

Charles M Lieber

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152
papers

49,257
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88
h-index

159
g-index

159
ext. papers

53,102
ext. citations

17.9
avg, IF

7.72
L-index

#	Paper	IF	Citations
152	Nanowire nanosensors for highly sensitive and selective detection of biological and chemical species. <i>Science</i> , 2001 , 293, 1289-92	33.3	5041
151	A laser ablation method for the synthesis of crystalline semiconductor nanowires. <i>Science</i> , 1998 , 279, 208-11	33.3	3867
150	Coaxial silicon nanowires as solar cells and nanoelectronic power sources. <i>Nature</i> , 2007 , 449, 885-9	50.4	2531
149	Multiplexed electrical detection of cancer markers with nanowire sensor arrays. <i>Nature Biotechnology</i> , 2005 , 23, 1294-301	44.5	1995
148	Directed assembly of one-dimensional nanostructures into functional networks. <i>Science</i> , 2001 , 291, 630-3	33.3	1912
147	High Performance Silicon Nanowire Field Effect Transistors. <i>Nano Letters</i> , 2003 , 3, 149-152	11.5	1791
146	Covalently functionalized nanotubes as nanometre-sized probes in chemistry and biology. <i>Nature</i> , 1998 , 394, 52-5	50.4	1301
145	Nanoelectronics from the bottom up. <i>Nature Materials</i> , 2007 , 6, 841-50	27	1290
144	Ge/Si nanowire heterostructures as high-performance field-effect transistors. <i>Nature</i> , 2006 , 441, 489-93	50.4	1262
143	Direct Ultrasensitive Electrical Detection of DNA and DNA Sequence Variations Using Nanowire Nanosensors. <i>Nano Letters</i> , 2004 , 4, 51-54	11.5	1135
142	Electrical detection of single viruses. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004 , 101, 14017-22	11.5	1056
141	Synthesis and characterization of carbide nanorods. <i>Nature</i> , 1995 , 375, 769-772	50.4	1017
140	Nanotube nanotweezers. <i>Science</i> , 1999 , 286, 2148-50	33.3	1010
139	Diameter-controlled synthesis of single-crystal silicon nanowires. <i>Applied Physics Letters</i> , 2001 , 78, 2214-2216	3.16	974
138	Single-crystal metallic nanowires and metal/semiconductor nanowire heterostructures. <i>Nature</i> , 2004 , 430, 61-5	50.4	879
137	Controlled Growth and Structures of Molecular-Scale Silicon Nanowires. <i>Nano Letters</i> , 2004 , 4, 433-436	11.5	825
136	Doping and Electrical Transport in Silicon Nanowires. <i>Journal of Physical Chemistry B</i> , 2000 , 104, 5213-5216	3.6	800

