Moonsub Shim

List of Publications by Year in Descending Order

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	Mechanism of morphology variations in colloidal CuGaS2 nanorods. *Nanoscale Advances*, **2021**, 3, 5322-5331	5.1	0
127	Accelerated screening of colloidal nanocrystals using artificial neural network-assisted autonomous flow reactor technology. *Nanoscale*, **2021**, 13, 17028-17039	7.7	5
126	Unraveling the Origin of Interfacial Oxidation of InP-Based Quantum Dots: Implications for Bioimaging and Optoelectronics. *ACS Applied Nano Materials*, **2020**, 3, 12325-12333	5.6	10
125	Mechanistic Insights into Size-Focused Growth of Indium Phosphide Nanocrystals in the Presence of Trace Water. *Chemistry of Materials*, **2020**, 32, 3577-3584	9.6	11
124	Towards the commercialization of colloidal quantum dot solar cells: perspectives on device structures and manufacturing. *Energy and Environmental Science*, **2020**, 13, 404-431	35.4	43
123	Highly luminescent double-heterojunction nanorods. *Journal of Chemical Physics*, **2019**, 151, 134706	3.9	1
122	Effect of ethanolamine passivation of ZnO nanoparticles in quantum dot light emitting diode structure. *Current Applied Physics*, **2019**, 19, 998-1005	2.6	10
121	Efficient Type-II Heterojunction Nanorod Sensitized Solar Cells Realized by Controlled Synthesis of Core/Patchy-Shell Structure and CdS Cosensitization. *ACS Applied Materials & Interfaces*, **2019**, 11, 19104-19114	9.5	10
120	Extending the Spectral Range of Double-Heterojunction Nanorods by Cation Exchange-Induced Alloying. *Chemistry of Materials*, **2019**, 31, 9307-9316	9.6	6
119	CuGaS2/CuInE2 (E = S, Se) Colloidal Nanorod Heterostructures. *Chemistry of Materials*, **2019**, 31, 1973-1980	9.6	9
118	Light-emitting diodes of colloidal quantum dots and nanorod heterostructures for future emissive displays. *Journal of Materials Chemistry C*, **2018**, 6, 2618-2634	7.1	61
117	A Millifluidic Reactor System for Multistep Continuous Synthesis of InP/ZnSeS Nanoparticles. *ChemNanoMat*, **2018**, 4, 943-953	3.5	18
116	Photoresist Contact Patterning of Quantum Dot Films. *ACS Nano*, **2018**, 12, 10024-10031	16.7	25
115	Continuous Flow Synthesis of Anisotropic Cadmium Selenide and Zinc Selenide Nanoparticles. *ChemNanoMat*, **2017**, 3, 204-211	3.5	15
114	Effects of Copper Precursor Reactivity on the Shape and Phase of Copper Sulfide Nanocrystals. *Chemistry of Materials*, **2017**, 29, 2390-2397	9.6	34
113	Double-heterojunction nanorod light-responsive LEDs for display applications. *Science*, **2017**, 355, 616-619	33.3	157
112	Slow Conductance Relaxation in Graphene/Ferroelectric Field-Effect Transistors. *Journal of Physical Chemistry C*, **2017**, 121, 7542-7548	3.8	13

