Stefan Schulz

List of Publications by Year
in descending order

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103	1,812	257101	301761
papers	citations	24 h-index	39 g-index

105	105	105	1252
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Atomistic analysis of the impact of alloy and well-width fluctuations on the electronic and optical properties of InGaN/GaN quantum wells. Physical Review B, 2015, 91, .	1.1	105
2	Tight-binding model for semiconductor quantum dots with a wurtzite crystal structure: From one-particle properties to Coulomb correlations and optical spectra. Physical Review B, 2006, 73, .	1.1	102
3	Theory of local electric polarization and its relation to internal strain: Impact on polarization potential and electronic properties of group-III nitrides. Physical Review B, 2013, 88, .	1.1	101
4	Theory of reduced built-in polarization field in nitride-based quantum dots. Physical Review B, 2010, 82, .	1.1	71
5	The nature of carrier localisation in polar and nonpolar InGaN/GaN quantum wells. Journal of Applied Physics, 2016, 119, .	1.1	66
6	Comparison of atomistic and continuum theoretical approaches to determine electronic properties of GaN/AlN quantum dots. Physical Review B, 2008, 78, .	1.1	58
7	Composition-Dependent Band Gap and Band-Edge Bowing in AlInN: A Combined Theoretical and Experimental Study. Applied Physics Express, 2013, 6, 121001.	1.1	58
8	Structural, electronic, and optical properties of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>m</mml:mi></mml:math>-plane InGaN/GaN quantum wells: Insights from experiment and atomistic theory. Physical Review B, 2015, 92, .	1.1	57
9	Tight-binding model for semiconductor nanostructures. Physical Review B, 2005, 72, .	1.1	56
10	Symmetry-adapted calculations of strain and polarization fields in (111)-oriented zinc-blende quantum dots. Physical Review B, 2011, 84, .	1.1	54
11	Band gap bowing and optical polarization switching in AlGaN alloys. Physica Status Solidi (B): Basic Research, 2015, 252, 879-884.	0.7	46
12	Optical properties of self-organized wurtzite InNâˆ•GaN quantum dots: A combined atomistic tight-binding and full configuration interaction calculation. Applied Physics Letters, 2005, 87, 231114.	1.5	42
13	Polarization fields in nitride-based quantum dots grown on nonpolar substrates. Physical Review B, 2009, 79, .	1.1	41
14	Influence of symmetry and Coulomb correlation effects on the optical properties of nitride quantum dots. Physical Review B, 2007, 76, .	1.1	40
15	Origin of nonlinear piezoelectricity in III-V semiconductors: Internal strain and bond ionicity from hybrid-functional density functional theory. Physical Review B, 2015, 91, .	1.1	40
16	Hybrid functional study of the elastic and structural properties of wurtzite and zinc-blende group-III nitrides. Physical Review B, 2012, 86, .	1.1	39
17	Built-in field control in alloyedc-plane III-N quantum dots and wells. Journal of Applied Physics, 2011, 109, 084110.	1.1	37
18	Electronic and optical properties of nonpolar<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>a</mml:mi></mml:math>-plane GaN quantum wells. Physical Review B, 2010, 82, .	1.1	36