135	Detection, stimulation, and inhibition of neuronal signals with high-density nanowire transistor arrays. <i>Science</i> , 2006 , 313, 1100-4	33.3	709
134	Three-dimensional, flexible nanoscale field-effect transistors as localized bioprobes. <i>Science</i> , 2010 , 329, 830-4	33.3	656
133	Diameter-Controlled Synthesis of Carbon Nanotubes. <i>Journal of Physical Chemistry B</i> , 2002 , 106, 2429-2434	33.3	653
132	Controlled growth and electrical properties of heterojunctions of carbon nanotubes and silicon nanowires. <i>Nature</i> , 1999 , 399, 48-51	50.4	641
131	Fabrication of silicon nanowire devices for ultrasensitive, label-free, real-time detection of biological and chemical species. <i>Nature Protocols</i> , 2006 , 1, 1711-24	18.8	605
130	Gallium Nitride-Based Nanowire Radial Heterostructures for Nanophotonics. <i>Nano Letters</i> , 2004 , 4, 1975-1979	11.5	566
129	Structure and Electronic Properties of Carbon Nanotubes. <i>Journal of Physical Chemistry B</i> , 2000 , 104, 2794-2809	3.4	545
128	Macroporous nanowire nanoelectronic scaffolds for synthetic tissues. <i>Nature Materials</i> , 2012 , 11, 986-9427	2.7	494
127	Assembly of A beta amyloid protofibrils: an in vitro model for a possible early event in Alzheimer's disease. <i>Biochemistry</i> , 1999 , 38, 8972-80	3.2	458
126	Nano-Bioelectronics. <i>Chemical Reviews</i> , 2016 , 116, 215-57	68.1	426
125	Synthesis of p-Type Gallium Nitride Nanowires for Electronic and Photonic Nanodevices. <i>Nano Letters</i> , 2003 , 3, 343-346	11.5	424
124	Nanomaterials for Neural Interfaces. <i>Advanced Materials</i> , 2009 , 21, 3970-4004	24	422
123	Syringe-injectable electronics. <i>Nature Nanotechnology</i> , 2015 , 10, 629-636	28.7	416
122	One-dimensional hole gas in germanium/silicon nanowire heterostructures. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005 , 102, 10046-51	11.5	401
121	Spin-resolved Andreev levels and parity crossings in hybrid superconductor-semiconductor nanostructures. <i>Nature Nanotechnology</i> , 2014 , 9, 79-84	28.7	389
120	CHEMICAL FORCE MICROSCOPY. <i>Annual Review of Materials Research</i> , 1997 , 27, 381-421		380
119	Single and tandem axial p-i-n nanowire photovoltaic devices. <i>Nano Letters</i> , 2008 , 8, 3456-60	11.5	373
118	Resonant electron scattering by defects in single-walled carbon nanotubes. <i>Science</i> , 2001 , 291, 283-5	33.3	367

117	Rational Growth of Branched and Hyperbranched Nanowire Structures. <i>Nano Letters</i> , 2004 , 4, 871-874	11.5	365
116	Intracellular recordings of action potentials by an extracellular nanoscale field-effect transistor. <i>Nature Nanotechnology</i> , 2011 , 7, 174-9	28.7	352
115	Growth of nanotubes for probe microscopy tips. <i>Nature</i> , 1999 , 398, 761-762	50.4	344
114	Single-crystalline kinked semiconductor nanowire superstructures. <i>Nature Nanotechnology</i> , 2009 , 4, 824-827	28.7	325
113	Growth and transport properties of complementary germanium nanowire field-effect transistors. <i>Applied Physics Letters</i> , 2004 , 84, 4176-4178	3.4	325
112	Scalable Interconnection and Integration of Nanowire Devices without Registration. <i>Nano Letters</i> , 2004 , 4, 915-919	11.5	311
111	High-Yield Assembly of Individual Single-Walled Carbon Nanotube Tips for Scanning Probe Microscopies. <i>Journal of Physical Chemistry B</i> , 2001 , 105, 743-746	3.4	308
110	Nonvolatile Memory and Programmable Logic from Molecule-Gated Nanowires. <i>Nano Letters</i> , 2002 , 2, 487-490	11.5	300
109	Nanostructured high-temperature superconductors: Creation of strong-pinning columnar defects in nanorod/superconductor composites. <i>Journal of Materials Research</i> , 1997 , 12, 2981-2996	2.5	258
108	A Ge/Si heterostructure nanowire-based double quantum dot with integrated charge sensor. <i>Nature Nanotechnology</i> , 2007 , 2, 622-5	28.7	252
107	Nanowire Transistor Performance Limits and Applications. <i>IEEE Transactions on Electron Devices</i> , 2008 , 55, 2859-2876	2.9	250
106	Three-dimensional macroporous nanoelectronic networks as minimally invasive brain probes. <i>Nature Materials</i> , 2015 , 14, 1286-92	27	246
105	A room temperature low-threshold ultraviolet plasmonic nanolaser. <i>Nature Communications</i> , 2014 , 5, 4953	17.4	236
104	Ge/Si nanowire mesoscopic Josephson junctions. <i>Nature Nanotechnology</i> , 2006 , 1, 208-13	28.7	232
103	Vectorial Growth of Metallic and Semiconducting Single-Wall Carbon Nanotubes. <i>Nano Letters</i> , 2002 , 2, 1137-1141	11.5	230
102	A nanoscale combing technique for the large-scale assembly of highly aligned nanowires. <i>Nature Nanotechnology</i> , 2013 , 8, 329-35	28.7	228
101	Novel electrode technologies for neural recordings. <i>Nature Reviews Neuroscience</i> , 2019 , 20, 330-345	13.5	225
100	Superconductivity at 30 K in caesium-doped C60. <i>Nature</i> , 1991 , 352, 223-225	50.4	207

