Charles M Lieber

List of Publications by Year
in descending order

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154 papers	55,981 citations	2975 93 h-index	8167 148 g-index
159 all docs	159 docs citations	159 times ranked	38209 citing authors

#	Article	IF	Citations
1	Nanowire Nanosensors for Highly Sensitive and Selective Detection of Biological and Chemical Species. Science, 2001, 293, 1289-1292.	12.6	5,587
2	A Laser Ablation Method for the Synthesis of Crystalline Semiconductor Nanowires. Science, 1998, 279, 208-211.	12.6	4,213
3	Coaxial silicon nanowires as solar cells and nanoelectronic power sources. Nature, 2007, 449, 885-889.	27.8	2,791
4	Multiplexed electrical detection of cancer markers with nanowire sensor arrays. Nature Biotechnology, 2005, 23, 1294-1301.	17.5	2,249
5	Directed Assembly of One-Dimensional Nanostructures into Functional Networks. Science, 2001, 291, 630-633.	12.6	2,105
6	High Performance Silicon Nanowire Field Effect Transistors. Nano Letters, 2003, 3, 149-152.	9.1	2,010
7	Covalently functionalized nanotubes as nanometre- sized probes in chemistry and biology. Nature, 1998, 394, 52-55.	27.8	1,439
8	Nanoelectronics from the bottom up. Nature Materials, 2007, 6, 841-850.	27.5	1,419
9	Ge/Si nanowire heterostructures as high-performance field-effect transistors. Nature, 2006, 441, 489-493.	27.8	1,401
10	Direct Ultrasensitive Electrical Detection of DNA and DNA Sequence Variations Using Nanowire Nanosensors. Nano Letters, 2004, 4, 51-54.	9.1	1,267
11	Electrical detection of single viruses. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 14017-14022.	7.1	1,208
12	Synthesis and characterization of carbide nanorods. Nature, 1995, 375, 769-772.	27.8	1,122
13	Nanotube Nanotweezers. Science, 1999, 286, 2148-2150.	12.6	1,119
14	Diameter-controlled synthesis of single-crystal silicon nanowires. Applied Physics Letters, 2001, 78, 2214-2216.	3.3	1,078
15	Single-crystal metallic nanowires and metal/semiconductor nanowire heterostructures. Nature, 2004, 430, 61-65.	27.8	957
16	Controlled Growth and Structures of Molecular-Scale Silicon Nanowires. Nano Letters, 2004, 4, 433-436.	9.1	892
17	Doping and Electrical Transport in Silicon Nanowires. Journal of Physical Chemistry B, 2000, 104, 5213-5216.	2.6	885
18	Detection, Stimulation, and Inhibition of Neuronal Signals with High-Density Nanowire Transistor Arrays. Science, 2006, 313, 1100-1104.	12.6	797

