Ilya Feranchuk

List of Publications by Year
in descending order

120 papers	1,084 citations	516710 16 h-index	477307 29 g-index
125 all docs	125 docs citations	125 times ranked	420 citing authors

#	Article	IF	Citations
1	Radiation-induced interaction potential of two qubits strongly coupled with a quantized electromagnetic field. Physical Review A, 2020, 102, .	2.5	4
2	A Uniformly Suitable Approximation for the Characteristics of the Electromagnetic Field in the Rabi Quantum Model. Journal of Applied Spectroscopy, 2020, 86, 1031-1038.	0.7	1
3	Method of the equivalent photons for modulated electron beam. Journal of the Belarusian State University Physics, 2020, , 24-31.	0.2	0
4	Parametric X-ray radiation in the Smith-Purcell geometry for non-destructive beam diagnostics. Nuclear Instruments & Methods in Physics Research B, 2019, 444, 125-134.	1.4	5
5	Spontaneous emission in a quantum system driven by a resonant field beyond the rotating wave approximation. Journal of Physics B: Atomic, Molecular and Optical Physics, 2017, 50, 105501.	1.5	4
6	Radical increase of the parametric X-ray intensity under condition of extremely asymmetric diffraction. Nuclear Instruments & Methods in Physics Research B, 2017, 412, 86-92.	1.4	7
7	Analytic approximation for eigenvalues of a class of PT -symmetric Hamiltonians. Physical Review A, 2017, 96, .	2.5	3
8	Analytic model of a multi-electron atom. Journal of Physics B: Atomic, Molecular and Optical Physics, 2017, 50, 245007.	1.5	8
9	Quantum effects for particles channeling in a bent crystal. Nuclear Instruments & Methods in Physics Research B, 2016, 383, 109-114.	1.4	0
10	Physical background for parameters of the quantum Rabi model. Journal of Physics A: Mathematical and Theoretical, 2016, 49, 454001.	2.1	9
11	Regularization of ultraviolet divergence for a particle interacting with a scalar quantum field. Physical Review D, 2015, 92, .	4.7	3
12	Parametric gamma-radiation in Fe crystal with natural splitting of the MÃ¶ssbauer line. Nuclear Instruments & Methods in Physics Research B, 2015, 355, 180-183.	1.4	0
13	Many-Electron Atoms. Lecture Notes in Physics, 2015, , 287-329.	0.7	0
14	Parametric X-rays from a polycrystalline target. Nuclear Instruments & Methods in Physics Research B, 2015, 360, 75-80.	1.4	5
15	Non-perturbative Description of Quantum Systems. Lecture Notes in Physics, 2015, , .	0.7	20
16	Operator Method for Quantum Statistics. Lecture Notes in Physics, 2015, , 129-185.	0.7	0
17	Applications of OM for One-Dimensional Systems. Lecture Notes in Physics, 2015, , 81-128.	0.7	0
18	Basics of the Operator Method. Lecture Notes in Physics, 2015, , 27-80.	0.7	1

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19	Systems with Infinite Number of Degrees of Freedom. Lecture Notes in Physics, 2015, , 331-358.	0.7	0
20	Two-Dimensional Exciton in Magnetic Field with Arbitrary Strength. Lecture Notes in Physics, 2015, , 215-249.	0.7	0
21	Theoretical Concepts of X-Ray Nanoscale Analysis. Springer Series in Materials Science, 2014, , .	0.6	22
22	Justification of the single-mode approximation for a finite-duration laser pulse interacting with an electron. Journal of Physics B: Atomic, Molecular and Optical Physics, 2014, 47, 115601.	1.5	3
23	X-Ray Reflectivity. Springer Series in Materials Science, 2014, , 71-118.	0.6	0
24	Diffuse X-Ray Scattering from Imperfect Surfaces and Interfaces. Springer Series in Materials Science, 2014, , 171-216.	0.6	0
25	X-Ray Diffraction from Crystals with Defects. Springer Series in Materials Science, 2014, , 217-263.	0.6	0
26	Parametric gamma-radiation at the anomalous passage conditions. Nuclear Instruments & Methods in Physics Research B, 2014, 336, 31-36.	1.4	1
27	Time dependence of X-ray polarizability of a crystal induced by an intense femtosecond X-ray pulse. IUCrJ, 2014, 1, 402-417.	2.2	5
28	X-Ray Diffraction Residual Stress Analysis in Polycrystals. Springer Series in Materials Science, 2014, , 265-311.	0.6	1
29	X-Ray Diffraction in Ideal Crystals. Springer Series in Materials Science, 2014, , 119-169.	0.6	0
30	The Theory of X-Ray Scattering fromÂMacroscopical Objects. Springer Series in Materials Science, 2014, , 53-69.	0.6	0
31	Basic Principles of the Interaction of X-Rays with Matter: Quantum Electrodynamical Analysis. Springer Series in Materials Science, 2014, , 1-51.	0.6	0
32	Increase of parametric X-ray intensity due to the Borrmann effect. Nuclear Instruments & Methods in Physics Research B, 2013, 311, 78-85.	1.4	4
33	Parametric Î³-radiation from electrons in MÃ¶ssbauer crystal. EPJ Applied Physics, 2013, 62, 10702.	0.7	3
34	Covariant description of X-ray diffraction from anisotropically relaxed epitaxial structures. Journal of Applied Crystallography, 2013, 46, 919-925.	4.5	4
35	Theoretical investigation of scattering properties of crystal exposed to the XFEL femtosecond pulse. , 2013, , .		0
36	Parametric beam instability of the electron bunch in a crystal. , 2013, , .		1

