Robert Kelsall

List of Publications by Year
in descending order

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134	2,214	230014	299063
papers	citations	27 h-index	42 g-index

136	136	136	1484
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Design optimization of tensile-strained SiGeSn/GeSn quantum wells at room temperature. Journal of Applied Physics, 2021, 129, 123102.	1.1	5
2	Design considerations of intra-step SiGeSn/GeSn quantum well electroabsorption modulators. Journal of Applied Physics, 2021, 130, 153103.	1.1	2
3	Density matrix superoperator for periodic quantum systems and its application to quantum cascade laser structures. AIP Advances, 2019, 9, .	0.6	9
4	Strain-engineering in Germanium membranes towards light sources on Silicon. , 2017, , .		1
5	Enhanced light emission from improved homogeneity in biaxially suspended Germanium membranes from curvature optimization. Optics Express, 2017, 25, 22911.	1.7	10
6	Simulated effect of epitaxial growth variations on THz emission of SiGe/Ge quantum cascade structures. , 2013, , .		0
7	Optical modulation using the silicon platform. Proceedings of SPIE, 2013, , .	0.8	0
8	Plasmonic Modulators for Near-Infrared Photonics on a Silicon-on-Insulator Platform. IEEE Journal of Selected Topics in Quantum Electronics, 2013, 19, 4601708-4601708.	1.9	7
9	Low-voltage broad-band electroabsorption from thin Ge/SiGe quantum wells epitaxially grown on silicon. Optics Express, 2013, 21, 867.	1.7	46
10	Ge-on-Si Single-Photon Avalanche Diode Detectors: Design, Modeling, Fabrication, and Characterization at Wavelengths 1310 and 1550 nm. IEEE Transactions on Electron Devices, 2013, 60, 3807-3813.	1.6	116
11	(Invited) Germanium/Silicon Heterostructures for Terahertz Emission. ECS Transactions, 2013, 50, 763-771.	0.3	4
12	Long-Wavelength Photonic Circuits. Series in Optics and Optoelectronics, 2013, , 249-286.	0.0	0
13	Influence of absorber layer dopants on performance of Ge/Si single photon avalanche diodes. Journal of Applied Physics, 2013, 113, 144508.	1.1	0
14	Optimum strain configurations for carrier injection in near infrared Ge lasers. Journal of Applied Physics, 2012, 111, .	1.1	39
15	Silicon based plasmonic coupler. Optics Express, 2012, 20, 21520.	1.7	12
16	Adiabatic mode coupling between SiGe photonic devices and SOI waveguides. Optics Express, 2012, 20, 29500.	1.7	13
17	The effects of strain on indirect absorption in Ge/SiGe quantum wells. Proceedings of SPIE, 2012, , .	0.8	0
18	High Speed Silicon based optical modulators. , 2012, , .		0

#	Article	IF	Citations
19	Designing short tapered waveguide adapters for Ge lasers and Ge/SiGe modulators integrated with SOI waveguides. , 2012, , .		0
20	A CMOS compatible metallised nanofocusing coupler. , 2012, , .		0
21	High performance silicon optical modulators. Proceedings of SPIE, 2012, , .	0.8	0
22	Rubber stamp for silicon photonics. Nature Photonics, 2012, 6, 577-579.	15.6	12
23	Optical absorption in highly strained Ge/SiGe quantum wells: The role of Î“â†'Î” scattering. Journal of Applied Physics, 2012, 112, 123105.	1.1	7
24	Extended density-matrix model applied to silicon-based terahertz quantum cascade lasers. Physical Review B, 2012, 85, .	1.1	38
25	Monte Carlo study of self-heating in nanoscale devices. Journal of Computational Electronics, 2012, 11, 118-128.	1.3	20
26	Electro-optic metalâ€“insulatorâ€“semiconductorâ€“insulatorâ€“metal Mach-Zehnder plasmonic modulator. Photonics and Nanostructures - Fundamentals and Applications, 2012, 10, 183-189.	1.0	27
27	Silicon on insulator modulator structures for data rates of 40 Gb/s and above. , 2012, , .		1
28	The effects of tensile-strain conditions on doping density requirements for Ge-based injection lasers. , 2011, , .		0
29	Silicon optical modulators for high data rate applications. , 2011, , .		0
30	Design of Ge/SiGe quantum cascade lasers using the density matrix model. , 2011, , .		0
31	Strain engineering of the electroabsorption response in Ge/SiGe multiple quantum well heterostructures. , 2011, , .		0
32	Material configurations for<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>n</mml:mi></mml:mrow></mml:math>-type silicon-based terahertz quantum cascade lasers. Physical Review B, 2011, 83, .	1.1	24
33	Modulation of the absorption coefficient at 13â€‰Î¼m in Ge/SiGe multiple quantum well heterostructures on silicon. Optics Letters, 2011, 36, 4158.	1.7	55
34	Plasmonic enhanced electro-optic stub modulator on a SOI platform. Photonics and Nanostructures - Fundamentals and Applications, 2011, 9, 101-107.	1.0	9
35	SiGe metallized stub and plasmonic gap mode electro-absorption modulators. , 2011, , .		0
36	The UK silicon photonics project. Proceedings of SPIE, 2010, , .	0.8	1

