Nickolay V Sibirev

List of Publications by Year
in descending order

119	2,937	186209 28	168321 53
papers	citations	h-index	g-index

119	119	119	1946
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Growth kinetics and crystal structure of semiconductor nanowires. Physical Review B, 2008, 78, .	1.1	276
2	Diffusion-induced growth of GaAs nanowhiskers during molecular beam epitaxy: Theory and experiment. Physical Review B, 2005, 71, .	1.1	272
3	Theoretical analysis of the vapor-liquid-solid mechanism of nanowire growth during molecular beam epitaxy. Physical Review E, 2006, 73, 021603.	0.8	163
4	Gibbs-Thomson and diffusion-induced contributions to the growth rate of Si, InP, and GaAs nanowires. Physical Review B, 2009, 79, .	1.1	163
5	Growth thermodynamics of nanowires and its application to polytypism of zinc blende III-V nanowires. Physical Review B, 2008, 77, .	1.1	160
6	New Mode of Vaporâ^'Liquidâ^'Solid Nanowire Growth. Nano Letters, 2011, 11, 1247-1253.	4.5	132
7	Critical diameters and temperature domains for MBE growth of IIIâ€“V nanowires on lattice mismatched substrates. Physica Status Solidi - Rapid Research Letters, 2009, 3, 112-114.	1.2	116
8	Growth rate of a crystal facet of arbitrary size and growth kinetics of vertical nanowires. Physical Review E, 2004, 70, 031604.	0.8	109
9	Role of nonlinear effects in nanowire growth and crystal phase. Physical Review B, 2009, 80, .	1.1	90
10	Surface energy and crystal structure of nanowhiskers of IIIâ€“V semiconductor compounds. Physics of the Solid State, 2010, 52, 1531-1538.	0.2	81
11	General form of the dependences of nanowire growth rate on the nanowire radius. Journal of Crystal Growth, 2007, 304, 504-513.	0.7	71
12	Analytical Study of Elastic Relaxation and Plastic Deformation in Nanostructures on Lattice Mismatched Substrates. Crystal Growth and Design, 2011, 11, 5441-5448.	1.4	69
13	Shape modification of III-V nanowires: The role of nucleation on sidewalls. Physical Review E, 2008, 77, 031606.	0.8	59
14	Diffusion-controlled growth of semiconductor nanowires: Vapor pressure versus high vacuum deposition. Surface Science, 2007, 601, 4395-4401.	0.8	57
15	Growth of GaAs nanoscale whiskers by magnetron sputtering deposition. Journal of Crystal Growth, 2006, 289, 31-36.	0.7	52
16	Stress-Driven Nucleation of Three-Dimensional Crystal Islands: From Quantum Dots to Nanoneedles. Crystal Growth and Design, 2010, 10, 3949-3955.	1.4	52
17	Influence of shadow effect on the growth and shape of InAs nanowires. Journal of Applied Physics, 2012, 111, .	1.1	49
18	The role of surface diffusion of adatoms in the formation of nanowire crystals. Semiconductors, 2006, 40, 1075-1082.	0.2	48

#	Article	IF	Citations
19	Understanding the composition of ternary III-V nanowires and axial nanowire heterostructures in nucleation-limited regime. Materials and Design, 2017, 132, 400-408.	3.3	46
20	On the non-monotonic lateral size dependence of the height of GaAs nanowhiskers grown by molecular beam epitaxy at high temperature. Physica Status Solidi (B): Basic Research, 2004, 241, R30-R33.	0.7	45
21	The diffusion mechanism in the formation of GaAs and AlGaAs nanowhiskers during the process of molecular-beam epitaxy. Semiconductors, 2005, 39, 557-564.	0.2	43
22	Modeling of InAsâ€“InSb nanowires grown by Au-assisted chemical beam epitaxy. Nanotechnology, 2012, 23, 095602.	1.3	36
23	Composition-Dependent Interfacial Abruptness in Au-Catalyzed Si_{1â€“x}Ge_x/Si/Si_{1â€“x}Ge_x Nanowire Heterostructures. Nano Letters, 2014, 14, 5140-5147.	4.5	34
24	Readsorption Assisted Growth of InAs/InSb Heterostructured Nanowire Arrays. Crystal Growth and Design, 2013, 13, 878-882.	1.4	32
25	Length distributions of Au-catalyzed and In-catalyzed InAs nanowires. Nanotechnology, 2016, 27, 375602.	1.3	30
26	Model for large-area monolayer coverage of polystyrene nanospheres by spin coating. Scientific Reports, 2017, 7, 40888.	1.6	30
27	Dopant-stimulated growth of GaN nanotube-like nanostructures on Si(111) by molecular beam epitaxy. Beilstein Journal of Nanotechnology, 2018, 9, 146-154.	1.5	30
28	Kinetic model of the growth of nanodimensional whiskers by the vapor-liquid-crystal mechanism. Technical Physics Letters, 2004, 30, 682-686.	0.2	29
29	Catalyst-free growth of InAs nanowires on Si (111) by CBE. Nanotechnology, 2015, 26, 415604.	1.3	29
30	Growth and Characterization of GaP/GaPAs Nanowire Heterostructures with Controllable Composition. Physica Status Solidi - Rapid Research Letters, 2019, 13, 1900350.	1.2	28
31	Photoluminescence properties of GaAs nanowire ensembles with zincblende and wurtzite crystal structure. Physica Status Solidi - Rapid Research Letters, 2010, 4, 175-177.	1.2	27
32	Elastic energy relaxation and critical thickness for plastic deformation in the core-shell InGaAs/GaAs nanopillars. Journal of Applied Physics, 2013, 113, .	1.1	26
33	Growth of Inclined GaAs Nanowires by Molecular Beam Epitaxy: Theory and Experiment. Nanoscale Research Letters, 2010, 5, 1692-1697.	3.1	23
34	Factors Influencing the Interfacial Abruptness in Axial IIIâ€“V Nanowire Heterostructures. Crystal Growth and Design, 2016, 16, 2019-2023.	1.4	23
35	Experimental and theoretical investigations on the phase purity of GaAs zincblende nanowires. Semiconductor Science and Technology, 2011, 26, 014034.	1.0	22
36	Size distributions, scaling properties, and Bartelt-Evans singularities in irreversible growth with size-dependent capture coefficients. Physical Review B, 2014, 89, .	1.1	16

