Sergey Savel'ev

List of Publications by Year in descending order

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#	Article	IF	CITATIONS
1	Memristors with diffusive dynamics as synaptic emulators for neuromorphic computing. Nature Materials, 2017, 16, 101-108.	13.3	1,655
2	A Superconducting Reversible Rectifier That Controls the Motion of Magnetic Flux Quanta. Science, 2003, 302, 1188-1191.	6.0	441
3	Anatomy of Ag/Hafniaâ€Based Selectors with 10 ¹⁰ Nonlinearity. Advanced Materials, 2017, 29, 1604457.	11.1	292
4	Semiclassical Dynamics of Electron Wave Packet States with Phase Vortices. Physical Review Letters, 2007, 99, 190404.	2.9	287
5	A novel true random number generator based on a stochastic diffusive memristor. Nature Communications, 2017, 8, 882.	5.8	287
6	Terahertz Josephson plasma waves in layered superconductors: spectrum, generation, nonlinear and quantum phenomena. Reports on Progress in Physics, 2010, 73, 026501.	8.1	143
7	Experimentally realizable devices for controlling the motion of magnetic flux quanta in anisotropic superconductors. Nature Materials, 2002, 1, 179-184.	13.3	128
8	Ratchet without spatial asymmetry for controlling the motion of magnetic flux quanta using time-asymmetric drives. Nature Materials, 2006, 5, 305-311.	13.3	127
9	Controlling Transport in Mixtures of Interacting Particles using Brownian Motors. Physical Review Letters, 2003, 91, 010601.	2.9	125
10	Nonlinear signal mixing in a ratchet device. Europhysics Letters, 2004, 67, 179-185.	0.7	97
11	Geometric Stochastic Resonance. Physical Review Letters, 2010, 104, 020601.	2.9	96
12	Quantized conductance coincides with state instability and excess noise in tantalum oxide memristors. Nature Communications, 2016, 7, 11142.	5.8	95
13	Critical Currents in Quasiperiodic Pinning Arrays: Chains and Penrose Lattices. Physical Review Letters, 2005, 95, 177007.	2.9	93
14	Rectification currents in two-dimensional artificial channels. Physical Review E, 2009, 80, 011120.	0.8	93
15	Stepwise Behavior of Vortex-Lattice Melting Transition in Tilted Magnetic Fields in Single Crystals ofBi2Sr2CaCu2O8+l´. Physical Review Letters, 2001, 86, 886-889.	2.9	89
16	Transport via nonlinear signal mixing in ratchet devices. Physical Review E, 2004, 70, 066109.	0.8	85
17	Manipulating Small Particles in Mixtures far from Equilibrium. Physical Review Letters, 2004, 92, 160602.	2.9	83
18	Analogues of nonlinear optics using terahertz Josephson plasma waves in layered superconductors. Nature Physics, 2006, 2, 521-525.	6.5	81

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19	Current-controlled negative differential resistance due to Joule heating in TiO2. Applied Physics Letters, 2011, 99, .	1.5	78
20	Surface Josephson Plasma Waves in Layered Superconductors. Physical Review Letters, 2005, 95, 187002.	2.9	77
21	Nonlinear Nanodevices Using Magnetic Flux Quanta. Physical Review Letters, 2007, 99, 207003.	2.9	75
22	Left-Handed Interfaces for Electromagnetic Surface Waves. Physical Review Letters, 2007, 98, 073901.	2.9	67
23	Using Josephson Vortex Lattices to Control Terahertz Radiation: Tunable Transparency and Terahertz Photonic Crystals. Physical Review Letters, 2005, 94, 157004.	2.9	65
24	Electronic properties of armchair graphene nanoribbons. Physical Review B, 2009, 79, .	1.1	61
25	Stochastic transport of interacting particles in periodically driven ratchets. Physical Review E, 2004, 70, 061107.	0.8	56
26	London theory of the crossing vortex lattice in highly anisotropic layered superconductors. Physical Review B, 2001, 64, .	1.1	55
27	Quantum Terahertz Electrodynamics and Macroscopic Quantum Tunneling in Layered Superconductors. Physical Review Letters, 2007, 98, 077002.	2.9	55
28	Massless Dirac fermions in a laser field as a counterpart of graphene superlattices. Physical Review B, 2011, 84, .	1.1	53
