

Moonsub Shim

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128 papers	14,634 citations	55 h-index	120 g-index
134 ext. papers	15,638 ext. citations	10.8 avg, IF	6.34 L-index

#	Paper	IF	Citations
128	Noncovalent functionalization of carbon nanotubes for highly specific electronic biosensors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2003 , 100, 4984-9	11.5	1238
127	Medium-scale carbon nanotube thin-film integrated circuits on flexible plastic substrates. <i>Nature</i> , 2008 , 454, 495-500	50.4	977
126	Interfacial heat flow in carbon nanotube suspensions. <i>Nature Materials</i> , 2003 , 2, 731-4	27	926
125	High-performance electronics using dense, perfectly aligned arrays of single-walled carbon nanotubes. <i>Nature Nanotechnology</i> , 2007 , 2, 230-6	28.7	897
124	Functionalization of Carbon Nanotubes for Biocompatibility and Biomolecular Recognition. <i>Nano Letters</i> , 2002 , 2, 285-288	11.5	795
123	Spontaneous reduction of metal ions on the sidewalls of carbon nanotubes. <i>Journal of the American Chemical Society</i> , 2002 , 124, 9058-9	16.4	612
122	Polymer functionalization for air-stable n-type carbon nanotube field-effect transistors. <i>Journal of the American Chemical Society</i> , 2001 , 123, 11512-3	16.4	524
121	n-type colloidal semiconductor nanocrystals. <i>Nature</i> , 2000 , 407, 981-3	50.4	411
120	Electrochromic nanocrystal quantum dots. <i>Science</i> , 2001 , 291, 2390-2	33.3	402
119	Polymer Imprint Lithography with Molecular-Scale Resolution. <i>Nano Letters</i> , 2004 , 4, 2467-2471	11.5	370
118	Guided growth of large-scale, horizontally aligned arrays of single-walled carbon nanotubes and their use in thin-film transistors. <i>Small</i> , 2005 , 1, 1110-6	11	326
117	Permanent dipole moment and charges in colloidal semiconductor quantum dots. <i>Journal of Chemical Physics</i> , 1999 , 111, 6955-6964	3.9	320
116	Intraband relaxation in CdSe quantum dots. <i>Physical Review B</i> , 1999 , 60, R2181-R2184	3.3	318
115	Highly Bendable, Transparent Thin-Film Transistors That Use Carbon-Nanotube-Based Conductors and Semiconductors with Elastomeric Dielectrics. <i>Advanced Materials</i> , 2006 , 18, 304-309	24	315
114	High-resolution patterns of quantum dots formed by electrohydrodynamic jet printing for light-emitting diodes. <i>Nano Letters</i> , 2015 , 15, 969-73	11.5	278
113	p-Channel, n-Channel Thin Film Transistors and p-n Diodes Based on Single Wall Carbon Nanotube Networks. <i>Nano Letters</i> , 2004 , 4, 2031-2035	11.5	258
112	Gamma-Fe ₂ O ₃ /II-VI sulfide nanocrystal heterojunctions. <i>Journal of the American Chemical Society</i> , 2005 , 127, 10269-75	16.4	239

111	Organic-capped ZnO nanocrystals: synthesis and n-type character. <i>Journal of the American Chemical Society</i> , 2001 , 123, 11651-4	16.4	224
110	Integration of suspended carbon nanotube arrays into electronic devices and electromechanical systems. <i>Applied Physics Letters</i> , 2002 , 81, 913-915	3.4	205
109	Synthesis of Ultralong and High Percentage of Semiconducting Single-walled Carbon Nanotubes. <i>Nano Letters</i> , 2002 , 2, 703-708	11.5	170
108	Double-heterojunction nanorod light-responsive LEDs for display applications. <i>Science</i> , 2017 , 355, 616-619	39.3	157
107	Polymer electrolyte gating of carbon nanotube network transistors. <i>Nano Letters</i> , 2005 , 5, 905-11	11.5	153
