Matthew Halsall

List of Publications by Year
in descending order

128 papers	5,764 citations	331670 21 h-index	74163 75 g-index
128 all docs	128 docs citations	128 times ranked	8104 citing authors

#	Article	IF	Citations
1	Electronic Properties and Structure of Boronâ€“Hydrogen Complexes in Crystalline Silicon. Solar Rrl, 2022, 6, 2100459.	5.8	7
2	Interactions of Hydrogen Atoms with Acceptorâ€“Dioxygen Complexes in Czochralskiâ€Grown Silicon. Physica Status Solidi (A) Applications and Materials Science, 2022, 219, .	1.8	2
3	Passivation of thermally-induced defects with hydrogen in float-zone silicon. Journal Physics D: Applied Physics, 2021, 54, 275105.	2.8	6
4	GaN surface sputter damage investigated using deep level transient spectroscopy. Materials Science in Semiconductor Processing, 2021, 126, 105654.	4.0	2
5	Acceptor-oxygen defects in silicon: The electronic properties of centers formed by boron, gallium, indium, and aluminum interactions with the oxygen dimer. Journal of Applied Physics, 2021, 130, 245703.	2.5	5
6	Extended Wavelength Responsivity of a Germanium Photodetector Integrated With a Silicon Waveguide Exploiting the Indirect Transition. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-7.	2.9	15
7	Graphene oxide integrated silicon photonics for detection of vapour phase volatile organic compounds. Scientific Reports, 2020, 10, 9592.	3.3	16
8	Minority carrier traps in Czochralski-grown p-type silicon crystals doped with B, Al, Ga, or In impurity atoms. , 2020, , .		0
9	Boronâ€“Oxygen Complex Responsible for Lightâ€Induced Degradation in Silicon Photovoltaic Cells: A New Insight into the Problem. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900315.	1.8	23
10	Identification of the mechanism responsible for the boron oxygen light induced degradation in silicon photovoltaic cells. Journal of Applied Physics, 2019, 125, .	2.5	36
11	The surface passivation mechanism of graphene oxide for crystalline silicon. , 2019, , .		1
12	Evidence for Molybdenumâ€Hydrogen Bonding in pâ€Type Silicon upon Annealing under Illumination. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1800611.	1.8	3
13	Towards substrate engineering of grapheneâ€“silicon Schottky diode photodetectors. Nanoscale, 2018, 10, 3399-3409.	5.6	43
14	Lifetime degradation of n-type Czochralski silicon after hydrogenation. Journal of Applied Physics, 2018, 123, .	2.5	4
15	Electron emission and capture by oxygen-related bistable thermal double donors in silicon studied with junction capacitance techniques. Journal of Applied Physics, 2018, 124, .	2.5	14
16	(Invited) Deep-Level Analysis of Passivation of Transition Metal Impurities in Silicon. ECS Transactions, 2018, 86, 125-135.	0.5	1
17	Photomodulated Reflectivity Measurement of Free-Carrier Dynamics in InGaN/GaN Quantum Wells. ACS Photonics, 2018, 5, 4437-4446.	6.6	6
18	Thermally activated defects in float zone silicon: Effect of nitrogen on the introduction of deep level states. Journal of Applied Physics, 2018, 124, .	2.5	19

