exact result. Physical Review E, 1995, 51, 6267-6270.	0.8	12

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91	Dissipative transfer of a quantum particle in a dimer with random fluctuating intersite matrix element. <i>Physical Review E</i> , 1995, 51, 2982-2986.	0.8	16
92	Dynamics of the dissipative two-level system driven by external telegraph noise. <i>Physical Review E</i> , 1995, 52, 2392-2400.	0.8	36
93	Bridge-assisted electron transfer driven by dichotomically fluctuating tunneling coupling. <i>Journal of Chemical Physics</i> , 1995, 103, 4937-4944.	1.2	73
94	Generalized Pauli master equation for a quantum dynamic system in an external field. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1994, 185, 343-348.	0.9	6
95	Stochastically averaged master equation for a quantum-dynamic system interacting with a thermal bath. <i>Physical Review E</i> , 1994, 49, 3894-3902.	0.8	33