106	Charge-Tunable Optical Properties in Colloidal Semiconductor Nanocrystals. <i>Journal of Physical Chemistry B</i> , 2001 , 105, 2369-2373	3.4	148
105	Gate capacitance coupling of single-walled carbon nanotube thin-film transistors. <i>Applied Physics Letters</i> , 2007 , 90, 023516	3.4	143
104	Highly Efficient Gating and Doping of Carbon Nanotubes with Polymer Electrolytes. <i>Nano Letters</i> , 2004 , 4, 927-931	11.5	136
103	Spatially selective guided growth of high-coverage arrays and random networks of single-walled carbon nanotubes and their integration into electronic devices. <i>Journal of the American Chemical Society</i> , 2006 , 128, 4540-1	16.4	132
102	Transparent flexible organic thin-film transistors that use printed single-walled carbon nanotube electrodes. <i>Applied Physics Letters</i> , 2006 , 88, 113511	3.4	128
101	Improved Synthesis of Aligned Arrays of Single-Walled Carbon Nanotubes and Their Implementation in Thin Film Type Transistors. <i>Journal of Physical Chemistry C</i> , 2007 , 111, 17879-17886	3.8	126
100	Organic nanodielectrics for low voltage carbon nanotube thin film transistors and complementary logic gates. <i>Journal of the American Chemical Society</i> , 2005 , 127, 13808-9	16.4	116
99	Ferroelectrically driven spatial carrier density modulation in graphene. <i>Nature Communications</i> , 2015 , 6, 6136	17.4	107
98	Lifetimes of optical phonons in graphene and graphite by time-resolved incoherent anti-Stokes Raman scattering. <i>Physical Review B</i> , 2010 , 81,	3.3	105
97	Bilayer Organic-Inorganic Gate Dielectrics for High-Performance, Low-Voltage, Single-Walled Carbon Nanotube Thin-Film Transistors, Complementary Logic Gates, and p-n Diodes on Plastic Substrates. <i>Advanced Functional Materials</i> , 2006 , 16, 2355-2362	15.6	104
96	Electronically selective chemical functionalization of carbon nanotubes: correlation between Raman spectral and electrical responses. <i>Journal of the American Chemical Society</i> , 2005 , 127, 11460-8	16.4	104
95	Electrical properties and devices of large-diameter single-walled carbon nanotubes. <i>Applied Physics Letters</i> , 2002 , 80, 1064-1066	3.4	104
94	Ag-Au Bimetallic Nanoparticles with Enhanced Resistance to Oxidation: A Combined Experimental and Theoretical Study. <i>Journal of Physical Chemistry C</i> , 2014 , 118, 26324-26331	3.8	94

93	High efficiency and optical anisotropy in double-heterojunction nanorod light-emitting diodes. <i>ACS Nano</i> , 2015 , 9, 878-85	16.7	94
92	Tunable carrier type and density in graphene/PbZr _{0.2} Ti _{0.8} O ₃ hybrid structures through ferroelectric switching. <i>Nano Letters</i> , 2013 , 13, 1693-8	11.5	88
91	Electrochromic semiconductor nanocrystal films. <i>Applied Physics Letters</i> , 2002 , 80, 4-6	3.4	88
90	Fano lineshape and phonon softening in single isolated metallic carbon nanotubes. <i>Physical Review Letters</i> , 2007 , 98, 145504	7.4	86
89	Multilayer Transfer Printing for Pixelated, Multicolor Quantum Dot Light-Emitting Diodes. <i>ACS Nano</i> , 2016 , 10, 4920-5	16.7	85
88	Sub-ångström-resolution diffractive imaging of single nanocrystals. <i>Nature Physics</i> , 2009 , 5, 129-133	16.2	76
87	Solution-Processed Transistors Using Colloidal Nanocrystals with Composition-Matched Molecular "Solders": Approaching Single Crystal Mobility. <i>Nano Letters</i> , 2015 , 15, 6309-17	11.5	73
