Gerhard Abstreiter

List of Publications by Year
in descending order

90 papers	5,053 citations	76326 40 h-index	88630 70 g-index
91 all docs	91 docs citations	91 times ranked	5039 citing authors

#	Article	IF	Citations
1	Optically programmable electron spin memory using semiconductor quantum dots. Nature, 2004, 432, 81-84.	27.8	858
2	Coupled Quantum Dots Fabricated by Cleaved Edge Overgrowth: From Artificial Atoms to Molecules. Science, 1997, 278, 1792-1795.	12.6	265
3	Lasing from individual GaAs-AlGaAs core-shell nanowires up to room temperature. Nature Communications, 2013, 4, 2931.	12.8	207
4	Dynamic Electrical Switching of DNA Layers on a Metal Surface. Nano Letters, 2004, 4, 2441-2445.	9.1	161
5	Prismatic Quantum Heterostructures Synthesized on Moleculara€Beam Epitaxy GaAs Nanowires. Small, 2008, 4, 899-903.	10.0	142
6	Inelastic Light Scattering from a Quasi-Two-Dimensional Electron System in GaAs-AlxGa1â^'xAsHeterojunctions. Physical Review Letters, 1979, 42, 1308-1311.	7.8	135
7	Light scattering by free carrier excitations in semiconductors. Topics in Applied Physics, 1984, , 5-150.	0.8	135
8	Switchable DNA interfaces for the highly sensitive detection of label-free DNA targets. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 17364-17369.	7.1	123
9	Localization of Fractionally Charged Quasi-Particles. Science, 2004, 305, 980-983.	12.6	120
10	Direct Observation of a Noncatalytic Growth Regime for GaAs Nanowires. Nano Letters, 2011, 11, 3848-3854.	9.1	119
11	Spontaneous Alloy Composition Ordering in GaAs-AlGaAs Coreâ€"Shell Nanowires. Nano Letters, 2013, 13, 1522-1527.	9.1	116
12	Organophosphonate-Based PNA-Functionalization of Silicon Nanowires for Label-Free DNA Detection. ACS Nano, 2008, 2, 1653-1660.	14.6	104
13	Thermal conductivity of GaAs nanowires studied by micro-Raman spectroscopy combined with laser heating. Applied Physics Letters, 2010, 97, .	3.3	96
14	Crystal Structure Transfer in Core/Shell Nanowires. Nano Letters, 2011, 11, 1690-1694.	9.1	93
15	Structural Properties of Oligonucleotide Monolayers on Gold Surfaces Probed by Fluorescence Investigations. Langmuir, 2004, 20, 10086-10092.	3.5	91
16	Long range epitaxial growth of prismatic heterostructures on the facets of catalyst-free GaAs nanowires. Journal of Materials Chemistry, 2009, 19, 840.	6.7	88
17	Recent advances in exciton-based quantum information processing in quantum dot nanostructures. New Journal of Physics, 2005, 7, 184-184.	2.9	87
18	Electrical manipulation of oligonucleotides grafted to charged surfaces. Organic and Biomolecular Chemistry, 2006, 4, 3448.	2.8	78