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37	Collapse-and-revival dynamics of strongly laser-driven electrons. Physical Review A, 2013, 87, .	2.5	16
38	Collapse-revival Dynamics in Strongly Laser-driven Electrons. , 2013, , .		0
39	Calculation of physical properties of atoms and ions based on analytical perturbation theory. Journal of Applied Spectroscopy, 2011, 77, 749-757.	0.7	6
40	Transformation of a Rabi oscillation spectrum for a two-level system in a strong resonant field. Journal of Applied Spectroscopy, 2011, 77, 832-840.	0.7	3
41	Strong field effects in the evolution of a two-level system. Physics Letters, Section A: General, Atomic and Solid State Physics, 2011, 375, 385-389.	2.1	19
42	Lattice tilt, concentration, and relaxation degree of partly relaxed InGaAs/GaAs structures. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 2539-2543.	1.8	6
43	Highâ€resolution reciprocal space mapping of distributed Bragg reflectors and virtual substrates. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 2582-2586.	1.8	1
44	Regular perturbation theory for two-electron atoms. Physics Letters, Section A: General, Atomic and Solid State Physics, 2011, 375, 2550-2554.	2.1	5
45	Influence of Surface Roughness on Evaluation of Stress Gradients in Coatings. Materials Science Forum, 2011, 681, 121-126.	0.3	4
46	Calculation of X-Ray Stress Factors Using Vector Parameterization and Irreducible Representations for SO(3) Group. Materials Science Forum, 2011, 681, 387-392.	0.3	2
47	Nonasymptotic analysis of relativistic electron scattering in the Coulomb field. Physical Review A, 2010, 82, .	2.5	4
48	Parametric x-ray radiation for the grazing incidence geometry. , 2010, , .		0
49	Laser induced x-ray radiation under the grazing incidence geometry. Journal of Physics: Conference Series, 2010, 236, 012015.	0.4	1
50	Resonant retuning of Rabi oscillations in a two-level system. Journal of Applied Spectroscopy, 2009, 76, 482-486.	0.7	0
51	A dynamical theory for the Xâ€ray diffraction from the partially relaxed layers. Physica Status Solidi (A) Applications and Materials Science, 2009, 206, 1695-1698.	1.8	2
52	Analytical analysis of the â€œcollapse-revivalâ€effect in the Jaynesâ€"Cummings model. Physics Letters, Section A: General, Atomic and Solid State Physics, 2009, 373, 517-520.	2.1	13
53	Resonant modification of the Rabi oscillations of a two-level system. Physics Letters, Section A: General, Atomic and Solid State Physics, 2009, 373, 4113-4116.	2.1	13
54	X-ray dynamical diffraction from partly relaxed epitaxial structures. Physical Review B, 2009, 80, .	3.2	5