29	Asymmetry in shape causing absolute negative mobility. Physical Review E, 2010, 82, 041121.	0.8	51
30	Chemotaxis of artificial microswimmers in active density waves. Physical Review E, 2016, 94, 012613.	0.8	51
31	Suppression of the magnetic moment under the action of a transverse magnetic field in hard superconductors. Physical Review B, 2000, 61, 15382-15391.	1.1	44
32	Interacting particles on a rocked ratchet: Rectification by condensation. Physical Review E, 2005, 71, 011107.	0.8	42
33	Signal mixing in a ratchet device: commensurability and current control. European Physical Journal B, 2004, 40, 403-408.	0.6	39
34	Quantum electromechanics: qubits from buckling nanobars. New Journal of Physics, 2006, 8, 105-105.	1.2	39
35	Nanomechanical electron shuttle consisting of a gold nanoparticle embedded within the gap between two gold electrodes. Physical Review B, 2009, 79, .	1.1	37
36	Voltage-driven quantum oscillations in graphene. New Journal of Physics, 2008, 10, 053024.	1.2	35

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37	Nonuniform Self-Organized Dynamical States in Superconductors with Periodic Pinning. Physical Review Letters, 2006, 96, 127004.	2.9	34
38	Molecular dynamics simulations of oxide memory resistors (memristors). Nanotechnology, 2011, 22, 254011.	1.3	33
39	Modelling chemical reactions using semiconductor quantum dots. Europhysics Letters, 2007, 80, 67008.	0.7	32
40	Achieving optimal rectification using underdamped rocked ratchets. Physical Review E, 2006, 73, 021102.	0.8	31
41	Current Resonances in Graphene with Time-Dependent Potential Barriers. Physical Review Letters, 2012, 109, 226602.	2.9	31
42	Geometric stochastic resonance in a double cavity. Physical Review E, 2011, 84, 011109.	0.8	30
43	Diffusion of interacting Brownian particles: Jamming and anomalous diffusion. Physical Review E, 2006, 74, 021119.	0.8	29
44	Squeezing as the source of inefficiency in the quantum Otto cycle. Physical Review B, 2012, 86, .	1.1	28
45	Relativistic Brownian motion on a graphene chip. European Physical Journal B, 2012, 85, 1.	0.6	28
46	Nonlocal critical state model for hard superconductors. Physica C: Superconductivity and Its Applications, 1995, 245, 231-237.	0.6	27
47	Phase separation in La-Pr manganites and its evolution in a magnetic field. JETP Letters, 2000, 71, 106-110.	0.4	26
48	Nanoscale Friction: Kinetic Friction of Magnetic Flux Quanta and Charge Density Waves. Physical Review Letters, 2005, 94, 077001.	2.9	26
49	Electron-Beam Instability in Left-Handed Media. Physical Review Letters, 2008, 100, 244803.	2.9	25
50	Controlling the motion of interacting particles: Homogeneous systems and binary mixtures. Chaos, 2005, 15, 026112.	1.0	23
51	Modeling an Adiabatic Quantum Computer via an Exact Map to a Gas of Particles. Physical Review Letters, 2007, 98, 120503.	2.9	23
52	Shape Waves in 2D Josephson Junctions: Exact Solutions and Time Dilation. Physical Review Letters, 2008, 101, 127002.	2.9	22
53	Quantum metamaterials: Electromagnetic waves in Josephson qubit lines. Physica Status Solidi (B): Basic Research, 2009, 246, 955-960.	0.7	22
54	Electrodynamics of hard superconductors in crossed magnetic fields. Journal of Experimental and Theoretical Physics, 1997, 84, 592-598.	0.2	21

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55	Nonlinear amplifier and frequency shifter using a tunable periodic drive. Physical Review E, 2005, 72, 056136.	0.8	20
56	Anomalous Temperature Dependence of the Casimir Force for Thin Metal Films. Physical Review Letters, 2008, 101, 096803.	2.9	20
57	Collective shuttling of attracting particles in asymmetric narrow channels. Physical Review E, 2010, 82, 030401.	0.8	20
58	Dirac fermion time-Floquet crystal: Manipulating Dirac points. Physical Review B, 2014, 89, .	1.1	20