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19	Diameter-Controlled Synthesis of Carbon Nanotubes. Journal of Physical Chemistry B, 2002, 106, 2429-2433.	2.6	747
20	Three-Dimensional, Flexible Nanoscale Field-Effect Transistors as Localized Bioprobes. Science, 2010, 329, 830-834.	12.6	734
21	Controlled growth and electrical properties of heterojunctions of carbon nanotubes and silicon nanowires. Nature, 1999, 399, 48-51.	27.8	709
22	Fabrication of silicon nanowire devices for ultrasensitive, label-free, real-time detection of biological and chemical species. Nature Protocols, 2006, 1, 1711-1724.	12.0	709
23	Structure and Electronic Properties of Carbon Nanotubes. Journal of Physical Chemistry B, 2000, 104, 2794-2809.	2.6	646
24	Gallium Nitride-Based Nanowire Radial Heterostructures for Nanophotonics. Nano Letters, 2004, 4, 1975-1979.	9.1	609
25	Macroporous nanowire nanoelectronic scaffolds for synthetic tissues. Nature Materials, 2012, 11, 986-994.	27.5	561
26	Syringe-injectable electronics. Nature Nanotechnology, 2015, 10, 629-636.	31.5	543
27	Nano-Bioelectronics. Chemical Reviews, 2016, 116, 215-257.	47.7	530
28	Assembly of AÎ² Amyloid Protofibrils:â€‰ An in Vitro Model for a Possible Early Event in Alzheimer's Disease. Biochemistry, 1999, 38, 8972-8980.	2.5	485
29	Spin-resolved Andreev levels and parity crossings in hybrid superconductorâ€“semiconductor nanostructures. Nature Nanotechnology, 2014, 9, 79-84.	31.5	481
30	Nanomaterials for Neural Interfaces. Advanced Materials, 2009, 21, 3970-4004.	21.0	460
31	Synthesis of p-Type Gallium Nitride Nanowires for Electronic and Photonic Nanodevices. Nano Letters, 2003, 3, 343-346.	9.1	455
32	One-dimensional hole gas in germanium/silicon nanowire heterostructures. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 10046-10051.	7.1	443
33	CHEMICAL FORCE MICROSCOPY. Annual Review of Materials Research, 1997, 27, 381-421.	5.5	439
34	Novel electrode technologies for neural recordings. Nature Reviews Neuroscience, 2019, 20, 330-345.	10.2	436
35	Intracellular recordings of action potentials by an extracellular nanoscale field-effect transistor. Nature Nanotechnology, 2012, 7, 174-179.	31.5	412
36	Single and Tandem Axial p-i-n Nanowire Photovoltaic Devices. Nano Letters, 2008, 8, 3456-3460.	9.1	401

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37	Single-Cell Profiles of Retinal Ganglion Cells Differing in Resilience to Injury Reveal Neuroprotective Genes. Neuron, 2019, 104, 1039-1055.e12.	8.1	396
38	Resonant Electron Scattering by Defects in Single-Walled Carbon Nanotubes. Science, 2001, 291, 283-285.	12.6	391
39	Growth of nanotubes for probe microscopy tips. Nature, 1999, 398, 761-762.	27.8	384
40	Rational Growth of Branched and Hyperbranched Nanowire Structures. Nano Letters, 2004, 4, 871-874.	9.1	384
41	Single-crystalline kinked semiconductor nanowire superstructures. Nature Nanotechnology, 2009, 4, 824-829.	31.5	352
42	Growth and transport properties of complementary germanium nanowire field-effect transistors. Applied Physics Letters, 2004, 84, 4176-4178.	3.3	351
43	Scalable Interconnection and Integration of Nanowire Devices without Registration. Nano Letters, 2004, 4, 915-919.	9.1	337
44	Three-dimensional macroporous nanoelectronic networks as minimally invasive brain probes. Nature Materials, 2015, 14, 1286-1292.	27.5	334
45	High-Yield Assembly of Individual Single-Walled Carbon Nanotube Tips for Scanning Probe Microscopies. Journal of Physical Chemistry B, 2001, 105, 743-746.	2.6	332
46	Nonvolatile Memory and Programmable Logic from Molecule-Gated Nanowires. Nano Letters, 2002, 2, 487-490.	9.1	330
47	Nanowire Transistor Performance Limits and Applications. IEEE Transactions on Electron Devices, 2008, 55, 2859-2876.	3.0	306
48	A Ge/Si heterostructure nanowire-based double quantum dot with integrated charge sensor. Nature Nanotechnology, 2007, 2, 622-625.	31.5	287
49	A room temperature low-threshold ultraviolet plasmonic nanolaser. Nature Communications, 2014, 5, 4953.	12.8	278
50	Bioinspired neuron-like electronics. Nature Materials, 2019, 18, 510-517.	27.5	277
51	Nanostructured high-temperature superconductors: Creation of strong-pinning columnar defects in nanorod/superconductor composites. Journal of Materials Research, 1997, 12, 2981-2996.	2.6	276
52	A nanoscale combing technique for the large-scale assembly of highly aligned nanowires. Nature Nanotechnology, 2013, 8, 329-335.	31.5	276
53	Stable long-term chronic brain mapping at the single-neuron level. Nature Methods, 2016, 13, 875-882.	19.0	256
54	Ge/Si nanowire mesoscopic Josephson junctions. Nature Nanotechnology, 2006, 1, 208-213.	31.5	255