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37	Analytic scaling function for island-size distributions. Physical Review E, 2015, 91, 042408.	0.8	14
38	Size distributions of fullerene surface clusters. Applied Surface Science, 2014, 307, 46-51.	3.1	13
39	Modeling the nucleation statistics in vaporâ€“liquidâ€“solid nanowires. Journal of Crystal Growth, 2014, 401, 51-55.	0.7	12
40	InAs/InP core/shell nanowire gas sensor: Effects of InP shell on sensitivity and long-term stability. Applied Surface Science, 2019, 498, 143756.	3.1	12
41	Nanodimensional whisker growth by the generalized vapor-liquid-crystal mechanism. Technical Physics Letters, 2006, 32, 185-187.	0.2	11
42	The initial stage of growth of crystalline nanowhiskers. Semiconductors, 2010, 44, 112-115.	0.2	11
43	Influence of substrate temperature on the shape of GaAs nanowires grown by Au-assisted MOVPE. Journal of Crystal Growth, 2010, 312, 1676-1682.	0.7	11
44	Effect of diffusion from a lateral surface on the rate of GaN nanowire growth. Semiconductors, 2012, 46, 838-841.	0.2	11
45	Cobalt epitaxial nanoparticles on CaF2/Si(111): Growth process, morphology, crystal structure, and magnetic properties. Physical Review B, 2013, 87, .	1.1	11
46	On the Mechanism of the Vaporâ€“Solidâ€“Solid Growth of Au-Catalyzed GaAs Nanowires. Semiconductors, 2019, 53, 350-360.	0.2	11
47	Temperature profile along a nanowhisker growing in high vacuum. Technical Physics Letters, 2006, 32, 292-295.	0.2	10
48	A3B5 nanowhiskers: MBE growth and properties. European Physical Journal D, 2006, 56, 13-20.	0.4	10
49	Hexagonal structures in GaAs nanowhiskers. Technical Physics Letters, 2008, 34, 538-541.	0.2	10
50	Effect of nucleation on the crystalline structure of nanowhiskers. Technical Physics Letters, 2009, 35, 380-383.	0.2	10
51	Classification of the Morphologies and Related Crystal Phases of IIIâ€“V Nanowires Based on the Surface Energy Analysis. Journal of Physical Chemistry C, 2019, 123, 18693-18701.	1.5	10
52	A modified Kolmogorov model and the growth rate of a crystal face of arbitrary size. Technical Physics Letters, 2004, 30, 791-794.	0.2	9
53	Analysis of the dispersion equation for the SchrÃ¶dinger operator on periodic metric graphs. Waves in Random and Complex Media, 2004, 14, 157-183.	1.5	9
54	Threshold behavior of the formation of nanometer islands in a Ge/Si(100) system in the presence of Sb. Semiconductors, 2005, 39, 547-551.	0.2	9