59	Distinguishing quantum from classical oscillations in a driven phase qubit. New Journal of Physics, 2008, 10, 073026.	1.2	19
60	Resonant electromagnetic emission from intrinsic Josephson-junction stacks in a magnetic field. Physical Review B, 2009, 79, .	1.1	19
61	Ratcheting of driven attracting colloidal particles: Temporal density oscillations and current multiplicity. Physical Review E, 2011, 83, 061401.	0.8	19
62	Parametric amplification of vortex-antivortex pair generation in a Josephson junction. Physical Review B, 2014, 90, .	1.1	18
63	Experimentally realizable devices for domain wall motion control. New Journal of Physics, 2005, 7, 82-82.	1.2	17
64	Why macroscopic quantum tunnelling in Josephson junctions differs from tunnelling of a quantum particle. Europhysics Letters, 2007, 80, 17009.	0.7	16
65	Modelling price dynamics: A hybrid truncated Lévy Flight–GARCH approach. Physica A: Statistical Mechanics and Its Applications, 2013, 392, 2072-2078.	1.2	16
66	Scaling of vortex lattice melting transition in single crystals of Bi2Sr2CaCu2O8+δ. Physica C: Superconductivity and Its Applications, 2001, 357-360, 450-453.	0.6	15
67	Effects of lasing in a one-dimensional quantum metamaterial. Physical Review B, 2015, 91, .	1.1	15
68	Molecular dynamics simulations of oxide memristors: Crystal field effects. Applied Physics Letters, 2011, 99, 053108.	1.5	14
69	Two-qubit parametric amplifier: Large amplification of weak signals. Physical Review A, 2012, 85, .	1.0	14
70	Mesoscopic resistive switch: non-volatility, hysteresis and negative differential resistance. European Physical Journal B, 2013, 86, 1.	0.6	14
71	Vortex lattice kinetics and the electrodynamics of rigid superconductors. Journal of Experimental and Theoretical Physics, 1997, 85, 507-515.	0.2	13
72	Anisotropy of vortex-liquid and vortex-solid phases in single crystals ofBi2Sr2CaCu2O8+δ:Violation of the scaling law. Physical Review B, 2002, 66, .	1.1	13

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73	Noise-induced quantum coherence and persistent Rabi oscillations in a Josephson flux qubit. Physical Review B, 2009, 80, .	1.1	13
74	Molecular dynamics simulations of oxide memristors: thermalÂeffects. Applied Physics A: Materials Science and Processing, 2011, 102, 891-895.	1.1	13
75	Mechanisms of Spatiotemporal Selectivity in Cortical Area MT. Neuron, 2019, 101, 514-527.e2.	3.8	13
76	Dipole rectification in an oscillating electric field. Europhysics Letters, 2009, 88, 30003.	0.7	12
77	Feedback-controlled adiabatic quantum computation. Physical Review A, 2012, 86, .	1.0	12
78	Quantum metamaterial without local control. Physical Review B, 2013, 87, .	1.1	12
79	Spatially resolved single photon detection with a quantum sensor array. Scientific Reports, 2013, 3, 3464.	1.6	11
80	Manipulation of magnetic-flux landscapes in superconducting Bi 2 Sr 2 CaCu 2 O 8 + δ crystals. Europhysics Letters, 2006, 76, 1151-1157.	0.7	10
81	Driven binary mixtures: Clustering and giant diffusion. Europhysics Letters, 2006, 73, 513-519.	0.7	10
82	Fabrication of shuttle-junctions for nanomechanical transfer of electrons. Nanotechnology, 2009, 20, 485202.	1.3	10
83	Synchronized dynamics of Josephson vortices in artificial stacks of SNS Josephson junctions under both dc and ac bias currents. Physical Review B, 2013, 87, .	1.1	10
84	Magnetic field tunable vortex diode made of YBa2Cu3O7â^î^Josephson junction asymmetrical arrays. Applied Physics Letters, 2017, 111, .	1.5	10
85	Josephson vortex loops in nanostructured Josephson junctions. Scientific Reports, 2018, 8, 2733.	1.6	10
86	Proton transport and torque generation in rotary biomotors. Physical Review E, 2008, 78, 031921.	0.8	9
87	Diffusion-controlled generation of a proton-motive force across a biomembrane. Physical Review E, 2009, 80, 011916.	0.8	9