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19	A generalized plane-wave formulation of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si1.gif" overflow="scroll"><mml:mrow><mml:mi mathvariant="bold">k</mml:mi><mml:mo>Â·</mml:mo><mml:mi mathvariant="bold">p</mml:mi></mml:mrow></mml:math> formalism and continuum-elasticity approach to elastic and electronic properties of semiconductor nanostructures. Computational Mate	1.5	36
20	Spin-orbit coupling and crystal-field splitting in the electronic and optical properties of nitride quantum dots with a wurtzite crystal structure. European Physical Journal B, 2008, 64, 51-60.	1.4	31
21	Comparison of stress and total energy methods for calculation of elastic properties of semiconductors. Journal of Physics Condensed Matter, 2013, 25, 025803.	0.6	30
22	Interface Roughness, Carrier Localization, and Wave Function Overlap in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>c</mml:mi></mml:math> -Plane <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mo stretchy="false">(</mml:mo><mml:mi>In</mml:mi><mml:mo>,</mml:mo><mml:mi>Ga</mml:mi><mml:mo) Tj ETQq1 1 0.784314 rgBT	0.7	30
23	Theory of GaN Quantum Dots for Optical Applications. IEEE Journal of Selected Topics in Quantum Electronics, 2009, 15, 1092-1103.	1.5	26
24	A flexible, plane-wave based multiband $${mathbf{k}cdotmathbf{p}}$$ model. Optical and Quantum Electronics, 2012, 44, 183-188.	1.9	25
25	The atomic structure of polar and non-polar InGaN quantum wells and the green gap problem. Ultramicroscopy, 2017, 176, 93-98.	1.5	24
26	Impact of cation-based localized electronic states on the conduction and valence band structure of Al1â^'xInxN alloys. Applied Physics Letters, 2014, 104, .	0.8	24
27	Random alloy fluctuations and structural inhomogeneities in c-plane In_xGa_{1â^'x}N quantum wells: theory of ground and excited electron and hole states. RSC Advances, 2016, 6, 64513-64530.	1.5	21
28	Multiband description of the optical properties of zincblende nitride quantum dots. Physical Review B, 2009, 80, .	1.7	21
29	Comparison of first principles and semi-empirical models of the structural and electronic properties of $$hbox {Ge}_{1-x}hbox {Sn}_{x}$$ alloys. Optical and Quantum Electronics, 2019, 51, 1.	1.1	19
30	From atomistic tight-binding theory to macroscale driftâ€“diffusion: Multiscale modeling and numerical simulation of uni-polar charge transport in (In,Ga)N devices with random fluctuations. Journal of Applied Physics, 2021, 130, .	1.5	19
31	Theoretical and experimental analysis of radiative recombination lifetimes in nonpolar InGaN/GaN quantum dots. Physica Status Solidi (B): Basic Research, 2017, 254, 1600675.	1.1	17
32	Built-in field reduction in InGaN/GaN quantum dot molecules. Applied Physics Letters, 2011, 99, .	0.7	16
33	Recombination from polar InGaN/GaN quantum well structures at high excitation carrier densities. Physical Review B, 2018, 98, .	1.5	13
34	Atomistic analysis of radiative recombination rate, Stokes shift, and density of states in c-plane InGaN/GaN quantum wells. Applied Physics Letters, 2020, 116, .	1.1	13
35	Electronic Structure of Polar and Semipolar (<mml:math) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 82 Td (xmlns:mml="http://www.w3.org/1	1.5	13
36	Nitride Dot-in-a-Well Systems. Physical Review Applied, 2015, 3, .	1.5	12

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37	Strongly nonparabolic variation of the band gap in In_xAl_{1â^'x}N with low indium content. Semiconductor Science and Technology, 2016, 31, 025006.	1.0	12
38	Polar, semi- and non-polar nitride-based quantum dots: influence of substrate orientation and material parameter sets on electronic and optical properties. Optical and Quantum Electronics, 2016, 48, 1.	1.5	12
39	Multiscale simulations of the electronic structure of III-nitride quantum wells with varied indium content: Connecting atomistic and continuum-based models. Journal of Applied Physics, 2021, 129, .	1.1	12
40	Atomistic analysis of Auger recombination in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>c</mml:mi></mml:math> -plane (In,Ga)N/GaN quantum wells: Temperature-dependent competition between radiative and nonradiative recombination. Physical Review B, 2022, 105, .	1.1	12
41	Polarized photoluminescence excitation spectroscopy of a-plane InGaN/GaN multiple quantum wells grown on r-plane sapphire. Journal of Applied Physics, 2014, 115, 113106.	1.1	11
42	Deterministic optical polarisation in nitride quantum dots at thermoelectrically cooled temperatures. Scientific Reports, 2017, 7, 12067.	1.6	11
43	Direct generation of linearly polarized single photons with a deterministic axis in quantum dots. Nanophotonics, 2017, 6, 1175-1183.	2.9	11
44	Impact of alloy fluctuations and Coulomb effects on the electronic and optical properties of c-plane GaN/AlGaN quantum wells. Scientific Reports, 2019, 9, 18862.	1.6	11
45	Exploring the Potential of c-Plane Indium Gallium Nitride Quantum Dots for Twin-Photon Emission. Nano Letters, 2020, 20, 234-241.	4.5	11
46	Builtâ€in fields in stacked InGaN/GaN quantum dots. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 1551-1554.	0.8	10
47	Prediction of strong ground state electron and hole wave function spatial overlap in nonpolar GaN/AlN quantum dots. Applied Physics Letters, 2012, 101, 113107.	1.5	10
48	Piezoelectric properties of zinc blende quantum dots. Physica Status Solidi (B): Basic Research, 2012, 249, 521-525.	0.7	10
49	Electronic properties of site-controlled (111)-oriented zinc-blende InGaAs/GaAs quantum dots calculated using a symmetry-adaptedkâ‹…pHamiltonian. Journal of Physics Condensed Matter, 2014, 26, 035303.	0.7	10
50	Non-polar In_xGa_{1â^'x}N/GaN quantum dots: impact of dot size and shape anisotropies on excitonic and biexcitonic properties. Journal Physics D: Applied Physics, 2017, 50, 025108.	1.3	10
51	Hybrid functional study of nonlinear elasticity and internal strain in zinc-blende III-V materials. Physical Review Materials, 2019, 3, .	0.9	10
52	Resonant photoluminescence studies of carrier localisation in c-plane InGaN/GaN quantum well structures. Journal of Physics Condensed Matter, 2018, 30, 175303.	0.7	9
53	Built-in fields in non-polar InxGa1Ã¢Â€Â“xN quantum dots. Physica Status Solidi C: Current Topics in Solid State Physics, 2010, 7, 80-83.	0.8	8
54	Excitonic binding energies in non-polar GaN quantum wells. Physica Status Solidi C: Current Topics in Solid State Physics, 2010, 7, 1900-1902.	0.8	8