86	Printed thin-film transistors and complementary logic gates that use polymer-coated single-walled carbon nanotube networks. <i>Journal of Applied Physics</i> , 2005 , 98, 114302	2.5	73
85	Double-heterojunction nanorods. <i>Nature Communications</i> , 2014 , 5, 3642	17.4	70
84	Quantifying redox-induced Schottky barrier variations in memristive devices via in operando spectromicroscopy with graphene electrodes. <i>Nature Communications</i> , 2016 , 7, 12398	17.4	68
83	Resistive random access memory enabled by carbon nanotube crossbar electrodes. <i>ACS Nano</i> , 2013 , 7, 5360-6	16.7	65
82	Doping and Charging in Colloidal Semiconductor Nanocrystals. <i>MRS Bulletin</i> , 2001 , 26, 1005-1008	3.2	64
81	Integration of type II nanorod heterostructures into photovoltaics. <i>ACS Nano</i> , 2011 , 5, 7677-83	16.7	62
80	Insights on charge transfer doping and intrinsic phonon line shape of carbon nanotubes by simple polymer adsorption. <i>Journal of the American Chemical Society</i> , 2006 , 128, 7522-30	16.4	62
79	Light-emitting diodes of colloidal quantum dots and nanorod heterostructures for future emissive displays. <i>Journal of Materials Chemistry C</i> , 2018 , 6, 2618-2634	7.1	61
78	5,6,11,12,17,18-Hexadehydro-1,4,7,10,13,16-hexaethynyltribenzo[a,e,i]cyclododecene: Synthesis and CpCo-Catalyzed Cycloisomerization to the First Superdelocalized Oligophenylenes. <i>Angewandte Chemie International Edition in English</i> , 1997 , 36, 2103-2108		61
77	Layer-by-layer transfer of multiple, large area sheets of graphene grown in multilayer stacks on a single SiC wafer. <i>ACS Nano</i> , 2010 , 4, 5591-8	16.7	60
76	Size and growth rate dependent structural diversification of Fe ₃ O ₄ /CdS anisotropic nanocrystal heterostructures. <i>ACS Nano</i> , 2009 , 3, 434-40	16.7	60

75	Aligned Arrays of Single-Walled Carbon Nanotubes Generated from Random Networks by Orientationally Selective Laser Ablation. <i>Nano Letters</i> , 2004 , 4, 2421-2426	11.5	59
74	Atomic layer deposited Al ₂ O ₃ for gate dielectric and passivation layer of single-walled carbon nanotube transistors. <i>Applied Physics Letters</i> , 2007 , 90, 163108	3.4	57
73	Subfilamentary Networks Cause Cycle-to-Cycle Variability in Memristive Devices. <i>ACS Nano</i> , 2017 , 11, 6921-6929	16.7	55
72	Photoinduced conductivity changes in carbon nanotube transistors. <i>Applied Physics Letters</i> , 2003 , 83, 3564-3566	3.4	55
71	Fully transparent thin-film transistors based on aligned carbon nanotube arrays and indium tin oxide electrodes. <i>Advanced Materials</i> , 2009 , 21, 564-8	24	53
70	Structural Evolution in Metal Oxide/Semiconductor Colloidal Nanocrystal Heterostructures. <i>Chemistry of Materials</i> , 2006 , 18, 6357-6363	9.6	52
69	Long-Lived Delocalized Electron States in Quantum Dots: A Step-Scan Fourier Transform Infrared Study. <i>Journal of Physical Chemistry B</i> , 2000 , 104, 1494-1496	3.4	51
68	Direct laser writing of air-stable p-n junctions in graphene. <i>ACS Nano</i> , 2014 , 8, 8831-6	16.7	46
67	Intraband hole burning of colloidal quantum dots. <i>Physical Review B</i> , 2001 , 64,	3.3	46
66	PbSe Nanocrystal/TiO _x Heterostructured Films: A Simple Route to Nanoscale Heterointerfaces and Photocatalysis. <i>Journal of Physical Chemistry C</i> , 2007 , 111, 11734-11741	3.8	45
65	Effects of oxygen on the electron transport properties of carbon nanotubes: Ultraviolet desorption and thermally induced processes. <i>Physical Review B</i> , 2005 , 71,	3.3	45