88	Asymmetric Long Josephson Junction Acting as a Ratchet for a Quantum Field. Physical Review Letters, 2010, 104, 190602.	2.9	9
89	Hysteretic jumps in the response of layered superconductors to electromagnetic fields. Physical Review B, 2008, 78, .	1.1	8
90	Ratcheting of neutral elastic dimers on a charged filament. Physical Review E, 2010, 81, 031114.	0.8	8

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91	Ring-shaped luminescence patterns in a locally photoexcited electron-hole bilayer. Physical Review B, 2010, 81, .	1.1	8
92	Intermittent and metastable chaos in a memristive artificial neuron with inertia. Chaos, Solitons and Fractals, 2021, 142, 110383.	2.5	8
93	Deterministic modeling of the diffusive memristor. Chaos, 2021, 31, 073111.	1.0	8
94	Non-linear resistance behavior in parallel magnetic fields: indication of the vortex-smectic phase in Bi2Sr2CaCu2O8+l´. Physica C: Superconductivity and Its Applications, 2001, 364-365, 515-517.	0.6	7
95	Vortex pumps in the crossing lattices regime of highly anisotropic layered superconductors. Physica C: Superconductivity and Its Applications, 2006, 437-438, 52-56.	0.6	7
96	Melting of the vortex-solid in irradiated Bi2Sr2CaCu2O8+l´single crystals in tilted magnetic fields. New Journal of Physics, 2006, 8, 226-226.	1.2	7
97	Harmonic mixing in two coupled qubits: Quantum synchronization via ac drives. Physical Review A, 2012, 86, .	1.0	7
98	Colossal magnetoresistance and relaxation phenomena. Journal of Physics Condensed Matter, 1998, 10, 9769-9782.	0.7	6
99	Synchronization in stacked array of the Josephson junctions in Bi2Sr2CaCu2O8+l´. Physica C: Superconductivity and Its Applications, 2008, 468, 1896-1898.	0.6	6
100	Noise-spectroscopy of multiqubit systems: Determining all their parameters by applying an external classical noise. Chemical Physics, 2010, 375, 180-183.	0.9	6
101	In-phase motion of Josephson vortices in stacked SNS Josephson junctions: effect of ordered pinning. Superconductor Science and Technology, 2013, 26, 125010.	1.8	6
102	Josephson-like currents in graphene for arbitrary time-dependent potential barriers. European Physical Journal B, 2013, 86, 1.	0.6	6
103	Transition from noise-induced to self-sustained current spiking generated by a NbOx thin film threshold switch. Applied Physics Letters, 2021, 118, .	1.5	6
104	Suppression of the magnetic moment of a hard superconductor under the action of a transverse magnetic field. Physica B: Condensed Matter, 2000, 284-288, 863-864.	1.3	5
105	Noise-enhanced performance of adiabatic quantum computing by lifting degeneracies. Physical Review A, 2010, 82, .	1.0	5
106	Temperature-resonant cyclotron spectra in confined geometries. Physical Review E, 2011, 84, 011107.	0.8	5
107	Nonlinear effects in the Josephson-vortex terahertz photonic crystal: Second harmonic generation. Physical Review B, 2012, 85, .	1.1	5
108	Stochastic GARCH dynamics describing correlations between stocks. Physica A: Statistical Mechanics and Its Applications, 2014, 410, 623-627.	1.2	5

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109	Quasi-superradiant soliton state of matter in quantum metamaterials. European Physical Journal B, 2018, 91, 1.	0.6	5
110	Towards the Heisenberg limit in microwave photon detection by a qubit array. Physical Review B, 2021, 103, .	1.1	5
111	Kinetic theory of crossed vortices. Physica B: Condensed Matter, 2000, 284-288, 735-736.	1.3	4
112	The novel electrodynamics of combined pancake and Josephson vortex lattice. Physica C: Superconductivity and Its Applications, 2001, 357-360, 597-600.	0.6	4
113	Melting transition in single crystals of Bi2Sr2CaCu2O8+δ studied by the c-axis and in-plane resistivity measurements in parallel magnetic fields. Physica C: Superconductivity and Its Applications, 2002, 378-381, 428-432.	0.6	4