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55	Polarization matching design of InGaN-based semi-polar quantum wellsâ€"A case study of (112Â¯2) orientation. Applied Physics Letters, 2014, 104, .	1.5	8
56	Atomistic description of wave function localization effects in In_xGa_{1-x}N alloys and quantum wells. Proceedings of SPIE, 2015, , .	0.8	8
57	Atomistic analysis of the electronic structure of mâ€plane InGaN/GaN quantum wells: Carrier localization effects in ground and excited states due to random alloy fluctuations. Physica Status Solidi (B): Basic Research, 2016, 253, 853-860.	0.7	8
58	Development of semipolar (11-22) LEDs on GaN templates. Proceedings of SPIE, 2016, , .	0.8	8
59	Electronic structure of semiconductor nanostructures: A modified localization landscape theory. Physical Review B, 2020, 101, .	1.1	8
60	Impact of random alloy fluctuations on inter-well transport in InGaN/GaN multi-quantum well systems: an atomistic non-equilibrium Greenâ€™s function study. Journal of Physics Condensed Matter, 2021, 33, 045302.	0.7	8
61	Multiscale simulations of uni-polar hole transport in (In,Ga)N quantum well systems. Optical and Quantum Electronics, 2022, 54, .	1.5	8
62	Theoretical and experimental analysis of the photoluminescence and photoluminescence excitation spectroscopy spectra of m-plane InGaN/GaN quantum wells. Applied Physics Letters, 2016, 109, .	1.5	7
63	Electrostatic built-in fields in wurtzite III-N nanostructures: Impact of growth plane on second-order piezoelectricity. Physical Review B, 2017, 96, .	1.1	7
64	Atomistic analysis of piezoelectric potential fluctuations in zinc-blende InGaN/GaN quantum wells: A Stillinger-Weber potential based analysis. Physical Review B, 2021, 103, .	1.1	7
65	Indium gallium nitride quantum dots: consequence of random alloy fluctuations for polarization entangled photon emission. Materials for Quantum Technology, 2021, 1, 015001.	1.2	7
66	Effect of alloy fluctuations on the local polarization in nitride nanostructures. Physica Status Solidi (B): Basic Research, 2012, 249, 526-530.	0.7	6
67	Nature of the band gap of Ge:C alloys: insights from hybrid functional density functional theory calculations. Semiconductor Science and Technology, 2019, 34, 075007.	1.0	6
68	Electronic states in nitride semiconductor quantum dots: A tight-binding approach. Physica Status Solidi C: Current Topics in Solid State Physics, 2006, 3, 1675-1678.	0.8	5
69	Semiconductor nanocrystals and embedded quantum dots: Electronic and optical properties. Physica Status Solidi (B): Basic Research, 2007, 244, 2399-2406.	0.7	5
70	Ground state switching in InGaN/GaN quantum dot molecules. Physica Status Solidi (B): Basic Research, 2012, 249, 516-520.	0.7	5
71	Theoretical analysis of influence of random alloy fluctuations on the optoelectronic properties of site-controlled (111)-oriented InGaAs/GaAs quantum dots. Physical Review B, 2016, 94, .	1.1	5
72	A study of the optical and polarisation properties of InGaN/GaN multiple quantum wells grown on a-plane and m-plane GaN substrates. Science and Technology of Advanced Materials, 2016, 17, 736-743.	2.8	5