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55	Rate equation approach to understanding the ion-catalyzed formation of peptides. Journal of Chemical Physics, 2013, 138, 244906.	1.2	9
56	Transient processes under excitation of ultrashort laser pulses in colloidal solutions of CdSe/ZnS quantum dots. Applied Optics, 2018, 57, 8166.	0.9	9
57	Performance Enhancement of Ultra-Thin Nanowire Array Solar Cells by Bottom Reflectivity Engineering. Nanomaterials, 2020, 10, 184.	1.9	9
58	On diffusion lengths of Ga adatoms on AlAs(111) and GaAs(111) surfaces. Technical Physics, 2009, 54, 586-589.	0.2	8
59	Statistics of nucleation associated with the growth of whisker nanocrystals. Technical Physics Letters, 2013, 39, 660-663.	0.2	8
60	Tailoring Morphology and Vertical Yield of Self-Catalyzed GaP Nanowires on Template-Free Si Substrates. Nanomaterials, 2021, 11, 1949.	1.9	8
61	Growth of GaAs nanowhisker arrays by magnetron sputtering on Si(111) substrates. Technical Physics Letters, 2006, 32, 520-522.	0.2	7
62	Special features of heterojunction formation in whisker nanocrystals. Technical Physics Letters, 2015, 41, 209-212.	0.2	7
63	Features of nucleation in nanovolumes. Technical Physics Letters, 2009, 35, 1117-1120.	0.2	6
64	Nonlinear effects during the growth of semiconductor nanowires. Semiconductors, 2009, 43, 1226-1234.	0.2	6
65	Influence of MBE growth conditions on the surface morphology of Al(Ga)As nanowhiskers. Physica Status Solidi (A) Applications and Materials Science, 2006, 203, 1365-1369.	0.8	5
66	The theory of the formation of multilayered thin films on solid surfaces. Semiconductors, 2006, 40, 249-256.	0.2	5
67	Effect of deposition conditions on nanowhisker morphology. Semiconductors, 2007, 41, 865-874.	0.2	5
68	Growth of GaAs nanowireâ€“graphite nanoplatelet hybrid structures. CrystEngComm, 2019, 21, 6165-6172.	1.3	5
69	A Low-Threshold Miniaturized Plasmonic Nanowire Laser with High-Reflectivity Metal Mirrors. Nanomaterials, 2020, 10, 1928.	1.9	5
70	Monolithic integration of InP on Si by molten alloy driven selective area epitaxial growth. Nanoscale, 2020, 12, 23780-23788.	2.8	5
71	Assessing the minimum diameter of nanowhiskers. Technical Physics Letters, 2006, 32, 1047-1050.	0.2	4
72	Deposition-rate dependence of the height of GaAs-nanowires. Semiconductors, 2008, 42, 1259-1263.	0.2	4

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73	The initial stage of growth of self-induced GaN nanowires. Technical Physics Letters, 2014, 40, 471-474.	0.2	4
74	Modeling of axial heterostructure formation in ternary III-V nanowires. Journal of Physics: Conference Series, 2015, 643, 012007.	0.3	4
75	Regimes of radial growth for Ga-catalyzed GaAs nanowires. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	1.1	4
76	Solar Cell Based on Core/Shell Nanowires. Semiconductors, 2018, 52, 1568-1572.	0.2	4
77	Sub-Poissonian length distributions of vaporâ€“liquidâ€“solid nanowires induced by nucleation antibunching. Journal Physics D: Applied Physics, 2017, 50, 254004.	1.3	4
78	Computer simulation of coherent island growth in Ge/Si and InAs/GaAs systems. Technical Physics Letters, 2007, 33, 490-492.	0.2	3
79	Self-consistent model of nanowire growth and crystal structure with regard to the adatom diffusion. Technical Physics, 2011, 56, 311-315.	0.2	3
80	Asymptotics of localized spectral bands of the periodical waveguide. , 2002, , .		2
81	Time Variation of the Mean Quantum Dot Size at the Kinetic Growth Stage. Technical Physics Letters, 2005, 31, 161.	0.2	2
82	The band structure and photoluminescence in a Ge0.8Si0.2/Ge0.1Si0.9 superlattice with vertically correlated quantum dots. Semiconductors, 2006, 40, 224-228.	0.2	2
83	Nucleation at the lateral surface and the shape of whisker nanocrystals. Semiconductors, 2007, 41, 1240-1247.	0.2	2
84	Effect of growth atmosphere on the temperature profile along a nanowhisker. Technical Physics Letters, 2008, 34, 512-515.	0.2	2
85	Heterostructure formation in nanowhiskers via diffusion mechanism. Technical Physics Letters, 2008, 34, 750-753.	0.2	2
86	Wetting regime of semiconductor nanowhisker growth: Stability and shape of catalyst droplet. Technical Physics Letters, 2012, 38, 221-224.	0.2	2
87	Effect of an arsenic flux on the molecular-beam epitaxy of self-catalytic (Ga,Mn)As nanowire crystals. Semiconductors, 2013, 47, 1416-1421.	0.2	2
88	Study of the electrical properties of individual (Ga,Mn)As nanowires. Semiconductors, 2014, 48, 344-349.	0.2	2
89	Comparison of GaAs nanowire growth seeded by Ag and Au colloidal nanoparticles on silicon. Nanotechnology, 2020, 31, 374005.	1.3	2
90	<title>GaAs nanowhiskers grown by molecular beam epitaxy on GaAs(111)B surface activated by Au: theory and experiment</title>. , 2005, 5946, 275.		1