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55	Vectorial Growth of Metallic and Semiconducting Single-Wall Carbon Nanotubes. Nano Letters, 2002, 2, 1137-1141.	9.1	247
56	Free-standing kinked nanowire transistor probes for targeted intracellular recording in three dimensions. Nature Nanotechnology, 2014, 9, 142-147.	31.5	230
57	Superconductivity at 30 K in caesium-doped C60. Nature, 1991, 352, 223-225.	27.8	219
58	General Strategy for Biodetection in High Ionic Strength Solutions Using Transistor-Based Nanoelectronic Sensors. Nano Letters, 2015, 15, 2143-2148.	9.1	215
59	Flexible electrical recording from cells using nanowire transistor arrays. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 7309-7313.	7.1	206
60	Electrical Recording from Hearts with Flexible Nanowire Device Arrays. Nano Letters, 2009, 9, 914-918.	9.1	205
61	Specific detection of biomolecules in physiological solutions using graphene transistor biosensors. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 14633-14638.	7.1	200
62	Semiconductor nanowires: a platform for exploring limits and concepts for nano-enabled solar cells. Energy and Environmental Science, 2013, 6, 719.	30.8	189
63	Nanowire transistor arrays for mapping neural circuits in acute brain slices. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1882-1887.	7.1	187
64	Semiconductor nanowires: A platform for nanoscience and nanotechnology. MRS Bulletin, 2011, 36, 1052-1063.	3.5	187
65	Hole spin relaxation in Geâ€“Si coreâ€“shell nanowire qubits. Nature Nanotechnology, 2012, 7, 47-50.	31.5	183
66	Syringe-injectable mesh electronics integrate seamlessly with minimal chronic immune response in the brain. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 5894-5899.	7.1	181
67	Single-walled carbon nanotube probes for high-resolution nanostructure imaging. Applied Physics Letters, 1998, 73, 3465-3467.	3.3	169
68	Direct haplotyping of kilobase-size DNA using carbon nanotube probes. Nature Biotechnology, 2000, 18, 760-763.	17.5	164
69	Chemically-Sensitive Imaging in Tapping Mode by Chemical Force Microscopy:Â Relationship between Phase Lag and Adhesion. Langmuir, 1998, 14, 1508-1511.	3.5	163
70	A wavelength-selective photonic-crystal waveguide coupled to a nanowire light source. Nature Photonics, 2008, 2, 622-626.	31.4	162
71	Three-dimensional mapping and regulation of action potential propagation in nanoelectronics-innervated tissues. Nature Nanotechnology, 2016, 11, 776-782.	31.5	160
72	Performance Analysis of a Ge/Si Core/Shell Nanowire Field-Effect Transistor. Nano Letters, 2007, 7, 642-646.	9.1	157