114	Controlling the collective motion of interacting particles: analytical study via the nonlinear Fokker–Planck equation. Physica C: Superconductivity and Its Applications, 2003, 388-389, 661-662.	0.6	4
115	Temperature dependence of the Casimir force for bulk lossy media. Physical Review A, 2010, 82, .	1.0	4
116	Magnetic flux quantum periodicity of the frequency of the on-chip detectable electromagnetic radiation from superconducting flux-flow-oscillators. Applied Physics Letters, 2020, 117, 142601.	1.5	4
117	Noncollinear orientation of external magnetic field and flux lines penetrating an isotropic hard superconductor. Journal of Experimental and Theoretical Physics, 1998, 87, 978-984.	0.2	3
118	Novel angular dependence of vortex melting transition in single crystal Bi2Sr2CaCu2O8+δ. Physica C: Superconductivity and Its Applications, 2000, 341-348, 1181-1182.	0.6	3
119	Ratchet without spatial asymmetry: Controlling the motion of magnetic flux quanta using time-asymmetric drives. Physica C: Superconductivity and Its Applications, 2007, 460-462, 1266-1267.	0.6	3
120	Controlling Josephson dynamics by strong microwave fields. Physical Review B, 2008, 78, .	1.1	3
121	The influence of dissipation in a 1D quantum metamaterial. Superconductor Science and Technology, 2013, 26, 084005.	1.8	3
122	On the choice of GARCH parameters for efficient modelling of real stock price dynamics. Physica A: Statistical Mechanics and Its Applications, 2016, 448, 248-253.	1.2	3
123	Dirac-Weyl points' manipulation using linear polarised laser field in Floquet crystals for various Graphene superlattices. Journal of Physics: Conference Series, 2018, 961, 012012.	0.3	3
124	Spatially distributed computation in cortical circuits. Science Advances, 2022, 8, eabl5865.	4.7	3
125	Anomalous angular dependence of vortex melting transition in single crystal Bi2Sr2CaCu2O8+l´. Physica C: Superconductivity and Its Applications, 2000, 341-348, 1301-1302.	0.6	2
126	Generalized spherical version of the Blume-Emery-Griffiths model with ferromagnetic and antiferromagnetic interactions. Physical Review B, 2001, 63, .	1.1	2

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127	Influence of force-free current on vortex lattice melting transition. Physica C: Superconductivity and Its Applications, 2002, 378-381, 495-498.	0.6	2
128	Dimer currents on one dimensional asymmetric substrates. Chemical Physics, 2010, 375, 458-463.	0.9	2
129	Anomalous cross-field diffusion in a magnetic trap. Physical Review E, 2014, 90, 062117.	0.8	2
130	Tunable refraction in a two-dimensional quantum-state metamaterial. Physical Review A, 2014, 90, .	1.0	2
131	Synchronization of geometric stochastic resonance by a bi-harmonic drive. European Physical Journal B, 2014, 87, 1.	0.6	2
132	Nonlocal and Nonlinear Effects in Hard Superconductors. Physica C: Superconductivity and Its Applications, 1994, 235-240, 2901-2902.	0.6	1
133	Losses in Bi-2223/Ag tapes and in the 1 kA AC transmission line model. Superconductor Science and Technology, 1999, 12, 24-35.	1.8	1
134	The anisotropic response of the single crystal and textured HTS to the rotating AC magnetic field. Physica B: Condensed Matter, 2000, 284-288, 861-862.	1.3	1
135	Free energy of vortex system beyond the elastic approximation. Physica C: Superconductivity and Its Applications, 2001, 357-360, 601-603.	0.6	1
136	Dimensionality of vortex solid and liquid phases in single crystals of Bi2Sr2CaCu2O8+Î′ studied by the resistivity measurements. Physica C: Superconductivity and Its Applications, 2002, 378-381, 491-494.	0.6	1
137	Hysteresis jumps of the surface reactance of a layered superconductor as the incident wave amplitude varies. Low Temperature Physics, 2010, 36, 92-99.	0.2	1