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73	Fully analytic valence force field model for the elastic and inner elastic properties of diamond and zincblende crystals. Physical Review B, 2019, 100, .	1.1	5
74	Insight into the impact of atomic- and nano-scale indium distributions on the optical properties of InGaN/GaN quantum well structures grown on m-plane freestanding GaN substrates. Journal of Applied Physics, 2019, 125, 225704.	1.1	5
75	Optical properties of c-Plane InGaN/GaN single quantum wells as a function of total electric field strength. Japanese Journal of Applied Physics, 2019, 58, SCCB09.	0.8	5
76	Microscopic tight-binding description for electronic and optical properties of InN/GaN quantum dots. Physica Status Solidi C: Current Topics in Solid State Physics, 2006, 3, 3827-3831.	0.8	4
77	Long wavelength transverse magnetic polarized absorption in 1.3 Âµm InAs/InGaAs dots-in-a-well type active regions. Semiconductor Science and Technology, 2013, 28, 015012.	1.0	4
78	Color stability, wave function overlap and leakage currents in InGaN-based LED structures: the role of the substrate orientation. Semiconductor Science and Technology, 2015, 30, 055014.	1.0	4
79	Electronic and excitonic properties of ultrathin (In,Ga)N layers: the role of alloy and monolayer width fluctuations. Nanoscale, 2020, 12, 20258-20269.	2.8	4
80	Strain Effects in Wurtzite Boron Nitride: Elastic Constants, Internal Strain, and Deformation Potentials from Hybrid Functional Density Functional Theory. Physica Status Solidi - Rapid Research Letters, 2022, 16, .	1.2	4
81	Characterising the degree of polarisation anisotropy in an a â€plane GaN film. Physica Status Solidi C: Current Topics in Solid State Physics, 2010, 7, 1897-1899.	0.8	3
82	Tightâ€binding model for the electronic and optical properties of nitrideâ€based quantum dots. Physica Status Solidi (B): Basic Research, 2011, 248, 1853-1866.	0.7	3
83	Built-in field control in nitride nanostructures operating in the UV. Physica Status Solidi C: Current Topics in Solid State Physics, 2012, 9, 838-841.	0.8	3
84	Impact of second-order piezoelectricity on electronic and optical properties of c-plane InxGa1â^'xN quantum dots: Consequences for long wavelength emitters. Applied Physics Letters, 2017, 111, 103103.	1.5	3
85	Electronic and optical properties of polar, semi- and non-polar InGaN QDs: the role of second-order piezoelectric effects. Japanese Journal of Applied Physics, 2019, 58, SCCB38.	0.8	3
86	Excitation-induced energy shifts in the optical gain spectra of InN quantum dots. Applied Physics Letters, 2009, 95, 081108.	1.5	2
87	Optical spectra of nitride quantumâ€dot systems: From tightâ€binding states to manyâ€body effects. Physica Status Solidi (B): Basic Research, 2011, 248, 1871-1878.	0.7	2
88	Design guidelines for edgeâ€coupled waveguide unitravelling carrier photodiodes with improved bandwidth. IET Optoelectronics, 2019, 13, 267-272.	1.8	2
89	InN/GaN quantum dots: Electronic and optical properties. AIP Conference Proceedings, 2007, , .	0.3	1
90	A flexible, plane-wave-based formulation of continuum elasticity and multiband k·p models. , 2011, , .		1

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91	Impact of random composition fluctuations on electron and hole states in InAlN and InGaN alloys. , 2015, , .		1
92	Polarization fields in nitride-based quantum dots grown on nonpolar substrates. , 0, .		1
93	Multi-scale modeling of electronic, optical, and transport properties of III-N alloys and heterostructures. , 2020, , .		1
94	Electronic and optical properties of self-assembled InN/GaN quantum dots. , 2006, , .		0
95	Electronic and Optical Properties of Group-III-Nitride Semiconductor Quantum Dots. , 2010, , .		0
96	Analysis of Reduced Built-In Polarization Fields and Electronic Structure of InGaN/GaN Quantum Dot Molecules. Lecture Notes in Nanoscale Science and Technology, 2014, , 177-208.	0.4	0
97	Nonpolar GaN quantum dots: Impact of dot size and shape on the electron and hole wave function overlap. Physica Status Solidi C: Current Topics in Solid State Physics, 2014, 11, 762-765.	0.8	0
98	Electronic properties of polar and semi-polar dot-in-a-well heterostructures. , 2015, , .		0
99	Theory of second-order piezoelectric fields in III-N nanostructures. , 2018, , .		0
100	Multi-Scale Electronic Structure Analysis of Direct-Gap Group-IV Alloys: Implications for Device Applications. , 2019, , .		0
101	Atomistic analysis of transport properties of InGaN/GaN multi-quantum well. , 2019, , .		0
102	Connecting atomistic and continuum models for (In,Ga)N quantum wells: From tight-binding energy landscapes to electronic structure and carrier transport. , 2021, , .		0
103	Plane-Wave Approaches to the Electronic Structure of Semiconductor Nanostructures. Lecture Notes in Computational Science and Engineering, 2014, , 155-189.	0.1	0