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19	Enhanced Luminescence Properties of InAsâ€“InAsP Coreâ€“Shell Nanowires. Nano Letters, 2013, 13, 6070-6077.	9.1	73
20	Growth and properties of InGaAs nanowires on silicon. Physica Status Solidi - Rapid Research Letters, 2014, 8, 11-30.	2.4	68
21	Alloy Fluctuations Act as Quantum Dot-like Emitters in GaAs-AlGaAs Coreâ€“Shell Nanowires. ACS Nano, 2015, 9, 8335-8343.	14.6	65
22	Dynamic Acoustic Control of Individual Optically Active Quantum Dot-like Emission Centers in Heterostructure Nanowires. Nano Letters, 2014, 14, 2256-2264.	9.1	64
23	Dissimilar Kinetic Behavior of Electrically Manipulated Single- and Double-Stranded DNA Tethered to a Gold Surface. Biophysical Journal, 2006, 90, 3666-3671.	0.5	61
24	Direct Measurements of Fermi Level Pinning at the Surface of Intrinsically n-Type InGaAs Nanowires. Nano Letters, 2016, 16, 5135-5142.	9.1	60
25	Directional and Dynamic Modulation of the Optical Emission of an Individual GaAs Nanowire Using Surface Acoustic Waves. Nano Letters, 2011, 11, 1512-1517.	9.1	56
26	High Mobility One- and Two-Dimensional Electron Systems in Nanowire-Based Quantum Heterostructures. Nano Letters, 2013, 13, 6189-6196.	9.1	56
27	PNA-PEG Modified Silicon Platforms as Functional Bio-Interfaces for Applications in DNA Microarrays and Biosensors. Biomacromolecules, 2009, 10, 489-496.	5.4	50
28	Tunable Quantum Confinement in Ultrathin, Optically Active Semiconductor Nanowires Via Reverseâ€Reaction Growth. Advanced Materials, 2015, 27, 2195-2202.	21.0	50
29	GaAsâ€“AlGaAs coreâ€“shell nanowire lasers on silicon: invited review. Semiconductor Science and Technology, 2017, 32, 053001.	2.0	48
30	Crystal Phase Quantum Dots in the Ultrathin Core of GaAsâ€“AlGaAs Coreâ€“Shell Nanowires. Nano Letters, 2015, 15, 7544-7551.	9.1	47
31	Detection and Size Analysis of Proteins with Switchable DNA Layers. Nano Letters, 2009, 9, 1290-1295.	9.1	46
32	Role of microstructure on optical properties in high-uniformity In<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mrow><mml:mn>1</mml:mn><mml:mo>â^’</mml:mo><mml:mi>x</mml:mi></mml:mrow></mml:msub></mml:math>Ga<mml: xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mi>x</mml:mi></mml:msub></mml:math>As nanowire arrays: Evidence of a wider wurtzite band gap. Physical Review B, 2013, 87, .	3.2	46
33	Lattice-Matched InGaAsâ€“InAlAs Coreâ€“Shell Nanowires with Improved Luminescence and Photoresponse Properties. Nano Letters, 2015, 15, 3533-3540.	9.1	46
34	Electrochemical passivation of gallium arsenide surface with organic self-assembled monolayers in aqueous electrolytes. Applied Physics Letters, 2000, 76, 3313-3315.	3.3	45
35	Observation of electrostatically released DNA from gold electrodes with controlled threshold voltages. Journal of Chemical Physics, 2004, 120, 5501-5504.	3.0	44
36	Size, composition, and doping effects on In(Ga)As nanowire/Si tunnel diodes probed by conductive atomic force microscopy. Applied Physics Letters, 2012, 101, 233102.	3.3	43