64	Processing dependent behavior of soft imprint lithography on the 1-10-nm scale. <i>IEEE Nanotechnology Magazine</i> , 2006 , 5, 301-308	2.6	44
63	Environment-Induced Effects on the Temperature Dependence of Raman Spectra of Single-Layer Graphene. <i>Journal of Physical Chemistry C</i> , 2008 , 112, 20131-20134	3.8	43
62	Towards the commercialization of colloidal quantum dot solar cells: perspectives on device structures and manufacturing. <i>Energy and Environmental Science</i> , 2020 , 13, 404-431	35.4	43
61	Prospects for Strained Type-II Nanorod Heterostructures. <i>Journal of Physical Chemistry Letters</i> , 2011 , 2, 2722-2727	6.4	40
60	Optical phonon lifetimes in single-walled carbon nanotubes by time-resolved Raman scattering. <i>Nano Letters</i> , 2008 , 8, 4642-7	11.5	40
59	Anisotropic strain-induced curvature in type-II CdSe/CdTe nanorod heterostructures. <i>Journal of the American Chemical Society</i> , 2010 , 132, 3286-8	16.4	39
58	Effects of Lattice Strain and Band Offset on Electron Transfer Rates in Type-II Nanorod Heterostructures. <i>Journal of Physical Chemistry Letters</i> , 2012 , 3, 1094-8	6.4	38

57	pH-dependent electron-transport properties of carbon nanotubes. <i>Journal of Physical Chemistry B</i> , 2006 , 110, 23736-41	3.4	38
56	Temperature and gate voltage dependent Raman spectra of single-layer graphene. <i>ACS Nano</i> , 2011 , 5, 5273-9	16.7	36
55	Effects of Copper Precursor Reactivity on the Shape and Phase of Copper Sulfide Nanocrystals. <i>Chemistry of Materials</i> , 2017 , 29, 2390-2397	9.6	34
54	Performance and photovoltaic response of polymer-doped carbon nanotube p-n diodes. <i>ACS Nano</i> , 2008 , 2, 2154-9	16.7	34
53	Metal Oleate Induced Etching and Growth of Semiconductor Nanocrystals, Nanorods, and Their Heterostructures. <i>Journal of the American Chemical Society</i> , 2016 , 138, 10444-51	16.4	32
52	A Novel Phenylene Topology: Total Syntheses of Zigzag [4]- and [5]Phenylene. <i>Angewandte Chemie - International Edition</i> , 1999 , 38, 800-804	16.4	31
51	Anisotropic nanocrystal heterostructures: Synthesis and lattice strain. <i>Current Opinion in Solid State and Materials Science</i> , 2010 , 14, 83-94	12	30
50	Lattice Strain and Ligand Effects on the Formation of Cu ₂ S/I-III-VI ₂ Nanorod Heterostructures through Partial Cation Exchange. <i>Chemistry of Materials</i> , 2017 , 29, 6161-6167	9.6	28
49	Photoresist Contact Patterning of Quantum Dot Films. <i>ACS Nano</i> , 2018 , 12, 10024-10031	16.7	25
48	Integration of CdSe/CdSexTe1-x Type-II Heterojunction Nanorods into Hierarchically Porous TiO ₂ Electrode for Efficient Solar Energy Conversion. <i>Scientific Reports</i> , 2015 , 5, 17472	4.9	23
47	Raman Spectral Evolution in Individual Metallic Single-Walled Carbon Nanotubes upon Covalent Sidewall Functionalization. <i>Journal of Physical Chemistry C</i> , 2007 , 111, 17755-17760	3.8	23
46	Single gate p-n junctions in graphene-ferroelectric devices. <i>Applied Physics Letters</i> , 2016 , 108, 203109	3.4	23
45	Enhanced device lifetime of double-heterojunction nanorod light-emitting diodes. <i>Nanoscale</i> , 2017 , 9, 6103-6110	7.7	21
44	Double-Heterojunction Nanorod Light-Emitting Diodes with High Efficiencies at High Brightness Using Self-Assembled Monolayers. <i>ACS Photonics</i> , 2016 , 3, 1862-1868	6.3	21