99	Free-standing kinked nanowire transistor probes for targeted intracellular recording in three dimensions. <i>Nature Nanotechnology</i> , 2014 , 9, 142-7	28.7	197
98	Flexible electrical recording from cells using nanowire transistor arrays. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009 , 106, 7309-13	11.5	191
97	Electrical recording from hearts with flexible nanowire device arrays. <i>Nano Letters</i> , 2009 , 9, 914-8	11.5	186
96	Stable long-term chronic brain mapping at the single-neuron level. <i>Nature Methods</i> , 2016 , 13, 875-82	21.6	184
95	Semiconductor nanowires: a platform for exploring limits and concepts for nano-enabled solar cells. <i>Energy and Environmental Science</i> , 2013 , 6, 719	35.4	182
94	Semiconductor nanowires: A platform for nanoscience and nanotechnology. <i>MRS Bulletin</i> , 2011 , 36, 1052-1063	17.1	
93	Single-Cell Profiles of Retinal Ganglion Cells Differing in Resilience to Injury Reveal Neuroprotective Genes. <i>Neuron</i> , 2019 , 104, 1039-1055.e12	13.9	168
92	Nanowire transistor arrays for mapping neural circuits in acute brain slices. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010 , 107, 1882-7	11.5	167
91	General strategy for biodetection in high ionic strength solutions using transistor-based nanoelectronic sensors. <i>Nano Letters</i> , 2015 , 15, 2143-8	11.5	158
90	Bioinspired neuron-like electronics. <i>Nature Materials</i> , 2019 , 18, 510-517	27	156
89	Single-walled carbon nanotube probes for high-resolution nanostructure imaging. <i>Applied Physics Letters</i> , 1998 , 73, 3465-3467	3.4	152
88	Hole spin relaxation in Ge-Si core-shell nanowire qubits. <i>Nature Nanotechnology</i> , 2011 , 7, 47-50	28.7	151
87	Direct haplotyping of kilobase-size DNA using carbon nanotube probes. <i>Nature Biotechnology</i> , 2000 , 18, 760-3	44.5	150
86	Chemically-Sensitive Imaging in Tapping Mode by Chemical Force Microscopy: Relationship between Phase Lag and Adhesion. <i>Langmuir</i> , 1998 , 14, 1508-1511	4	150
85	A wavelength-selective photonic-crystal waveguide coupled to a nanowire light source. <i>Nature Photonics</i> , 2008 , 2, 622-626	33.9	143
84	Performance analysis of a Ge/Si core/shell nanowire field-effect transistor. <i>Nano Letters</i> , 2007 , 7, 642-6	11.5	143
83	Sub-100 nanometer channel length Ge/Si nanowire transistors with potential for 2 THz switching speed. <i>Nano Letters</i> , 2008 , 8, 925-30	11.5	140
82	Specific detection of biomolecules in physiological solutions using graphene transistor biosensors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 14633-14638	11.5	138