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19	Vanadium in silicon: Lattice positions and electronic properties. Applied Physics Letters, 2017, 110, 142105.	3.3	4
20	Recombination via transition metals in solar silicon: The significance of hydrogenâ€“metal reactions and lattice sites of metal atoms. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700304.	1.8	11
21	Theory of a carbonâ€oxygenâ€hydrogen recombination center in nâ€type Si. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700309.	1.8	6
22	Powerful recombination centers resulting from reactions of hydrogen with carbonâ€“oxygen defects in nâ€type Czochralskiâ€grown silicon. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700133.	2.4	13
23	The diâ€interstitial in silicon: Electronic properties and interactions with oxygen and carbon impurity atoms. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700261.	1.8	6
24	Raman Mapping Analysis of Graphene-Integrated Silicon Micro-Ring Resonators. Nanoscale Research Letters, 2017, 12, 600.	5.7	9
25	Interactions of hydrogen with vanadium in crystalline silicon. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 2838-2843.	1.8	6
26	Power density dependent photoluminescence spectroscopy and Raman mapping of semi-polar and polar InGaN/GaN multiple quantum well samples. Physica Status Solidi C: Current Topics in Solid State Physics, 2016, 13, 274-277.	0.8	5
27	Hydrogenation of Graphene by Reaction at High Pressure and High Temperature. ACS Nano, 2015, 9, 8279-8283.	14.6	46
28	Electrical observation of non-radiative recombination in Er doped Si nano-crystals during thermal quenching of intra-4f luminescence. Japanese Journal of Applied Physics, 2014, 53, 031302.	1.5	3
29	Determination of the quasi-TE mode (in-plane) graphene linear absorption coefficient via integration with silicon-on-insulator racetrack cavity resonators. Optics Express, 2014, 22, 18625.	3.4	8
30	Luminescence quenching of conductive Si nanocrystals via â€œLinkage emissionâ€: Hopping-like propagation of infrared-excited Auger electrons. Journal of Applied Physics, 2014, 116, 063513.	2.5	3
31	Resonance Raman spectroscopy of carbon nanotubes: pressure effects on G-mode. High Pressure Research, 2014, 34, 191-197.	1.2	7
32	Donor ionization in size controlled silicon nanocrystals: The transition from defect passivation to free electron generation. Journal of Applied Physics, 2013, 113, 024304.	2.5	10
33	Pressure coefficients of Raman modes of carbon nanotubes resolved by chirality: Environmental effect on graphene sheet. Physical Review B, 2013, 87, .	3.2	19
34	Atomic-scale distortion of optically activated Sm dopants identified with site-selective X-ray absorption spectroscopy. Journal of Applied Physics, 2013, 114, 133505.	2.5	8
35	Low-Dimensional Silicon Structures for Use in Photonic Circuits. Progress in Optics, 2013, , 251-315.	0.6	2
36	Raman excitation spectroscopy of carbon nanotubes: effects of pressure medium and pressure. High Pressure Research, 2012, 32, 67-71.	1.2	5

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37	Investigation of the thermal charge â€œtrapping-detrappingâ€•in silicon nanocrystals: Correlation of the optical properties with complex impedance spectra. Applied Physics Letters, 2012, 101, .	3.3	4
38	Rate equation modelling of erbium luminescence dynamics in erbium-doped silicon-rich-silicon-oxide. Journal of Luminescence, 2012, 132, 3103-3112.	3.1	6
39	Preface: Phys. Status Solidi C 3-4/2012. Physica Status Solidi C: Current Topics in Solid State Physics, 2012, 9, 430-432.	0.8	0
40	Probing the phonon confinement in ultrasmall silicon nanocrystals reveals a size-dependent surface energy. Journal of Applied Physics, 2011, 109, 083534.	2.5	45
41	Probing the formation of silicon nano-crystals (Si-ncs) using variable energy positron annihilation spectroscopy. Journal of Physics: Conference Series, 2011, 262, 012031.	0.4	1
42	Erbium environments in erbium-silicon/silica light emitting nanostructures. Journal of Physics: Conference Series, 2011, 281, 012016.	0.4	0
43	Effect of water on resonant Raman spectroscopy of closed singleâ€walled carbon nanotubes. Physica Status Solidi (B): Basic Research, 2011, 248, 2548-2551.	1.5	1
44	Probing energy transfer in an ensemble of silicon nanocrystals. Journal of Applied Physics, 2011, 110, 033522.	2.5	14
45	Formation of Si-nanocrystals in SiO 2 via ion implantation and rapid thermal processing. Proceedings of SPIE, 2010, , .	0.8	1
46	Optical spectroscopy of Er doped Si-nanocrystals on sapphire substrates fabricated by ion implantation into SiO 2. , 2010, , .		1
47	Terahertz Sensing Based on Impurity Transitions in delta-doped GaAs/AlAs Multiple Quantum Wells. , 2010, , .		0
48	(Invited) Novel Processing for Si-Nanocrystal Based Photonic Materials. ECS Transactions, 2010, 28, 3-13.	0.5	0
49	Study of InGaN/GaN quantum dot systems by TEM techniques and photoluminescence spectroscopy. Journal of Physics: Conference Series, 2010, 209, 012038.	0.4	1
50	Quantum well mobility and the effect of gate dielectrics in remote doped InSb/Al_xIn_{1 â^’x}Sb heterostructures. Semiconductor Science and Technology, 2010, 25, 125005.	2.0	12
51	Spatially correlated erbium and Si nanocrystals in coimplanted SiO2 after a single high temperature anneal. Journal of Applied Physics, 2010, 107, 044316.	2.5	12
52	Structure and Luminescence of Rare Earth-doped Silicon Oxides Studied Through XANES and XEOL. ECS Transactions, 2009, 25, 213-222.	0.5	0
53	Observation of nonâ€radiative deâ€excitation processes in silicon nanocrystals. Physica Status Solidi (A) Applications and Materials Science, 2009, 206, 969-972.	1.8	6
54	Control of Graphene's Properties by Reversible Hydrogenation: Evidence for Graphane. Science, 2009, 323, 610-613.	12.6	3,748