#	ARTICLE	IF	CITATIONS
37	Pressure Tuning of the Optical Properties of GaAs Nanowires. ACS Nano, 2012, 6, 3284-3291.	14.6	43
38	Progress towards single spin optoelectronics using quantum dot nanostructures. Solid State Communications, 2005, 135, 591-601.	1.9	42
39	Controlling the surface density of DNA on gold by electrically induced desorption. Biosensors and Bioelectronics, 2007, 23, 326-331.	10.1	42
40	Growth mechanisms and optical properties of GaAs-based semiconductor microstructures by selective area epitaxy. Journal of Crystal Growth, 2008, 310, 1049-1056.	1.5	42
41	Nonlinear ground-state absorption observed in a single quantum dot. Applied Physics Letters, 2001, 79, 2808-2810.	3.3	38
42	Silicon-on-Insulator Based Thin-Film Resistor for Chemical and Biological Sensor Applications. ChemPhysChem, 2003, 4, 1104-1106.	2.1	36
43	Enhancement of photoluminescence from near-surface quantum dots by suppression of surface state density. Physical Chemistry Chemical Physics, 2002, 4, 785-790.	2.8	35
44	Time-Resolved Photoinduced Thermoelectric and Transport Currents in GaAs Nanowires. Nano Letters, 2012, 12, 2337-2341.	9.1	33
45	E₁(A) Electronic Band Gap in Wurtzite InAs Nanowires Studied by Resonant Raman Scattering. Nano Letters, 2013, 13, 3011-3016.	9.1	32
46	Complete thermoelectric benchmarking of individual InSb nanowires using combined micro-Raman and electric transport analysis. Nano Research, 2015, 8, 4048-4060.	10.4	32
47	Spectroscopy of Free Carrier Excitations in Semiconductor Quantum Wells. , 1989, , 153-211.		31
48	Band gap of strain-symmetrized, short-period Si/Ge superlattices. Physical Review B, 1992, 46, 12857-12860.	3.2	31
49	Probing the trapping and thermal activation dynamics of excitons at single twin defects in GaAsâ€“AlGaAs coreâ€“shell nanowires. New Journal of Physics, 2013, 15, 113032.	2.9	30
50	Microscopic manifestation of the spin phase transition at filling factor 2/3. Nature Physics, 2007, 3, 392-396.	16.7	29
51	Free standing modulation doped coreâ€“shell GaAs/AlGaAs heteroâ€nanowires. Physica Status Solidi - Rapid Research Letters, 2011, 5, 353-355.	2.4	29
52	Excessive Counterion Condensation on Immobilized ssDNA in Solutions of High Ionic Strength. Biophysical Journal, 2003, 85, 3858-3864.	0.5	28
53	Room Temperature Nanoimprint Lithography Using Molds Fabricated by Molecular Beam Epitaxy. IEEE Nanotechnology Magazine, 2008, 7, 363-370.	2.0	27
54	Ultrafast photocurrents and THz generation in single InAsâ€nanowires. Annalen Der Physik, 2013, 525, 180-188.	2.4	27

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55	Molecular Architecture: Construction of Self-Assembled Organophosphonate Duplexes and Their Electrochemical Characterization. Langmuir, 2012, 28, 7889-7896.	3.5	26
56	Photocurrents in a Single InAs Nanowire/Silicon Heterojunction. ACS Nano, 2015, 9, 9849-9858.	14.6	26
57	The Native Material Limit of Electron and Hole Mobilities in Semiconductor Nanowires. ACS Nano, 2016, 10, 4942-4953.	14.6	26
58	Planar Nanogap Electrodes by Direct Nanotransfer Printing. Small, 2009, 5, 579-582.	10.0	25
59	Electronic properties of the two-dimensional system at GaAs/AlxGa1â˜’xAs interfaces. Surface Science, 1980, 98, 117-125.	1.9	23
60	Local structure of uncapped and Si-capped Ge/Si(100) self-assembled quantum dots. Applied Physics Letters, 2001, 78, 451-453.	3.3	23
61	Physics and perspectives of Si/Ge heterostructures and superlattices. Physica Scripta, 1993, T49A, 42-45.	2.5	22
62	Multiple Nanowire Species Synthesized on a Single Chip by Selectively Addressable Horizontal Nanochannels. Nano Letters, 2010, 10, 1341-1346.	9.1	22
63	Radio frequency occupancy state control of a single nanowire quantum dot. Journal Physics D: Applied Physics, 2014, 47, 394011.	2.8	22
64	Quantumâ€Confinementâ€Enhanced Thermoelectric Properties in Modulationâ€Doped GaAsâ€"AlGaAs Coreâ€"Shell Nanowires. Advanced Materials, 2020, 32, e1905458.	21.0	19
65	Local structure of Ge quantum dots self-assembled on Si(100) probed by x-ray absorption fine-structure spectroscopy. Physical Review B, 2002, 66, .	3.2	18
66	Quantum Transport and Sub-Band Structure of Modulation-Doped GaAs/AlAs Coreâ€"Superlattice Nanowires. Nano Letters, 2017, 17, 4886-4893.	9.1	18
67	Suppression of alloy fluctuations in GaAs-AlGaAs core-shell nanowires. Applied Physics Letters, 2016, 109, .	3.3	17
68	Controlled synthesis of InAs wires, dot and twin-dot array configurations by cleaved edge overgrowth. Nanotechnology, 2008, 19, 045303.	2.6	15
69	Breakdown of Corner States and Carrier Localization by Monolayer Fluctuations in Radial Nanowire Quantum Wells. Nano Letters, 2019, 19, 3336-3343.	9.1	14
70	Coherent and incoherent properties of single quantum dot photodiodes. Physica E: Low-Dimensional Systems and Nanostructures, 2003, 16, 59-67.	2.7	12
71	Microstructured horizontal alumina pore arrays as growth templates for large area few and single nanowire devices. Physica Status Solidi - Rapid Research Letters, 2008, 2, 59-61.	2.4	12
72	Microscopic nature of crystal phase quantum dots in ultrathin GaAs nanowires by nanoscale luminescence characterization. New Journal of Physics, 2016, 18, 063009.	2.9	12