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37	Monte Carlo study of the electrothermal phenomenon in silicon-on-insulator and silicon-germanium-on-insulator metal-oxide field-effect transistors. Journal of Applied Physics, 2010, 107, .	1.1	18
38	Design of Ge/SiGe quantum-confined Stark effect modulators for CMOS compatible photonics. , 2010, , .		5
39	Design of Geâ€“SiGe Quantum-Confined Stark Effect Electroabsorption Heterostructures for CMOS Compatible Photonics. Journal of Lightwave Technology, 2010, , .	2.7	17
40	Si/SiGe quantum cascade superlattice designs for terahertz emission. Journal of Applied Physics, 2010, 107, 053109.	1.1	21
41	The importance of electron temperature in silicon-based terahertz quantum cascade lasers. Applied Physics Letters, 2009, 95, .	1.5	12
42	Si/SiGe Bound-to-Continuum Quantum Cascade Emitters. ECS Transactions, 2009, 16, 865-874.	0.3	4
43	Growth variation effects in SiGe-based quantum cascade lasers. Journal of Optics, 2009, 11, 054012.	1.5	6
44	Terahertz ambipolar dual-wavelength quantum cascade laser. Optics Express, 2009, 17, 19926.	1.7	23
45	Quantum-confined Stark effect electro-absorption modulators for CMOS compatible photonics. , 2009, , .		0
46	Theoretical Study of Electron Confinement in Submicrometer GaN HFETs Using a Thermally Self-Consistent Monte Carlo Method. IEEE Transactions on Electron Devices, 2008, 55, 945-953.	1.6	21
47	Theory and design of quantum cascade lasers in (111)<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>n</mml:mi></mml:math>-type Si/SiGe. Physical Review B, 2008, 78, .	1.1	19
48	SiGe/Si quantum cascade structures deposited by low-energy plasma-enhanced CVD. , 2008, , .		2
49	Intersubband carrier scattering in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>n</mml:mi></mml:math>- and<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>p</mml:mi><mml:mtext>â^'</mml:mtext><mml:mi mathvariant="normal">Si</mml:mi><mml:mo>â^•</mml:mo><mml:mi mathvariant="normal">Ge</mml:mi></mml:mrow></mml:m	1.1	22
50	Si/SiGe bound-to-continuum quantum cascade terahertz emitters. Proceedings of SPIE, 2008, , .	0.8	2
51	On the coherence/incoherence of electron transport in semiconductor heterostructure optoelectronic devices. Proceedings of SPIE, 2008, , .	0.8	3
52	Substrate orientation and alloy composition effects in n-type SiGe quantum cascade structures. , 2008, , .		0
53	Simulated [111] Siâ€“SiGe terahertz quantum cascade laser. Applied Physics Letters, 2008, 92, .	1.5	22
54	Structural and Compositional Properties of Strain-Symmetrized SiGe/Si Heterostructures. Springer Proceedings in Physics, 2008, , 269-272.	0.1	2