43	Substrate-enhanced O ₂ adsorption and complexity in the Raman G-band spectra of individual metallic carbon nanotubes. <i>Physical Review B</i> , 2008 , 78,	3.3	20
42	A Millifluidic Reactor System for Multistep Continuous Synthesis of InP/ZnSeS Nanoparticles. <i>ChemNanoMat</i> , 2018 , 4, 943-953	3.5	18
41	Electrical power dissipation in semiconducting carbon nanotubes on single crystal quartz and amorphous SiO ₂ . <i>Applied Physics Letters</i> , 2011 , 99, 053120	3.4	18
40	Enhanced Air Stability, Charge Separation, and Photocurrent in CdSe/CdTe Heterojunction Nanorods by Thiols. <i>Journal of Physical Chemistry C</i> , 2015 , 119, 20162-20168	3.8	17

39	Growth modes of carbon nanotubes on metal substrates. <i>Journal of Applied Physics</i> , 2006 , 100, 044309	2.5	17
38	Nonuniform compressive strain in horizontally aligned single-walled carbon nanotubes grown on single crystal quartz. <i>ACS Nano</i> , 2009 , 3, 2217-24	16.7	16
37	Spectral Diversity in Raman G-band Modes of Metallic Carbon Nanotubes within a Single Chirality. <i>Journal of Physical Chemistry C</i> , 2008 , 112, 13017-13023	3.8	16
36	Capturing Phase Evolution during Solvothermal Synthesis of Metastable Cu ₄ O ₃ . <i>Chemistry of Materials</i> , 2016 , 28, 3080-3089	9.6	16
35	Continuous Flow Synthesis of Anisotropic Cadmium Selenide and Zinc Selenide Nanoparticles. <i>ChemNanoMat</i> , 2017 , 3, 204-211	3.5	15
34	Role of covalent defects on phonon softening in metallic carbon nanotubes. <i>Journal of the American Chemical Society</i> , 2009 , 131, 7103-6	16.4	15
33	Semiconductor/polymer hybrid colloidal nanoparticles. <i>Journal of Materials Chemistry</i> , 2007 , 17, 1284-1291		15
32	The crystal structure of 5,6,11,12,17,18-hexadehydro-1,4,7,10,13,16-hexaethynyltribenzo[a,e,i]cyclododecene tetrahydrofuran solvate: a case of high organization enforced by chelating alkyne C≡C⋯O hydrogen bonding. <i>Chemical Communications</i> , 1999 , 1871-1872	5.8	15
31	CdSe/CdSeTe nanorod heterostructures: tuning alloy composition and spatially indirect recombination energies. <i>Journal of Materials Chemistry</i> , 2012 , 22, 11621		14
30	Cu ₂ S/ZnS Heterostructured Nanorods: Cation Exchange vs. Solution-Liquid-Solid-like Growth. <i>ChemPhysChem</i> , 2016 , 17, 741-51	3.2	14
29	Slow Conductance Relaxation in Graphene/Ferroelectric Field-Effect Transistors. <i>Journal of Physical Chemistry C</i> , 2017 , 121, 7542-7548	3.8	13
28	5,6,11,12,17,18-Hexadehydro-1,4,7,10,13,16-hexaethynyltribenzo[a,e,i]cyclododecen: Synthese und CpCo-katalysierte Cycloisomerisierung zu den ersten superdelokalisierten Oligophenyleneen. <i>Angewandte Chemie</i> , 1997 , 109, 2194-2199	3.6	13
27	Low-frequency noise in ambipolar carbon nanotube transistors. <i>Nano Letters</i> , 2008 , 8, 1090-4	11.5	13
26	Route to Improving Photovoltaics Based on CdSe/CdSeTe Type-II Heterojunction Nanorods: The Effect of Morphology and Cosensitization on Carrier Recombination and Transport. <i>ACS Applied Materials & Interfaces</i> , 2017 , 9, 31931-31939	9.5	12
25	Colloidal nanorod heterostructures for photovoltaics and optoelectronics. <i>Journal Physics D: Applied Physics</i> , 2017 , 50, 173002	3	11
24	Mechanistic Insights into Size-Focused Growth of Indium Phosphide Nanocrystals in the Presence of Trace Water. <i>Chemistry of Materials</i> , 2020 , 32, 3577-3584	9.6	11