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73	Sub-100 Nanometer Channel Length Ge/Si Nanowire Transistors with Potential for 2 THz Switching Speed. Nano Letters, 2008, 8, 925-930.	9.1	150
74	A method for single-neuron chronic recording from the retina in awake mice. Science, 2018, 360, 1447-1451.	12.6	132
75	Growth and composition of covalent carbon nitride solids. Applied Physics Letters, 1995, 66, 3582-3584.	3.3	131
76	Plateauâ€“Rayleigh crystal growth of periodic shells on one-dimensional substrates. Nature Nanotechnology, 2015, 10, 345-352.	31.5	131
77	Mesh electronics: a new paradigm for tissue-like brain probes. Current Opinion in Neurobiology, 2018, 50, 33-41.	4.2	131
78	Assembly and integration of semiconductor nanowires for functional nanosystems. Pure and Applied Chemistry, 2010, 82, 2295-2314.	1.9	130
79	Scalable ultrasmall three-dimensional nanowire transistor probes for intracellular recording. Nature Nanotechnology, 2019, 14, 783-790.	31.5	129
80	Long Term Stability of Nanowire Nanoelectronics in Physiological Environments. Nano Letters, 2014, 14, 1614-1619.	9.1	126
81	Highly scalable multichannel mesh electronics for stable chronic brain electrophysiology. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E10046-E10055.	7.1	120
82	Kinked pâ€“n Junction Nanowire Probes for High Spatial Resolution Sensing and Intracellular Recording. Nano Letters, 2012, 12, 1711-1716.	9.1	119
83	Single-Walled Carbon Nanotube AFM Probes:â€‰ Optimal Imaging Resolution of Nanoclusters and Biomolecules in Ambient and Fluid Environments. Nano Letters, 2004, 4, 1725-1731.	9.1	114
84	Outside Looking In: Nanotube Transistor Intracellular Sensors. Nano Letters, 2012, 12, 3329-3333.	9.1	113
85	Characterization of nanometer scale wear and oxidation of transition metal dichalcogenide lubricants by atomic force microscopy. Applied Physics Letters, 1991, 59, 3404-3406.	3.3	110
86	Syringe Injectable Electronics: Precise Targeted Delivery with Quantitative Input/Output Connectivity. Nano Letters, 2015, 15, 6979-6984.	9.1	109
87	Molybdenum Selenide Molecular Wires as One-Dimensional Conductors. Physical Review Letters, 1999, 83, 5334-5337.	7.8	105
88	Growth of Metal Carbide Nanotubes and Nanorods. Chemistry of Materials, 1996, 8, 2041-2046.	6.7	104
89	Load-Independent Friction:Â MoO3Nanocrystal Lubricants. Journal of Physical Chemistry B, 1999, 103, 8405-8409.	2.6	102
90	Nanowire Superlattices. Nano Letters, 2002, 2, 81-82.	9.1	102

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91	Advances in nanowire bioelectronics. Reports on Progress in Physics, 2017, 80, 016701.	20.1	99
92	Nanomaterial-incorporated blown bubble films for large-area, aligned nanostructures. Journal of Materials Chemistry, 2008, 18, 728.	6.7	95
93	Nanoscience and the nano-bioelectronics frontier. Nano Research, 2015, 8, 1-22.	10.4	93
94	Nanowired Bioelectric Interfaces. Chemical Reviews, 2019, 119, 9136-9152.	47.7	92
95	Nanowire nanocomputer as a finite-state machine. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 2431-2435.	7.1	88
96	Spontaneous Internalization of Cell Penetrating Peptide-Modified Nanowires into Primary Neurons. Nano Letters, 2016, 16, 1509-1513.	9.1	86
97	Multifunctional three-dimensional macroporous nanoelectronic networks for smart materials. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 6694-6699.	7.1	85
98	Synthetically Encoded Ultrashort-Channel Nanowire Transistors for Fast, Pointlike Cellular Signal Detection. Nano Letters, 2012, 12, 2639-2644.	9.1	82
99	Synthetic Nanoelectronic Probes for Biological Cells and Tissues. Annual Review of Analytical Chemistry, 2013, 6, 31-51.	5.4	82
100	Isotope Effect and Superconductivity in Metal-Doped C ₆₀. Science, 1993, 259, 655-658.	12.6	76
101	Nanotube structure and electronic properties probed by scanning tunneling microscopy. Applied Physics Letters, 1993, 62, 2792-2794.	3.3	73
102	Mesh Nanoelectronics: Seamless Integration of Electronics with Tissues. Accounts of Chemical Research, 2018, 51, 309-318.	15.6	68
103	Precision electronic medicine in the brain. Nature Biotechnology, 2019, 37, 1007-1012.	17.5	62
104	Sub-10-nm intracellular bioelectronic probes from nanowireâ€“nanotube heterostructures. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 1259-1264.	7.1	59
105	Syringe-Injectable Electronics with a Plug-and-Play Input/Output Interface. Nano Letters, 2017, 17, 5836-5842.	9.1	59
106	Diamondlike properties in a single phase carbon nitride solid. Applied Physics Letters, 1996, 68, 2639-2641.	3.3	58
107	Shape-Controlled Deterministic Assembly of Nanowires. Nano Letters, 2016, 16, 2644-2650.	9.1	57
108	12 GHz $F_{m MAX}$GaN/AlN/AlGaN Nanowire MISFET. IEEE Electron Device Letters, 2009, 30, 322-324.	3.9	55