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55	Intervalley splitting and intersubband transitions inn-typeSiâˆ•SiGequantum wells: Pseudopotential vs. effective mass calculation. Physical Review B, 2007, 75, .	1.1	19
56	Electron transport in n-doped Si/SiGe quantum cascade structures. Journal of Applied Physics, 2007, 101, 093703.	1.1	8
57	Interwell relaxation times inpâˆ’Siâˆ•SiGeasymmetric quantum well structures: Role of interface roughness. Physical Review B, 2007, 75, .	1.1	32
58	Density matrix theory of transport and gain in quantum cascade lasers in a magnetic field. Physical Review B, 2007, 76, .	1.1	40
59	Hot-Phonon Effect on the Electrothermal Behavior of Submicrometer III-V HEMTs. IEEE Electron Device Letters, 2007, 28, 787-789.	2.2	22
60	Electrothermal Monte Carlo Simulation of Submicrometer Si/SiGe MODFETs. IEEE Transactions on Electron Devices, 2007, 54, 332-339.	1.6	30
61	Electrothermal Monte Carlo simulation of submicron wurtzite GaN/AlGaN HEMTs. Journal of Computational Electronics, 2007, 6, 35-39.	1.3	14
62	Electrothermal Monte Carlo Study of Charge Confinement in GaN HFETs. , 2007, , 269-272.		0
63	Influence of the active region design on output characteristics of GaAs/AlGaAs quantum cascade lasers in a strong magnetic field. Semiconductor Science and Technology, 2006, 21, 215-220.	1.0	30
64	Toward Silicon-Based Lasers for Terahertz Sources. IEEE Journal of Selected Topics in Quantum Electronics, 2006, 12, 1570-1578.	1.9	30
65	On the incoherence of quantum transport in semiconductor heterostructure optoelectronic devices. International Biennial Baltic Electronics Conference, 2006, , .	0.0	0
66	n-Si/SiGe quantum cascade structures for THz emission. Journal of Luminescence, 2006, 121, 311-314.	1.5	4
67	Investigation of self-heating effects in submicrometer GaN/AlGaN HEMTs using an electrothermal Monte Carlo method. IEEE Transactions on Electron Devices, 2006, 53, 2892-2900.	1.6	75
68	Simulation of Domain Formation in p-Si/SiGe Quantum Cascade Structures. , 2006, , 313-316.		0
69	Generic Methodologies for Nanotechnology: Classification and Fabrication. , 2005, , 1-55.		5
70	Processing and Properties of Inorganic Nanomaterials. , 2005, , 237-281.		1
71	Macromolecules at Interfaces and Structured Organic Films. , 2005, , 377-418.		1
72	Bionanotechnology. , 2005, , 419-445.		0

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73	Optical cavities for Si/SiGe tetrahertz quantum cascade emitters. Optical Materials, 2005, 27, 851-854.	1.7	4
74	On the Formation of Periodic Electric Field Domains in p-Si/SiGe Quantum Cascade Structures. Journal of Computational Electronics, 2005, 4, 11-14.	1.3	0
75	A Band Transport Model for Highly Ordered Discotic Mesophases. Journal of Computational Electronics, 2005, 4, 101-104.	1.3	4
76	A physical model of quantum cascade lasers: Application to GaAs, GaN and SiGe devices. Physica Status Solidi (A) Applications and Materials Science, 2005, 202, 980-986.	0.8	14
77	GaAs/Al0.45Ga0.55As Double Phonon Resonance Quantum Cascade Laser. AIP Conference Proceedings, 2005, , .	0.3	3
78	Temperature dependence of terahertz optical transitions from boron and phosphorus dopant impurities in silicon. Applied Physics Letters, 2005, 87, 101114.	1.5	27
79	Towards automated design of quantum cascade lasers. Journal of Applied Physics, 2005, 97, 084506.	1.1	36
80	Band transport model for discotic liquid crystals. Physical Review B, 2005, 72, .	1.1	17
81	Inorganic Semiconductor Nanostructures. , 2005, , 130-202.		1
82	Nanomagnetic Materials and Devices. , 2005, , 203-236.		1
83	Electronic and Electro-Optic Molecular Materials and Devices. , 2005, , 282-342.		4
84	Self-Assembling Nanostructured Molecular Materials and Devices. , 2005, , 343-376.		2
85	Generic Methodologies for Nanotechnology: Characterization. , 2005, , 56-129.		1
86	Intersubband lifetimes inpâˆ'Siâˆ•SiGeterahertz quantum cascade heterostructures. Physical Review B, 2005, 71, .	1.1	26
87	Relationship between carrier dynamics and temperature in terahertz quantum cascade structures: simulation of GaAs/AlGaAs, SiGe/Si and GaN/AlGaN devices. Semiconductor Science and Technology, 2005, 20, S237-S245.	1.0	32
88	Mechanisms of carrier transport and temperature performance evaluation in terahertz quantum cascade lasers. Semiconductor Science and Technology, 2004, 19, S104-S106.	1.0	5
89	Waveguide design for mid- and far-infrared p-Si/SiGe quantum cascade lasers. Semiconductor Science and Technology, 2004, 19, 76-81.	1.0	22
90	Hole transport simulations in SiGe cascade quantum wells. Physica E: Low-Dimensional Systems and Nanostructures, 2004, 21, 907-910.	1.3	1