81	Syringe-injectable mesh electronics integrate seamlessly with minimal chronic immune response in the brain. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017 , 114, 5894-5899	11.5	132
80	Three-dimensional mapping and regulation of action potential propagation in nanoelectronics-innervated tissues. <i>Nature Nanotechnology</i> , 2016 , 11, 776-82	28.7	124
79	Plateau-Rayleigh crystal growth of periodic shells on one-dimensional substrates. <i>Nature Nanotechnology</i> , 2015 , 10, 345-52	28.7	117
78	Growth and composition of covalent carbon nitride solids. <i>Applied Physics Letters</i> , 1995 , 66, 3582-3584	3.4	114
77	Long term stability of nanowire nanoelectronics in physiological environments. <i>Nano Letters</i> , 2014 , 14, 1614-9	11.5	107
76	Kinked p-n junction nanowire probes for high spatial resolution sensing and intracellular recording. <i>Nano Letters</i> , 2012 , 12, 1711-6	11.5	107
75	Outside looking in: nanotube transistor intracellular sensors. <i>Nano Letters</i> , 2012 , 12, 3329-33	11.5	101
74	Assembly and integration of semiconductor nanowires for functional nanosystems. <i>Pure and Applied Chemistry</i> , 2010 , 82, 2295-2314	2.1	98
73	Highly scalable multichannel mesh electronics for stable chronic brain electrophysiology. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017 , 114, E10046-E10055	11.5	97
72	Characterization of nanometer scale wear and oxidation of transition metal dichalcogenide lubricants by atomic force microscopy. <i>Applied Physics Letters</i> , 1991 , 59, 3404-3406	3.4	97
71	Nanowire Superlattices. <i>Nano Letters</i> , 2002 , 2, 81-82	11.5	95
70	Single-Walled Carbon Nanotube AFM Probes: Optimal Imaging Resolution of Nanoclusters and Biomolecules in Ambient and Fluid Environments. <i>Nano Letters</i> , 2004 , 4, 1725-1731	11.5	94
69	Molybdenum Selenide Molecular Wires as One-Dimensional Conductors. <i>Physical Review Letters</i> , 1999 , 83, 5334-5337	7.4	94
68	Growth of Metal Carbide Nanotubes and Nanorods. <i>Chemistry of Materials</i> , 1996 , 8, 2041-2046	9.6	94
67	A method for single-neuron chronic recording from the retina in awake mice. <i>Science</i> , 2018 , 360, 1447-1451	35.3	91
66	Nanoscience and the nano-bioelectronics frontier. <i>Nano Research</i> , 2015 , 8, 1-22	10	90
65	Load-Independent Friction: MoO ₃ Nanocrystal Lubricants. <i>Journal of Physical Chemistry B</i> , 1999 , 103, 8405-8409	3.4	89
64	Syringe Injectable Electronics: Precise Targeted Delivery with Quantitative Input/Output Connectivity. <i>Nano Letters</i> , 2015 , 15, 6979-84	11.5	86

63	Mesh electronics: a new paradigm for tissue-like brain probes. <i>Current Opinion in Neurobiology</i> , 2018 , 50, 33-41	7.6	85
62	Scalable ultrasmall three-dimensional nanowire transistor probes for intracellular recording. <i>Nature Nanotechnology</i> , 2019 , 14, 783-790	28.7	83
61	Advances in nanowire bioelectronics. <i>Reports on Progress in Physics</i> , 2017 , 80, 016701	14.4	83
60	Synthetically encoded ultrashort-channel nanowire transistors for fast, pointlike cellular signal detection. <i>Nano Letters</i> , 2012 , 12, 2639-44	11.5	77
59	Synthetic nanoelectronic probes for biological cells and tissues. <i>Annual Review of Analytical Chemistry</i> , 2013 , 6, 31-51	12.5	76
58	Nanomaterial-incorporated blown bubble films for large-area, aligned nanostructures. <i>Journal of Materials Chemistry</i> , 2008 , 18, 728		75
57	Spontaneous Internalization of Cell Penetrating Peptide-Modified Nanowires into Primary Neurons. <i>Nano Letters</i> , 2016 , 16, 1509-13	11.5	74
56	Nanowire nanocomputer as a finite-state machine. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014 , 111, 2431-5	11.5	72
55	Multifunctional three-dimensional macroporous nanoelectronic networks for smart materials. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013 , 110, 6694-9	11.5	72
54	Isotope Effect and Superconductivity in Metal-Doped C60. <i>Science</i> , 1993 , 259, 655-658	33.3	68
53	Nanotube structure and electronic properties probed by scanning tunneling microscopy. <i>Applied Physics Letters</i> , 1993 , 62, 2792-2794	3.4	65
52	Nanowired Bioelectric Interfaces. <i>Chemical Reviews</i> , 2019 , 119, 9136-9152	68.1	63
51	Mesh Nanoelectronics: Seamless Integration of Electronics with Tissues. <i>Accounts of Chemical Research</i> , 2018 , 51, 309-318	24.3	57
50	12 GHz MAX GaN/AlN/AlGa _N Nanowire MISFET. <i>IEEE Electron Device Letters</i> , 2009 , 30, 322-324	4.4	54
49	Sub-10-nm intracellular bioelectronic probes from nanowire-nanotube heterostructures. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014 , 111, 1259-64	11.5	51
48	Diamondlike properties in a single phase carbon nitride solid. <i>Applied Physics Letters</i> , 1996 , 68, 2639-2643	3.4	49
47	Shape-Controlled Deterministic Assembly of Nanowires. <i>Nano Letters</i> , 2016 , 16, 2644-50	11.5	46
46	Syringe-Injectable Electronics with a Plug-and-Play Input/Output Interface. <i>Nano Letters</i> , 2017 , 17, 5836-5842	5.4	44