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109	Beyond the Patch Clamp: Nanotechnologies for Intracellular Recording. Neuron, 2015, 86, 21-24.	8.1	51
110	Electrochemical Deposition of Conformal and Functional Layers on High Aspect Ratio Silicon Micro/Nanowires. Nano Letters, 2017, 17, 4502-4507.	9.1	50
111	Plateauâ€“Rayleigh Crystal Growth of Nanowire Heterostructures: Strain-Modified Surface Chemistry and Morphological Control in One, Two, and Three Dimensions. Nano Letters, 2016, 16, 2830-2836.	9.1	49
112	Friction between van der Waals Solids during Lattice Directed Sliding. Nano Letters, 2017, 17, 4116-4121.	9.1	48
113	Pulsed laser deposition and physical properties of carbon nitride thin films. Journal of Electronic Materials, 1996, 25, 57-61.	2.2	47
114	Scaling of subgap excitations in a superconductor-semiconductor nanowire quantum dot. Physical Review B, 2017, 95, .	3.2	45
115	Singleâ€Walled Carbon Nanotubes. Annals of the New York Academy of Sciences, 2002, 960, 203-215.	3.8	41
116	Nanoenabled Direct Contact Interfacing of Syringe-Injectable Mesh Electronics. Nano Letters, 2019, 19, 5818-5826.	9.1	41
117	Path of magnetic flux lines through high-Tc copper oxide superconductors. Nature, 1994, 371, 777-779.	27.8	40
118	Coulomb Gap and Correlated Vortex Pinning in Superconductors. Physical Review Letters, 1995, 74, 5132-5135.	7.8	39
119	Growth of the infinite layer phase of Sr1â^'xNdxCuO2by laser ablation. Applied Physics Letters, 1992, 61, 1712-1714.	3.3	34
120	Tissue-like Neural Probes for Understanding and Modulating the Brain. Biochemistry, 2018, 57, 3995-4004.	2.5	33
121	Nanowire-enabled bioelectronics. Nano Today, 2021, 38, 101135.	11.9	31
122	Fieldâ€induced surface modification on the atomic scale by scanning tunneling microscopy. Applied Physics Letters, 1992, 61, 1528-1530.	3.3	28
123	Up close and personal to atoms. Nature, 1999, 401, 227-230.	27.8	25
124	Nanowire nanoelectronics: Building interfaces with tissue and cells at the natural scale of biology. Pure and Applied Chemistry, 2013, 85, 883-901.	1.9	24
125	Columnar defect formation in nanorod/Tl2Ba2Ca2Cu3Oz superconducting composites. Applied Physics Letters, 1997, 70, 3158-3160.	3.3	23
126	Advanced One- and Two-Dimensional Mesh Designs for Injectable Electronics. Nano Letters, 2019, 19, 4180-4187.	9.1	23