138	Effect of ordered array of magnetic dots on the dynamics of Josephson vortices in stacked SNS Josephson junctions under DC and AC current. European Physical Journal B, 2015, 88, 1.	0.6	1
139	Recursive simulation of quantum annealing. Journal of Physics A: Mathematical and Theoretical, 2015, 48, 415301.	0.7	1
140	Renninger's Gedankenexperiment, the collapse of the wave function in a rigid quantum metamaterial and the reality of the quantum state vector. Scientific Reports, 2018, 8, 9608.	1.6	1
141	Manipulating the anisotropy of the Dirac-Cone in graphene by laser fields. European Physical Journal B, 2019, 92, 1.	0.6	1
142	Vortex ratchets based on asymmetric arrays of Josephson junctions. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 114001.	0.9	1
143	An investigation of higher order moments of empirical financial data and their implications to risk. Heliyon, 2022, 8, e08833.	1.4	1
144	Nonstationary Generalised Autoregressive Conditional Heteroskedasticity Modelling for Fitting Higher Order Moments of Financial Series within Moving Time Windows. Journal of Probability and Statistics, 2022, 2022, 1-19.	0.3	1

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145	Some features of magnetic field penetration and losses in fine-filament composite superconductors. Superconductor Science and Technology, 1993, 6, 863-869.	1.8	0
146	Exact solution to the strong pinning discrete model for a hard superconductor. Physica C: Superconductivity and Its Applications, 1994, 235-240, 2937-2938.	0.6	0
147	Mean-field description of a Josephson medium in a strong magnetic field. Physica C: Superconductivity and Its Applications, 1994, 235-240, 3329-3330.	0.6	0
148	Microscopic model of the critical state in hard superconductors. European Physical Journal D, 1996, 46, 907-908.	0.4	0
149	AC losses in Bi-2223 tapes and in the 1-kA transmission line model. IEEE Transactions on Applied Superconductivity, 1999, 9, 1265-1268.	1.1	0
150	NONCOLLINEAR ORIENTATION OF THE FLUX LINES PENETRATING INTO A HARD ISOTROPIC SUPERCONDUCTOR AND THE APPLIED MAGNETIC FIELD. , 2000, , .		0
151	EXPERIMENTALLY REALIZABLE DEVICES FOR CONTROLLING THE MOTION OF MAGNETIC FLUX QUANTA IN ANISOTROPIC SUPERCONDUCTORS: VORTEX LENSES, VORTEX DIODES AND VORTEX PUMPS. , 2005, , .		0
152	Surface Josephson Plasma Waves in Layered HTC Superconductors and their Excitation via Attenuated Total Reflection. , 0, , .		0
153	Resonance effects due to exitation of the surface waves in periodically-modulated layered superconductors. , 2007, , .		0
154	Current Induced Decomposition of Abrikosov Vortices in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>p</mml:mi><mml:mtext mathvariant="normal">â^^<mml:mi>n</mml:mi>Layered Superconductors and Heterostructures. Physical Review Letters, 2008, 101, 197002.</mml:mtext </mml:math 	2.9	0
155	Tuning the current-voltage characteristics of Josephson junctions by strong microwave fields. Journal of Physics: Conference Series, 2009, 150, 052034.	0.3	0
156	Luminescence patterns in photoexcited quantum wells: diffusion of the Coulomb plasma versus exciton superfluidity. Journal of Physics: Conference Series, 2011, 286, 012046.	0.3	0
157	Free superflow of excitons in a dark state and luminescence rings in quantum well structures. Europhysics Letters, 2011, 94, 17006.	0.7	0
158	Reply to "Comment on â€~Temperature dependence of the Casimir force for lossy bulk media' ― Phy Review A, 2011, 84, .	'sical 1.0	0
159	Nonlinear effects in the Josephson-vortex terahertz photonic crystal: Frequency mixing. European Physical Journal B, 2013, 86, 1.	0.6	0
160	Tilted vortex lattice in irradiate Bi ₂ Sr ₂ CaCu ₂ O _{8+δ} single crystals. Journal of Physics: Conference Series, 2016, 667, 012007.	0.3	0
161	Rectification of Brownian Particles with Oscillating Radii in Asymmetric Corrugated Channels. Acta Physica Polonica A, 2015, 128, 159-163.	0.2	0