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55	Applications of parametric X-rays for X-ray diffraction analysis. Nuclear Instruments & Methods in Physics Research B, 2008, 266, 3888-3892.	1.4	0
56	Composition and phase stability upon annealing of gradient nitride coatings. Surface and Coatings Technology, 2008, 202, 2389-2393.	4.8	10
57	Long-range scans and many-beam effects for high-resolution x-ray diffraction from multilayered structures: Experiment and theory. Physical Review B, 2008, 77, .	3.2	5
58	<title>Simulation of the PXR and CBS spectra radiated by non-relativistic electrons in thin crystals</title>. , 2007, , .		1
59	Grazing incidence parametric X-ray radiation from the relativistic electron beam moving in parallel to the superlattice surface. EPJ Applied Physics, 2007, 38, 135-140.	0.7	5
60	Experimental observation of frequency tuning of X-ray radiation from nonrelativistic electrons in crystals. Physics Letters, Section A: General, Atomic and Solid State Physics, 2007, 363, 448-452.	2.1	10
61	Experimental observation of frequency tunable x‑rays generated by interaction of nonrelativistic electrons with a silicon crystal. X-Ray Spectrometry, 2007, 36, 343-347.	1.4	0
62	Operator method for calculating the spectrum of states in the framework of the extended dicke model. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2007, 103, 291-299.	0.6	0
63	Self-consistent approach to x-ray reflection from rough surfaces. Physical Review B, 2007, 75, .	3.2	16
64	Self-Localized Quasi-Particle Excitation in Quantum Electrodynamics and Its Physical Interpretation. Symmetry, Integrability and Geometry: Methods and Applications (SIGMA), 2007, , .	0.5	0
65	Coherent bremsstrahlung and parametric X-ray radiation from nonrelativistic electrons in a crystal. Technical Physics Letters, 2006, 32, 392-395.	0.7	3
66	Development of tunable source on the basis of parametric X-radiation. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2005, 543, 55-57.	1.6	6
67	Dynamical diffraction theory for the parametric X-rays and coherent bremsstrahlung. Nuclear Instruments & Methods in Physics Research B, 2005, 234, 148-158.	1.4	4
68	Anomalous scattering method in crystallography on the basis of parametric X-radiation. Acta Crystallographica Section A: Foundations and Advances, 2005, 61, 125-133.	0.3	1
69	Regularization of the Coulomb scattering problem. Physical Review A, 2004, 70, .	2.5	15
70	Operator method for nonperturbative calculation of the thermodynamic values in quantum statistics: diatomic molecular gas. Journal of Physics A, 2004, 37, 9841-9860.	1.6	4
71	OPERATOR METHOD FOR NONPERTURBATIVE DESCRIPTION OF QUANTUM SYSTEMS. , 2004, , .		1
72	Analytical ansatz for self-consistent calculations of x-ray transmission and reflection coefficients at graded interfaces. Physical Review B, 2003, 67, .	3.2	12

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73	About non-Gaussian behaviour of the Debye-Waller factor at large scattering vectors. EPJ Applied Physics, 2003, 24, 21-26.	0.7	5
74	Description of x-ray reflection and diffraction from periodical multilayers and superlattices by the eigenwave method. Physical Review B, 2003, 68, .	3.2	8
75	Estimation of the Debye temperature for crystals with polyatomic unit cell. EPJ Applied Physics, 2002, 19, 95-101.	0.7	7
76	Control of the atom (nucleus) lifetime in the excited state by means of a low-frequency external field. Journal of Physics B: Atomic, Molecular and Optical Physics, 2002, 35, 3957-3965.	1.5	5
77	A new method for calculation of crystal susceptibilities for X-ray diffraction at arbitrary wavelength. Acta Crystallographica Section A: Foundations and Advances, 2002, 58, 370-384.	0.3	19
78	Transition radiation from electrons: Application to thin film and superlattice analysis. Physical Review B, 2001, 63, .	3.2	3
79	Interference of parametric X-ray and coherentBremsstrahlungradiation from nonrelativistic electrons: application to the phase analysis in crystallography. Acta Crystallographica Section A: Foundations and Advances, 2001, 57, 283-289.	0.3	2
80	UNIFORMLY SUITABLE ESTIMATION FOR THERMODYNAMIC VALUES. , 2001, , 327-335.		0
81	Parametric x-ray radiation and coherent bremsstrahlung from nonrelativistic electrons in crystals. Physical Review E, 2000, 62, 4225-4234.	2.1	34
82	About new applications of parametric X-radiation for crystallography. Acta Crystallographica Section A: Foundations and Advances, 1999, 55, 466-470.	0.3	11
83	Operator method for coupled anharmonic oscillators. Journal of Physics A, 1999, 32, 2115-2128.	1.6	8
84	Two-level system in a one-mode quantum field: numerical solution on the basis of the operator method. Journal of Physics A, 1996, 29, 4035-4047.	1.6	92
85	Operator Method in the Problem of Quantum Anharmonic Oscillator. Annals of Physics, 1995, 238, 370-440.	2.8	51
86	Program complex for the description of electromagnetic processes during planar and axial channeling of relativistic particles. Nuclear Instruments & Methods in Physics Research B, 1994, 88, 369-381.	1.4	2
87	Specific heat from an unsymmetrical double well potential. Chemical Physics, 1991, 157, 61-66.	1.9	9
88	Statistical description of the particle spatial distribution in a porous medium. Soviet Powder Metallurgy and Metal Ceramics (English Translation of Poroshkovaya Metallurgiya), 1991, 30, 848-852.	0.1	1
89	Quantum analog of Lienard-Wichert potentials. Soviet Physics Journal (English Translation of)	0.6	0
90	Analytical estimation of the energies and widths of the Rydberg states of a hydrogen atom in an electric field. Physics Letters, Section A: General, Atomic and Solid State Physics, 1989, 137, 385-388.	2.1	9