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55	High-pressure Raman spectroscopy of graphene. Physical Review B, 2009, 80, .	3.2	188
56	Optical and microstructural studies of InGaN/GaN quantum dot ensembles. Applied Physics Letters, 2009, 95, 111903.	3.3	7
57	Study of excitonic transitions in Î´-doped GaAs/AlAs quantum wells. Lithuanian Journal of Physics, 2009, 49, 291-297.	0.4	0
58	Differential surface photovoltage spectroscopy of Î´â€doped GaAs/AlAs multiple quantum wells below and close to Mott transition. Physica Status Solidi (B): Basic Research, 2008, 245, 82-88.	1.5	3
59	Combined Super-STEM imaging, EEL and PL spectroscopy of un-doped and Er doped SRSO on Si. , 2008, , .		2
60	The effect of doping type and concentration on optical absorption via implantation induced defects in silicon-on-insulator waveguides. Optoelectronic and Microelectronic Materials and Devices (COMMAD), Conference on, 2008, , .	0.0	0
61	Impurity bound-to-unbound terahertz sensors based on beryllium and silicon Î´-doped GaAsâ^•AlAs multiple quantum wells. Applied Physics Letters, 2008, 92, 053503.	3.3	16
62	THz operation of asymmetric-nanochannel devices. Journal of Physics Condensed Matter, 2008, 20, 384203.	1.8	54
63	High-pressure Raman response of single-walled carbon nanotubes: Effect of the excitation laser energy. Physical Review B, 2008, 78, .	3.2	17
64	Room temperature operation of AlGaN/GaN quantum well infrared photodetectors at a 3â€“4 Âµm wavelength range. Semiconductor Science and Technology, 2007, 22, 1240-1244.	2.0	9
65	Effect of ion implantation on quantum well infrared photodetectors. Infrared Physics and Technology, 2007, 50, 106-112.	2.9	2
66	Photo- and electro-reflectance spectroscopy of Î´-doped GaAs/AlAs multiple quantum well structures. Physica Status Solidi (A) Applications and Materials Science, 2007, 204, 412-421.	1.8	2
67	Vibrational properties of GaP and GaP1â€“xNx under hydrostatic pressures up to 30 GPa. Physica Status Solidi (B): Basic Research, 2007, 244, 336-341.	1.5	11
68	Raman spectroscopy of single-walled carbon nanotubes at high pressure: Effect of interactions between the nanotubes and pressure transmitting media. Physica Status Solidi (B): Basic Research, 2007, 244, 147-150.	1.5	8
69	Impurity-induced Huangâ€“Rhys factor in beryllium Î´-doped GaAs/AlAs multiple quantum wells: fractional-dimensional space approach. Semiconductor Science and Technology, 2007, 22, 1070-1076.	2.0	26
70	Delta-doped GaAs/AlAs multiple quantum wells: Study by optical and terahertz techniques. AIP Conference Proceedings, 2007, , .	0.4	0
71	Detection Millimeter Waves Using Novel Electronic Nano-Devices. , 2006, , .		0
72	<title>GaAs/AlAs quantum wells for selective terahertz sensing: study by differential surface photovoltage spectroscopy</title>. , 2006, , .		0