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91	IN-PLANE RESISTANCE OF AN ULTRA THIN GOLD FILM: INFLUENCE OF A COPPER PHTHALOCYANINE OVERLAYER. Molecular Crystals and Liquid Crystals, 2004, 413, 81-90.	0.4	0
92	Self-consistent energy balance simulations of hole dynamics in SiGeâˆ•SiTHz quantum cascade structures. Journal of Applied Physics, 2004, 96, 6803-6811.	1.1	37
93	Monte Carlo simulations of hole dynamics inSiGeâˆ•Siterahertz quantum-cascade structures. Physical Review B, 2004, 69, .	1.1	16
94	Simulation of Carrier Transport in p-Si/SiGe Quantum Cascade Emitters. Journal of Computational Electronics, 2003, 2, 353-356.	1.3	4
95	Digitally graded GaAs/Al0.44Ga0.56As quantum-cascade laser. Physica E: Low-Dimensional Systems and Nanostructures, 2003, 17, 620-622.	1.3	1
96	Si/SiGe quantum-cascade emitters for terahertz applications. Physica E: Low-Dimensional Systems and Nanostructures, 2003, 16, 147-155.	1.3	17
97	Electroluminescence from Si/SiGe quantum cascade emitters. Physica E: Low-Dimensional Systems and Nanostructures, 2003, 16, 309-314.	1.3	5
98	THz intersubband dynamics in p-Si/SiGe quantum well emitter structures. Physica Status Solidi (B): Basic Research, 2003, 237, 381-385.	0.7	0
99	Terahertz Emission From Silicon-Germanium Quantum Cascades. , 2003, , 367-382.		4
100	Mechanisms of temperature performance degradation in terahertz quantum-cascade lasers. Applied Physics Letters, 2003, 82, 1347-1349.	1.5	68
101	Surface plasmon waveguides with gradually doped or NiAl intermetallic compound buried contact for terahertz quantum cascade lasers. Journal of Applied Physics, 2003, 94, 3249-3252.	1.1	8
102	Interwell intersubband electroluminescence from Si/SiGe quantum cascade emitters. Applied Physics Letters, 2003, 83, 4092-4094.	1.5	74
103	Silicon-Germanium Quantum-Cascade Lasers. International Journal of High Speed Electronics and Systems, 2003, 13, 547-573.	0.3	9
104	Far-infrared (THz) electroluminescence from Si/SiGe quantum cascade heterostructures. , 2003, , .		0
105	Gain-maximized GaAs/AlGaAs quantum-cascade laser with digitally graded active region. Applied Physics Letters, 2002, 81, 2163-2165.	1.5	18
106	Intersubband electroluminescence from Si/SiGe cascade emitters at terahertz frequencies. Applied Physics Letters, 2002, 81, 1543-1545.	1.5	130
107	Nonequilibrium electron heating in inter-subband terahertz lasers. Journal of Applied Physics, 2002, 91, 904-910.	1.1	10
108	Self-consistent scattering theory of transport and output characteristics of quantum cascade lasers. Journal of Applied Physics, 2002, 91, 9019-9026.	1.1	129