23	SERS EM field enhancement study through fast Raman mapping of Sierpinski carpet arrays. <i>Journal of Raman Spectroscopy</i> , 2010 , 41, 1124-1130	2.3	11
22	Effect of ethanolamine passivation of ZnO nanoparticles in quantum dot light emitting diode structure. <i>Current Applied Physics</i> , 2019 , 19, 998-1005	2.6	10

21	Efficient Type-II Heterojunction Nanorod Sensitized Solar Cells Realized by Controlled Synthesis of Core/Patchy-Shell Structure and CdS Cosensitization. <i>ACS Applied Materials & Interfaces</i> , 2019 , 11, 19104-19114	9.5	10
20	Unraveling the Origin of Interfacial Oxidation of InP-Based Quantum Dots: Implications for Bioimaging and Optoelectronics. <i>ACS Applied Nano Materials</i> , 2020 , 3, 12325-12333	5.6	10
19	Comment on "Staircase in the electron mobility of a ZnO quantum dot assembly due to shell filling" and "Optical transitions in artificial few-electron atoms strongly confined inside ZnO nanocrystals". <i>Physical Review Letters</i> , 2003 , 91, 169703; author reply 169704	7.4	9
18	CuGaS ₂ /In ₂ Se ₃ (E = S, Se) Colloidal Nanorod Heterostructures. <i>Chemistry of Materials</i> , 2019 , 31, 1973-1980	9.0	9
17	DC modeling and the source of flicker noise in passivated carbon nanotube transistors. <i>Nanotechnology</i> , 2010 , 21, 385203	3.4	8
16	Influence of defects and doping on optical phonon lifetime and Raman linewidth in carbon nanotubes. <i>Physical Review B</i> , 2011 , 83,	3.3	7
15	Manifestation of Kohn anomaly in 1/f fluctuations in metallic carbon nanotubes. <i>Physical Review Letters</i> , 2009 , 103, 215501	7.4	7
14	Eine neue Phenylentopologie: Totalsynthesen der zickzackförmigen [4]- und [5]Phenylene. <i>Angewandte Chemie</i> , 1999 , 111, 856-860	3.6	7
13	A novel, layered phase in Ti-rich SrTiO ₃ epitaxial thin films. <i>Advanced Materials</i> , 2015 , 27, 861-8	2.4	6
12	Extending the Spectral Range of Double-Heterojunction Nanorods by Cation Exchange-Induced Alloying. <i>Chemistry of Materials</i> , 2019 , 31, 9307-9316	9.6	6
11	High-Performance Sub-Micrometer Channel WSe Field-Effect Transistors Prepared Using a Flood-Dike Printing Method. <i>ACS Nano</i> , 2017 , 11, 12536-12546	16.7	6
10	Accelerated screening of colloidal nanocrystals using artificial neural network-assisted autonomous flow reactor technology. <i>Nanoscale</i> , 2021 , 13, 17028-17039	7.7	5
9	Solvent-Free Patterning of Colloidal Quantum Dot Films Utilizing Shape Memory Polymers. <i>Micromachines</i> , 2017 , 8, 18	3.3	4
8	Benefitting from Dopant Loss and Ostwald Ripening in Mn Doping of II-VI Semiconductor Nanocrystals. <i>Nanoscale Research Letters</i> , 2015 , 10, 423	5	3
7	Self-aligned Cu etch mask for individually addressable metallic and semiconducting carbon nanotubes. <i>ACS Nano</i> , 2014 , 8, 6500-8	16.7	2
6	Doubly clamped single-walled carbon nanotube resonators operating in MHz frequencies		2
5	Intraband Spectroscopy and Dynamics of Colloidal Semiconductor Quantum Dots 2010 , 133-145		2
4	Highly luminescent double-heterojunction nanorods. <i>Journal of Chemical Physics</i> , 2019 , 151, 134706	3.9	1

- 3 A Novel Phenylene Topology: Total Syntheses of Zigzag [4]- and [5]Phenylene **1999**, 38, 800 1
- 2 Mechanism of morphology variations in colloidal CuGaS₂ nanorods. *Nanoscale Advances*, **2021**, 3, 5322-5331 0
- 1 Photo- and Thermal Annealing-Induced Processes in Carbon Nanotube Transistors. *Materials Research Society Symposia Proceedings*, **2003**, 789, 199