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73	Silicon/germanium quantum structures. Solid State Communications, 1994, 92, 5-10.	1.9	11
74	pH Sensitivity of Gallium Arsenide (GaAs) Electrodes Functionalized with Methylâˆ'mercaptobiphenyl Monolayers. Journal of Physical Chemistry C, 2007, 111, 12414-12419.	3.1	11
75	Confinement effects and polarization dependence of luminescence from monolayer-thick Ge quantum wells. Physical Review B, 1996, 54, 1922-1927.	3.2	10
76	Valence Band Splitting in Wurtzite InGaAs Nanoneedles Studied by Photoluminescence Excitation Spectroscopy. ACS Nano, 2014, 8, 11440-11446.	14.6	10
77	Advances in Nanoimprint Lithography. , 2007, , .		9
78	Technology Assessment of a Novel High-Yield Lithographic Technique for Sub-15-nm Direct Nanotransfer Printing of Nanogap Electrodes. IEEE Nanotechnology Magazine, 2009, 8, 662-670.	2.0	9
79	Luminescence and Inelastic Light Scattering in GaAs Doping Superlattices. Springer Series in Solid-state Sciences, 1984, , 232-239.	0.3	7
80	Inelastic light scattering in semiconductor heterostructures. , 1984, , 291-309.		6
81	Light scattering in novel layered semiconductor structures. , 1986, , 41-53.		6
82	Electronic properties of Si/SiGe/Ge heterostructures. Physica Scripta, 1996, T68, 68-71.	2.5	6
83	Pressure dependence of Raman spectrum in InAs nanowires. Journal of Physics Condensed Matter, 2014, 26, 235301.	1.8	6
84	Cleaved-edge-overgrowth nanogap electrodes. Nanotechnology, 2011, 22, 065301.	2.6	5
85	Surfaceâ€directed molecular assembly of pentacene on aromatic organophosphonate selfâ€assembled monolayers explored by polarized Raman spectroscopy. Journal of Raman Spectroscopy, 2017, 48, 235-242.	2.5	5
86	Chapter 2 Band Gaps and Light Emission in Si/SiGe Atomic Layer Structures. Semiconductors and Semimetals, 1997, 49, 37-76.	0.7	4
87	All optical preparation, storage, and readout of a single spin in an individual quantum dot. Proceedings of SPIE, 2012, , .	0.8	2
88	The origin to various PL-bands in Si/Ge strain-symmetrized superlattices. Microelectronic Engineering, 1998, 43-44, 165-170.	2.4	0
89	Raman Spectroscopy for the Study of Semiconductor Heterostructures and Superlattices. NATO ASI Series Series B: Physics, 1987, , 301-315.	0.2	0
90	Raman Scattering at Interfaces. NATO ASI Series Series B: Physics, 1987, , 269-278.	0.2	0