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73	<title>Optical and terahertz spectroscopy of doped GaAs/AlAs quantum wells</title>. , 2006, , .		0
74	<title>Phonon sidebands in photoluminescence of beryllium Î´-doped GaAs/AlAs multiple quantum wells</title>. , 2006, , .		0
75	Study of Be Î´-doped GaAs/AlAs multiple quantum wells by the surface photovoltage spectroscopy. Applied Surface Science, 2006, 252, 5437-5440.	6.1	2
76	High pressure Raman spectroscopy of single-walled carbon nanotubes: Effect of chemical environment on individual nanotubes and the nanotube bundle. Journal of Physics and Chemistry of Solids, 2006, 67, 2468-2472.	4.0	24
77	Far-infrared absorption studies of Be acceptors in Î´-doped GaAs/AlAs multiple quantum wells. Science in China Series G: Physics, Mechanics and Astronomy, 2006, 49, 702-708.	0.2	2
78	Effect of chemical environment on high-pressure Raman response of single-walled carbon nanotubes. High Pressure Research, 2006, 26, 335-339.	1.2	1
79	Effects of depletion on the emission from individual InGaN dots. Applied Physics Letters, 2006, 88, 122115.	3.3	3
80	<title>Photoreflectance and differential surface photovoltage studies of Î´-doped GaAs/AlAs multiple quantum wells</title>. , 2005, , .		0
81	Microphotoluminescence and photocurrent studies of InGaN quantum dots grown by MOVPE at low surface densities on GaN. Microelectronics Journal, 2005, 36, 223-226.	2.0	0
82	The Effect of the Localization in a Quantum Well on the Lifetime of the States of Shallow Impurity Centers. Semiconductors, 2005, 39, 58.	0.5	2
83	Vibrational properties ofGaAs0.915N0.085under hydrostatic pressures up to20GPa. Physical Review B, 2005, 71, .	3.2	14
84	Photoreflectance and surface photovoltage spectroscopy of beryllium-doped GaAsâ^•AlAs multiple quantum wells. Journal of Applied Physics, 2005, 98, 023508.	2.5	21
85	Excitonic and impurity-related optical transitions in BeÎ´-dopedGaAsâ^•AlAsmultiple quantum wells: Fractional-dimensional space approach. Physical Review B, 2005, 72, .	3.2	32
86	Behaviour of optical transitions in GaAs/AlAs with highly Be Î´-doped MQWs. Lithuanian Journal of Physics, 2005, 45, 201-206.	0.4	5
87	Pressure-dependent photoluminescence study of epitaxial AlGaN to 19 GPa. Semiconductor Science and Technology, 2004, 19, L22-L24.	2.0	0
88	Effect of quantum confinement on shallow acceptor transitions in Î´-doped GaAs/AlAs multiple-quantum wells. Applied Physics Letters, 2004, 84, 735-737.	3.3	15
89	Binding energy and dynamics of Be acceptor levels in AlAs/GaAs multiple quantum wells. Journal of Luminescence, 2004, 108, 181-184.	3.1	3
90	Hole confinement and dynamics in Î´-doped Ge quantum dots. Journal of Luminescence, 2004, 108, 329-332.	3.1	3

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91	Raman scattering and absorption study of the high-pressure wurtzite to rocksalt phase transition of GaN. Physical Review B, 2004, 69, .	3.2	49
92	Hole trapping in self-assembled SiGe quantum nanostructures. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2003, 101, 338-344.	3.5	6
93	Picosecond time-resolved studies of excited state lifetime of Be acceptor in GaAs/AlAs multiple quantum wells. Physica Status Solidi (B): Basic Research, 2003, 235, 54-57.	1.5	6
94	Electronic Raman scattering from intersubband transitions in GaN/AlGaN quantum wells. Physica Status Solidi C: Current Topics in Solid State Physics, 2003, 0, 2662-2665.	0.8	1
95	Photoluminescence of single InGaN quantum dots grown at low surface densities by MOVPE. Physica Status Solidi C: Current Topics in Solid State Physics, 2003, 0, 2721-2724.	0.8	4
96	Variations in the Raman peak shift as a function of hydrostatic pressure for various carbon nanostructures: A simple geometric effect. Physical Review B, 2003, 67, .	3.2	128
97	Effect of quantum-well confinement on acceptor state lifetime in Î´â€Š-doped GaAs/AlAs multiple quantum wells. Applied Physics Letters, 2003, 83, 3719-3721.	3.3	9
98	QUANTUM-CONFINED IMPURITIES AS SINGLE-ATOM QUANTUM DOTS: APPLICATION TO TERAHERTZ EMITTERS. , 2003, , .		1
99	Optical properties of self-assembled Ge wires grown on Si(113). Applied Physics Letters, 2002, 81, 2448-2450.	3.3	21
100	Acceptor binding energy in Î´-doped GaAs/AlAs multiple-quantum wells. Journal of Applied Physics, 2002, 92, 6039-6042.	2.5	36
101	Picosecond far-infrared studies of intra-acceptor dynamics in bulk GaAs and Î´-doped AlAs/GaAs quantum wells. Physical Review B, 2001, 63, .	3.2	31
102	Investigation into the deformation of carbon nanotubes and their composites through the use of Raman spectroscopy. Composites Part A: Applied Science and Manufacturing, 2001, 32, 401-411.	7.6	422
103	Strain Seeding of Ge Quantum Dots Grown on Si (001). Physica Status Solidi (B): Basic Research, 2001, 224, 257-260.	1.5	1
104	Structural, Compositional and Optical Properties of Self-Organised Ge Quantum Dots. Physica Status Solidi (B): Basic Research, 2001, 224, 265-269.	1.5	10
105	The effect of strain field seeding on the epitaxial growth of Ge islands on Si(001). Applied Physics Letters, 2001, 78, 1658-1660.	3.3	11
106	Studies of Compositional Variations in Germanium Quantum Dots Grown on Silicon. Materials Research Society Symposia Proceedings, 2000, 638, 1.	0.1	0
107	Electron diffraction and Raman studies of the effect of substrate misorientation on ordering in the AlGaInP system. Journal of Applied Physics, 1999, 85, 199-202.	2.5	12
108	Raman spectra and lattice dynamics of intermixed AlAs/GaAs superlattices. Journal of Applied Physics, 1997, 81, 224-233.	2.5	3