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91	Investigation of the Transition between Large‐and Small‐Radius Polarons in a One‐Dimensional Crystal. Physica Status Solidi (B): Basic Research, 1989, 155, 169-177.	1.5	1
92	Statistical description of particle correlations in porous media. Materials Letters, 1989, 8, 329-334.	2.6	1
93	Analytical approximation for the thermodynamic properties of a diatomic gas. Chemical Physics Letters, 1988, 150, 78-81.	2.6	4
94	The operator method in the direct and inverse problems of the spectroscopy. Molecular Physics, 1988, 64, 589-594.	1.7	2
95	Parametric X-rays in the case of degenerate two-beam diffraction. Journal Physics D: Applied Physics, 1988, 21, 831-833.	2.8	2
96	An analytical description of some quantum systems in periodic external fields and quasistationary systems. Journal of Physics A, 1987, 20, 3849-3860.	1.6	7
97	Operator method of calculation of the quasi-steady state eigenvalues. Physics Letters, Section A: General, Atomic and Solid State Physics, 1987, 125, 123-128.	2.1	8
98	Optimal choice of a parameter for the operator method of the solution of the Schrodinger equation. Journal of Physics A, 1986, 19, 1583-1587.	1.6	10
99	Theoretical interpretation of parametric X-ray spectra. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1986, 249, 306-319.	1.6	22
100	Experimental observation of the parametric X-rays from ultrarelativistic electrons. Journal Physics D: Applied Physics, 1986, 19, 171-176.	2.8	6
101	Theoretical interpretation of radiation spectra from channeled positrons. Physics Letters, Section A: General, Atomic and Solid State Physics, 1985, 112, 346-351.	2.1	1
102	Angular distribution of parametric X-rays. Physics Letters, Section A: General, Atomic and Solid State Physics, 1985, 110, 477-479.	2.1	20
103	Observation of monochromatic X-ray radiation from 900 MeV electrons transmitting through a diamond crystal. Physics Letters, Section A: General, Atomic and Solid State Physics, 1985, 110, 177-179.	2.1	35
104	A comparative analysis of various mechanisms for the generation of X-rays by relativistic particles. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1985, 228, 490-495.	1.6	47
105	Analytical investigation of the polaron problem. Journal of Physics C: Solid State Physics, 1985, 18, 5083-5094.	1.5	9
106	Parametric beam instability of relativistic charged particles in a crystal. Physics Letters, Section A: General, Atomic and Solid State Physics, 1984, 102, 141-144.	2.1	35
107	Operator method of the uniformly fitted estimation of some integrals. Physics Letters, Section A: General, Atomic and Solid State Physics, 1984, 106, 109-112.	2.1	6
108	The operator method of the approximate description of the quantum and classical systems. Journal of Physics A, 1984, 17, 3111-3133.	1.6	29

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109	Analysis of the polaron problem on the basis of the operator method. Journal of Physics C: Solid State Physics, 1984, 17, 4309-4318.	1.5	12
110	Parametric X-rays from ultrarelativistic electrons in a crystal : theory and possibilities of practical utilization. Journal De Physique, 1983, 44, 913-922.	1.8	93
111	The regular perturbation theory in the strong-coupling polaron problem. Journal of Physics C: Solid State Physics, 1982, 15, 1965-1971.	1.5	9
112	The operator method of the approximate solution of the Schrödinger equation. Physics Letters, Section A: General, Atomic and Solid State Physics, 1982, 88, 211-214.	2.1	97
113	A zone spectrum of the ultrarelativistic channelled particles in a crystal. Journal De Physique, 1982, 43, 1687-1697.	1.8	3
114	About a possibility of a decrease in the radiative width of excited levels of atoms and nuclei. Physics Letters, Section A: General, Atomic and Solid State Physics, 1981, 83, 126-128.	2.1	3
115	Theory of the strong coupling of a particle and a quantized field with internal degrees of freedom. Theoretical and Mathematical Physics(Russian Federation), 1981, 47, 313-320.	0.9	1
116	Ultrarelativistic particle radiation in a crystal and observation of the γ–γ correlations. Physics Letters, Section A: General, Atomic and Solid State Physics, 1980, 76, 452-454.	2.1	5
117	Numerical solution of a non-linear self-consistent eigenvalue problem. USSR Computational Mathematics and Mathematical Physics, 1978, 18, 153-164.	0.0	0
118	Bogolyubov transformation in the theory of strong coupling of a heavy particle to a scalar field. Theoretical and Mathematical Physics(Russian Federation), 1977, 32, 730-736.	0.9	1
119	The X-ray radiation of ultrarelativistic electrons in a crystal. Physics Letters, Section A: General, Atomic and Solid State Physics, 1976, 57, 183-185.	2.1	37
120	Relativistic effective charge model of a multi-electron atom. Journal of Physics B: Atomic, Molecular and Optical Physics, 0, , .	1.5	1