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127	Syringe-injectable Mesh Electronics for Stable Chronic Rodent Electrophysiology. Journal of Visualized Experiments, 2018, , .	0.3	22
128	Gate Tunable Hole Charge Qubit Formed in a Ge/Si Nanowire Double Quantum Dot Coupled to Microwave Photons. Nano Letters, 2019, 19, 1052-1060.	9.1	20
129	Helical Hole State in Multiple Conduction Modes in Ge/Si Core/Shell Nanowire. Nano Letters, 2018, 18, 6144-6149.	9.1	19
130	Nanowire probes could drive high-resolution brain-machine interfaces. Nano Today, 2020, 31, 100821.	11.9	18
131	Nanoelectronics from the bottom up. , 2009, , 137-146.		15
132	Highly Transparent Contacts to the 1D Hole Gas in Ultrascaled Ge/Si Core/Shell Nanowires. ACS Nano, 2019, 13, 14145-14151.	14.6	15
133	Semiconductor nanowire solar cells: synthetic advances and tunable properties. Pure and Applied Chemistry, 2014, 86, 13-26.	1.9	11
134	Encoding Active Device Elements at Nanowire Tips. Nano Letters, 2016, 16, 4713-4719.	9.1	11
135	All-Tissue-like Multifunctional Optoelectronic Mesh for Deep-Brain Modulation and Mapping. Nano Letters, 2021, 21, 3184-3190.	9.1	9
136	Scalable Three-Dimensional Recording Electrodes for Probing Biological Tissues. Nano Letters, 2022, 22, 4552-4559.	9.1	9
137	Response to Comment on "Detection, Stimulation, and Inhibition of Neuronal Signals with High-Density Nanowire Transistor Arrays". Science, 2009, 323, 1429-1429.	12.6	8
138	Applications of Scanning Tunneling Microscopy to Inorganic Chemistry. Progress in Inorganic Chemistry, 0, , 431-510.	3.0	6
139	Facile, Rapid, and Large-Area Periodic Patterning of Semiconductor Substrates with Submicron Inorganic Structures. Journal of the American Chemical Society, 2015, 137, 3739-3742.	13.7	5
140	Creating Functional Interfaces with Biological Circuits. Accounts of Chemical Research, 2018, 51, 987-987.	15.6	5
141	Pulsed Laser Deposition of Diamond-Like Carbon Thin Films: Ablation Dynamics and Growth. Materials Research Society Symposia Proceedings, 1996, 438, 593.	0.1	4
142	High-Pressure Chemistry of Carbon Nitride Materials. Materials Research Society Symposia Proceedings, 1997, 499, 309.	0.1	4
143	Multiplexed Electrical Detection of Single Viruses. Materials Research Society Symposia Proceedings, 2004, 828, 97.	0.1	4
144	Growth and Structure of Carbide Nanorods. Materials Research Society Symposia Proceedings, 1995, 410, 103.	0.1	2

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145	Creation of Nanocrystals Via a Tip-Induced Solid-Solid Transformation. Materials Research Society Symposia Proceedings, 1996, 466, 89.	0.1	2
146	Chemical Force Microscopy: Probing and Imaging Interactions Between Functional Groups. ACS Symposium Series, 1998, , 312-320.	0.5	2
147	Semiconductor Nanowire Lasers. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	2
148	Chemical Force Microscopy. Microscopy and Microanalysis, 1997, 3, 1253-1254.	0.4	1
149	Semiconductor nanowires embedded in optical microcavities. , 2006, , .		1
150	Semiconductor nanowires: A platform for nanoscience and nanotechnology. , 2010, , .		1
151	Programmable nanowire circuits for nanoprocessors. , 0, .		1
152	Coaxial silicon nanowires as solar cells and nanoelectronic power sources. , 2010, , 58-62.		1
153	High-Temperature Superconductors. Science, 1997, 277, 1909-1914.	12.6	1
154	Parallel and Complementary Detection of Proteins by p-type and n-type Silicon Nanowire Transistor Arrays. Materials Research Society Symposia Proceedings, 2005, 900, 1.	0.1	0