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109	Highâ€energy implantation of Hg+ ions into GaAs grown by liquid encapsulated Czochralski method: Formation of multiple shallow emissions. Applied Physics Letters, 1995, 67, 2845-2847.	3.3	3
110	Selective excitation of spin-flip Raman scattering from electrons bound to donors in semiconductor quantum well structures. Semiconductor Science and Technology, 1995, 10, 1475-1483.	2.0	3
111	Spin-flip Raman scattering in CdTe/Cd1âˆ'xMnxTe multiple quantum wells: A model system for the study of electron-donor binding in semiconductor heterostructures. Physical Review B, 1994, 50, 11755-11763.	3.2	12
112	Spin-flip Raman scattering by electrons bound to donors in CdTe/Cd1âˆ'xMnxTe multiple quantum well structures as a function of barrier composition. Journal of Crystal Growth, 1994, 138, 656-660.	1.5	4
113	Spin-flip Raman scattering from electrons bound to donors in both wells and barriers of CdTe/Cd0.93Mn0.07Te heterostructures. Solid State Communications, 1993, 86, 15-18.	1.9	12
114	Growth and characterization of relaxed epilayers of InGaAs on GaAs. Journal of Crystal Growth, 1993, 126, 589-600.	1.5	18
115	CdS/CdSe intrinsic Stark superlattices. Journal of Applied Physics, 1992, 71, 907-915.	2.5	58
116	Ga2Te3and tellurium interfacial layers in ZnTe/GaSb heterostructures studied by Raman scattering. Applied Physics Letters, 1992, 60, 2129-2131.	3.3	25
117	Resonant electron spin-flip Raman scattering in Zn1âˆ'xMnxTe. Solid State Communications, 1992, 83, 85-88.	1.9	2
118	Atmospheric pressure metalorganic chemical vapour deposition growth and optical studies of ZnSe1âˆ'xTex thin film alloys. Journal of Crystal Growth, 1992, 117, 91-95.	1.5	13
119	Energy band structure of CdS/CdSe intrinsic Stark superlattices. Semiconductor Science and Technology, 1991, 6, A123-A126.	2.0	5
120	Photoluminescence of wide bandgap IIâ€“VI superlattices. Journal of Crystal Growth, 1990, 101, 554-558.	1.5	39
121	Spectroscopic evidence for piezoelectric effects in wurtzite CdS/CdSe strained-layer superlattices. Journal of Crystal Growth, 1990, 101, 616-619.	1.5	12
122	Time-resolved optical studies of piezoelectric effects in wurtzite strained-layer superlattices. Semiconductor Science and Technology, 1990, 5, 997-1000.	2.0	13
123	Photoluminescence studies of CdS/CdSe wurtzite superlattices; Evidence for large piezoelectric effects. Surface Science, 1990, 228, 41-44.	1.9	25
124	CdS and CdSe single and multilayer structures grown on GaAs. Superlattices and Microstructures, 1989, 5, 189-192.	3.1	10
125	Growth and assessment of CdS and CdSe layers produced on GaAs by metalorganic chemical vapour deposition. Journal of Crystal Growth, 1988, 91, 135-140.	1.5	32
126	CdS/CdSe strained layer superlattices grown by MOCVD. Semiconductor Science and Technology, 1988, 3, 1126-1128.	2.0	26

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127	The Role of Si Selfâ€interstitial Atoms in the Formation of Electrically Active Defects in Reverseâ€Biased Silicon n + â€“p Diodes upon Irradiation with Alpha Particles. Physica Status Solidi (A) Applications and Materials Science, 0, , 2100104.	1.8	1
128	Indiumâ€Doped Silicon for Solar Cellsâ€”Lightâ€Induced Degradation and Deepâ€Level Traps. Physica Status Solidi (A) Applications and Materials Science, 0, , 2100108.	1.8	2