45	Pulsed laser deposition and physical properties of carbon nitride thin films. <i>Journal of Electronic Materials</i> , 1996 , 25, 57-61	1.9	44
44	Plateau-Rayleigh Crystal Growth of Nanowire Heterostructures: Strain-Modified Surface Chemistry and Morphological Control in One, Two, and Three Dimensions. <i>Nano Letters</i> , 2016 , 16, 2830-6	11.5	43
43	Electrochemical Deposition of Conformal and Functional Layers on High Aspect Ratio Silicon Micro/Nanowires. <i>Nano Letters</i> , 2017 , 17, 4502-4507	11.5	40
42	Coulomb gap and correlated vortex pinning in superconductors. <i>Physical Review Letters</i> , 1995 , 74, 5132-5135	5.1	39
41	Beyond the patch clamp: nanotechnologies for intracellular recording. <i>Neuron</i> , 2015 , 86, 21-4	13.9	38
40	Single-Walled Carbon Nanotubes. <i>Annals of the New York Academy of Sciences</i> , 2006 , 960, 203-215	6.5	37
39	Path of magnetic flux lines through high-Tc copper oxide superconductors. <i>Nature</i> , 1994 , 371, 777-779	50.4	37
38	Friction between van der Waals Solids during Lattice Directed Sliding. <i>Nano Letters</i> , 2017 , 17, 4116-4121	11.5	33
37	Precision electronic medicine in the brain. <i>Nature Biotechnology</i> , 2019 , 37, 1007-1012	44.5	32
36	Growth of the infinite layer phase of Sr _{1-x} NdxCuO ₂ by laser ablation. <i>Applied Physics Letters</i> , 1992 , 61, 1712-1714	3.4	31
35	Scaling of subgap excitations in a superconductor-semiconductor nanowire quantum dot. <i>Physical Review B</i> , 2017 , 95,	3.3	30
34	Field-induced surface modification on the atomic scale by scanning tunneling microscopy. <i>Applied Physics Letters</i> , 1992 , 61, 1528-1530	3.4	25
33	Tissue-like Neural Probes for Understanding and Modulating the Brain. <i>Biochemistry</i> , 2018 , 57, 3995-4004	4.2	24
32	Nanowire nanoelectronics: Building interfaces with tissue and cells at the natural scale of biology. <i>Pure and Applied Chemistry</i> , 2013 , 85, 883-901	2.1	21
31	Columnar defect formation in nanorod/Tl ₂ Ba ₂ Ca ₂ Cu ₃ O _z superconducting composites. <i>Applied Physics Letters</i> , 1997 , 70, 3158-3160	3.4	21
30	Nanoenabled Direct Contact Interfacing of Syringe-Injectable Mesh Electronics. <i>Nano Letters</i> , 2019 , 19, 5818-5826	11.5	19
29	Syringe-injectable Mesh Electronics for Stable Chronic Rodent Electrophysiology. <i>Journal of Visualized Experiments</i> , 2018 ,	1.6	18
28	Helical Hole State in Multiple Conduction Modes in Ge/Si Core/Shell Nanowire. <i>Nano Letters</i> , 2018 , 18, 6144-6149	11.5	16