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91	Lateral ordering of GaAs nanowhiskers on GaAs(111)As and GaAs (110) surfaces during molecular-beam epitaxy. Semiconductors, 2008, 42, 710-713.	0.2	1
92	Numerical analysis of the effect of fluctuations on the growth of nuclei during first-order phase transitions. Technical Physics Letters, 2011, 37, 596-600.	0.2	1
93	New method of determining the youngâ€™s Modulus of (Ga,Mn)As nanowhiskers with a scanning electron microscope. Physics of the Solid State, 2013, 55, 2229-2233.	0.2	1
94	Self-limiting growth and bimodal size distribution of Au nanoislands on InAs(111)B surface. Journal of Physics: Conference Series, 2015, 643, 012012.	0.3	1
95	Broadening of length distributions of Au-catalyzed InAs nanowires. AIP Conference Proceedings, 2016, , .	0.3	1
96	As flux controlled formation of (Al,Ga)As axial nanowire heterostructures. AIP Conference Proceedings, 2016, , .	0.3	1
97	GaP/Si(111) Nanowire Crystals Synthesized by Molecular-Beam Epitaxy with Switching between the Hexagonal and Cubic Phases. Semiconductors, 2018, 52, 1-5.	0.2	1
98	Photodynamics of Nonlinear Effects of Picosecond Laser Action on CdSe/ZnS QDs Colloidal Solutions. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2018, 125, 716-721.	0.2	1
99	Growth Modes of GaN Plasma-Assisted MBE Nanowires. Semiconductors, 2018, 52, 2085-2087.	0.2	1
100	The Role of Elastic Stresses in the Formation of Nitride Nanowires with Cubic Crystalline Structure. Technical Physics Letters, 2019, 45, 1050-1053.	0.2	1
101	Growth of GaN Nanotubes and Nanowires on Auâ€“Ni Catalysts. Technical Physics Letters, 2019, 45, 159-162.	0.2	1
102	Kinetic broadening of size distribution in terms of natural versus invariant variables. Physical Review E, 2021, 103, 012112.	0.8	1
103	Study of Wurtzite Crystal Phase Stabilization in Heterostructured Ga(As,P) Nanowires. Semiconductors, 2020, 54, 1862-1865.	0.2	1
104	Description of low-frequency parts of the spectrum of periodical waveguide with screens. , 0, , .		0
105	The influence of liquid drop shape on crystalline structure of nanowires. Technical Physics Letters, 2015, 41, 1189-1191.	0.2	0
106	Self-assembly based nanometer-scale patterning for nanowire growth. , 2015, , .		0
107	Contribution of droplet volume fluctuation to dispersion of nanowire length. Journal of Physics: Conference Series, 2016, 741, 012040.	0.3	0
108	On a new method of heterojunction formation in IIIâ€“V nanowires. Semiconductors, 2016, 50, 1566-1568.	0.2	0

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109	Self-induced GaN nanowire growth: surface density determination. Journal of Physics: Conference Series, 2016, 741, 012032.	0.3	0
110	Modeling of semiconductor nanowire selective-area MOCVD growth. Journal of Physics: Conference Series, 2017, 917, 032036.	0.3	0
111	Estimation of Evaporation Rate from Gold-Silicon Alloy Based on the Nucleation Time and Nanowire Length Distributions. Semiconductors, 2018, 52, 2120-2123.	0.2	0
112	Two Methods of Calculation Ternary Nanowire Composition. Semiconductors, 2018, 52, 2124-2127.	0.2	0
113	Two models of optical limiting by ps- and ns-laser pulses in CdSe/ZnS quantum dots. , 2018, , .		0
114	Narrowing the length distributions of self-assisted III-V nanowires by nucleation antibunching. , 2018, , .		0
115	The Influence of EL2 Centers on the Photoelectric Response of an Array of Radial GaAs/AlGaAs Nanowires. Technical Physics Letters, 2019, 45, 835-838.	0.2	0
116	Widening the Length Distributions in Irregular Arrays of Self-Catalyzed IIIâ€“V Nanowires. Semiconductors, 2019, 53, 2068-2071.	0.2	0
117	Crystalline-Phase Switching in Heterostructured Ga(As,P) Nanowires under the Impact of Elastic Strains. Semiconductors, 2020, 54, 1320-1324.	0.2	0
118	Stabilization of wurtzite crystal phase in arsenide nanowires via elastic stress. , 2020, , .		0
119	Factors influencing the length distributions of vapor-liquid-solid nanowires. , 2020, , .		0