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109	Silicon germanium quantum cascade heterostructures for far-infrared emission. , 2002, , .		0
110	Interactions of self-organised discotic liquid crystals with ultrathin metal films. Materials Science and Technology, 2002, 18, 729-732.	0.8	1
111	Influence of leakage current on temperature performance of GaAs/AlGaAs quantum cascade lasers. Applied Physics Letters, 2002, 81, 400-402.	1.5	47
112	Picosecond intersubband dynamics in p-Si/SiGe quantum-well emitter structures. Applied Physics Letters, 2002, 80, 1456-1458.	1.5	39
113	Electron temperature and mechanisms of hot carrier generation in quantum cascade lasers. Journal of Applied Physics, 2002, 92, 6921-6923.	1.1	65
114	Alloy and phonon scattering limited hole lifetimes in Si/SiGe heterostructures. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2002, 89, 84-87.	1.7	0
115	Si-based electroluminescence at THz frequencies. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2002, 89, 10-12.	1.7	25
116	THz intersubband dynamics in p-Si/SiGe quantum well structures. Physica E: Low-Dimensional Systems and Nanostructures, 2002, 13, 904-907.	1.3	4
117	Monte Carlo Simulations of Hole Dynamics in Si/SiGe Quantum Cascade Structures. Journal of Computational Electronics, 2002, 1, 191-194.	1.3	5
118	Virtual-crystal approximation and alloy broadening of intersubband transitions inp-type SiGe superlattices. Physical Review B, 2001, 64, .	1.1	17
119	Intersubband hole-phonon and alloy disorder scattering in SiGe quantum wells. Physical Review B, 2001, 64, .	1.1	34
120	Electronic Transport in Self-organised Molecular Nanostructured Devices. VLSI Design, 2001, 13, 305-309.	0.5	0
121	Self-consistent solutions to the intersubband rate equations in quantum cascade lasers: Analysis of a GaAs/AlxGa1â^'xAs device. Journal of Applied Physics, 2001, 89, 3084-3090.	1.1	76
122	Monte Carlo modelling of far-infrared intersubband lasers. Physica E: Low-Dimensional Systems and Nanostructures, 2000, 7, 48-51.	1.3	4
123	Comparison of the quantum efficiencies of interwell and intrawell radiative transitions in quantum cascade lasers. Applied Physics Letters, 1999, 75, 1999-2001.	1.5	25
124	Terahertz lasers using inter-subband transitions in quantum wells: predictions from Monte Carlo simulation. Physica B: Condensed Matter, 1999, 272, 226-229.	1.3	1
125	Intersubband terahertz lasers using four-level asymmetric quantum wells. Journal of Applied Physics, 1999, 85, 23-28.	1.1	31
126	Intersubband electron-electron scattering in asymmetric quantum wells designed for far-infrared emission. Physical Review B, 1998, 58, 4771-4778.	1.1	57

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127	Stark ladders as tunable far-infrared emitters. Journal of Applied Physics, 1998, 84, 5175-5179.	1.1	8
128	Population inversion in optically pumped asymmetric quantum well terahertz lasers. Journal of Applied Physics, 1997, 81, 7135-7140.	1.1	42
129	Monte Carlo simulations of low-field hole transport in strained InGaAs quantum wells. Semiconductor Science and Technology, 1993, 8, 219-223.	1.0	3
130	Monte Carlo simulation of hole mobilities in an InGaAs/GaAs strained layer quantum well. Semiconductor Science and Technology, 1992, 7, 86-91.	1.0	10
131	Monte Carlo simulations of field and carrier density dependent hole transport in an InGaAs/GaAs strained layer quantum well. Semiconductor Science and Technology, 1992, 7, B312-B315.	1.0	5
132	Simulation of electron transport in a (GaAs)12/(AlAs)12superlattice. Semiconductor Science and Technology, 1991, 6, 784-789.	1.0	1
133	Phonon scattering and mobility of holes in a GaAs/AlAs quantum well. Semiconductor Science and Technology, 1991, 6, 841-849.	1.0	5
134	Matrix elements for hole-phonon scattering in a semiconductor quantum well. Semiconductor Science and Technology, 1990, 5, 877-883.	1.0	11