27	Advanced One- and Two-Dimensional Mesh Designs for Injectable Electronics. <i>Nano Letters</i> , 2019 , 19, 4180-4187	11.5	15
26	Nanoelectronics from the bottom up 2009 , 137-146		12
25	Gate Tunable Hole Charge Qubit Formed in a Ge/Si Nanowire Double Quantum Dot Coupled to Microwave Photons. <i>Nano Letters</i> , 2019 , 19, 1052-1060	11.5	12
24	Encoding Active Device Elements at Nanowire Tips. <i>Nano Letters</i> , 2016 , 16, 4713-9	11.5	11
23	Nanowire probes could drive high-resolution brain-machine interfaces. <i>Nano Today</i> , 2020 , 31, 100821	17.9	11
22	Semiconductor nanowire solar cells: synthetic advances and tunable properties. <i>Pure and Applied Chemistry</i> , 2014 , 86, 13-26	2.1	10
21	Comment on "Detection, stimulation, and inhibition of neuronal signals with high-density nanowire transistor arrays". <i>Science</i> , 2009 , 323, 1429; author reply 1429	33.3	8
20	Highly Transparent Contacts to the 1D Hole Gas in Ultrascaled Ge/Si Core/Shell Nanowires. <i>ACS Nano</i> , 2019 , 13, 14145-14151	16.7	8
19	Nanowire-enabled bioelectronics. <i>Nano Today</i> , 2021 , 38, 101135	17.9	6
18	Facile, rapid, and large-area periodic patterning of semiconductor substrates with submicron inorganic structures. <i>Journal of the American Chemical Society</i> , 2015 , 137, 3739-42	16.4	5
17	High-Pressure Chemistry of Carbon Nitride Materials. <i>Materials Research Society Symposia Proceedings</i> , 1997 , 499, 309		4
16	Pulsed Laser Deposition of Diamond-Like Carbon Thin Films: Ablation Dynamics and Growth. <i>Materials Research Society Symposia Proceedings</i> , 1996 , 438, 593		4
15	Applications of Scanning Tunneling Microscopy to Inorganic Chemistry. <i>Progress in Inorganic Chemistry</i> , 431-510		4
14	Semiconductor Nanowire Lasers. <i>Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS</i> , 2007 ,		2
13	Creation of Nanocrystals Via a Tip-Induced Solid-Solid Transformation. <i>Materials Research Society Symposia Proceedings</i> , 1996 , 466, 89		2
12	Growth and Structure of Carbide Nanorods. <i>Materials Research Society Symposia Proceedings</i> , 1995 , 410, 103		2
11	Semiconductor nanowires: A platform for nanoscience and nanotechnology 2010 ,		1
10	Semiconductor nanowires embedded in optical microcavities 2006 ,		1

9	Multiplexed Electrical Detection of Single Viruses. <i>Materials Research Society Symposia Proceedings</i> , 2004 , 828, 97		1
8	Chemical Force Microscopy: Probing and Imaging Interactions Between Functional Groups. <i>ACS Symposium Series</i> , 1998 , 312-320	0.4	1
7	Coaxial silicon nanowires as solar cells and nanoelectronic power sources 2010 , 58-62		1
6	Single-cell profiles of retinal neurons differing in resilience to injury reveal neuroprotective genes		1
5			
4	All-Tissue-like Multifunctional Optoelectronic Mesh for Deep-Brain Modulation and Mapping. <i>Nano Letters</i> , 2021 , 21, 3184-3190	11.5	1
3	Chemical Force Microscopy. <i>Microscopy and Microanalysis</i> , 1997 , 3, 1253-1254	0.5	
2	Parallel and Complementary Detection of Proteins by p-type and n-type Silicon Nanowire Transistor Arrays. <i>Materials Research Society Symposia Proceedings</i> , 2005 , 900, 1		
1	High-Temperature Superconductors. <i>Science</i> , 1997 , 277, 1909-1914		33.3