111	Colloidal nanorod heterostructures for photovoltaics and optoelectronics. *Journal Physics D: Applied Physics*, **2017**, 50, 173002	3	11
110	Enhanced device lifetime of double-heterojunction nanorod light-emitting diodes. *Nanoscale*, **2017**, 9, 6103-6110	7.7	21
109	Solvent-Free Patterning of Colloidal Quantum Dot Films Utilizing Shape Memory Polymers. *Micromachines*, **2017**, 8, 18	3.3	4
108	Route to Improving Photovoltaics Based on CdSe/CdSeTe Type-II Heterojunction Nanorods: The Effect of Morphology and Cosensitization on Carrier Recombination and Transport. *ACS Applied Materials & Interfaces*, **2017**, 9, 31931-31939	9.5	12
107	High-Performance Sub-Micrometer Channel WSe Field-Effect Transistors Prepared Using a Flood-Dike Printing Method. *ACS Nano*, **2017**, 11, 12536-12546	16.7	6
106	Lattice Strain and Ligand Effects on the Formation of Cu2S/I-III-VI2 Nanorod Heterostructures through Partial Cation Exchange. *Chemistry of Materials*, **2017**, 29, 6161-6167	9.6	28
105	Subfilamentary Networks Cause Cycle-to-Cycle Variability in Memristive Devices. *ACS Nano*, **2017**, 11, 6921-6929	16.7	55
104	Double-Heterojunction Nanorod Light-Emitting Diodes with High Efficiencies at High Brightness Using Self-Assembled Monolayers. *ACS Photonics*, **2016**, 3, 1862-1868	6.3	21
103	Quantifying redox-induced Schottky barrier variations in memristive devices via in operando spectromicroscopy with graphene electrodes. *Nature Communications*, **2016**, 7, 12398	17.4	68
102	Cu2 S/ZnS Heterostructured Nanorods: Cation Exchange vs. Solution-Liquid-Solid-like Growth. *ChemPhysChem*, **2016**, 17, 741-51	3.2	14
101	Single gate p-n junctions in graphene-ferroelectric devices. *Applied Physics Letters*, **2016**, 108, 203109	3.4	23
100	Multilayer Transfer Printing for Pixelated, Multicolor Quantum Dot Light-Emitting Diodes. *ACS Nano*, **2016**, 10, 4920-5	16.7	85
99	Capturing Phase Evolution during Solvothermal Synthesis of Metastable Cu4O3. *Chemistry of Materials*, **2016**, 28, 3080-3089	9.6	16
98	Metal Oleate Induced Etching and Growth of Semiconductor Nanocrystals, Nanorods, and Their Heterostructures. *Journal of the American Chemical Society*, **2016**, 138, 10444-51	16.4	32
97	Ferroelectrically driven spatial carrier density modulation in graphene. *Nature Communications*, **2015**, 6, 6136	17.4	107
96	Enhanced Air Stability, Charge Separation, and Photocurrent in CdSe/CdTe Heterojunction Nanorods by Thiols. *Journal of Physical Chemistry C*, **2015**, 119, 20162-20168	3.8	17
95	Solution-Processed Transistors Using Colloidal Nanocrystals with Composition-Matched Molecular "Solders": Approaching Single Crystal Mobility. *Nano Letters*, **2015**, 15, 6309-17	11.5	73
94	A novel, layered phase in Ti-rich SrTiO3 epitaxial thin films. *Advanced Materials*, **2015**, 27, 861-8	24	6

93	Integration of CdSe/CdSexTe1-x Type-II Heterojunction Nanorods into Hierarchically Porous TiO2 Electrode for Efficient Solar Energy Conversion. *Scientific Reports*, **2015**, 5, 17472	4.9	23
92	Benefitting from Dopant Loss and Ostwald Ripening in Mn Doping of II-VI Semiconductor Nanocrystals. *Nanoscale Research Letters*, **2015**, 10, 423	5	3
91	High-resolution patterns of quantum dots formed by electrohydrodynamic jet printing for light-emitting diodes. *Nano Letters*, **2015**, 15, 969-73	11.5	278
90	High efficiency and optical anisotropy in double-heterojunction nanorod light-emitting diodes. *ACS Nano*, **2015**, 9, 878-85	16.7	94
89	Ag□Cu Bimetallic Nanoparticles with Enhanced Resistance to Oxidation: A Combined Experimental and Theoretical Study. *Journal of Physical Chemistry C*, **2014**, 118, 26324-26331	3.8	94
88	Direct laser writing of air-stable p-n junctions in graphene. *ACS Nano*, **2014**, 8, 8831-6	16.7	46
87	Self-aligned Cu etch mask for individually addressable metallic and semiconducting carbon nanotubes. *ACS Nano*, **2014**, 8, 6500-8	16.7	2
86	Double-heterojunction nanorods. *Nature Communications*, **2014**, 5, 3642	17.4	70
85	Tunable carrier type and density in graphene/PbZr0.2Ti0.8O3 hybrid structures through ferroelectric switching. *Nano Letters*, **2013**, 13, 1693-8	11.5	88
84	Resistive random access memory enabled by carbon nanotube crossbar electrodes. *ACS Nano*, **2013**, 7, 5360-6	16.7	65
83	CdSe□CdSexTe1□ nanorod heterostructures: tuning alloy composition and spatially indirect recombination energies. *Journal of Materials Chemistry*, **2012**, 22, 11621		14
82	Effects of Lattice Strain and Band Offset on Electron Transfer Rates in Type-II Nanorod Heterostructures. *Journal of Physical Chemistry Letters*, **2012**, 3, 1094-8	6.4	38
81	Prospects for Strained Type-II Nanorod Heterostructures. *Journal of Physical Chemistry Letters*, **2011**, 2, 2722-2727	6.4	40
80	Integration of type II nanorod heterostructures into photovoltaics. *ACS Nano*, **2011**, 5, 7677-83	16.7	62
79	Temperature and gate voltage dependent Raman spectra of single-layer graphene. *ACS Nano*, **2011**, 5, 5273-9	16.7	36
78	Influence of defects and doping on optical phonon lifetime and Raman linewidth in carbon nanotubes. *Physical Review B*, **2011**, 83,	3.3	7
77	Electrical power dissipation in semiconducting carbon nanotubes on single crystal quartz and amorphous SiO2. *Applied Physics Letters*, **2011**, 99, 053120	3.4	18
76	DC modeling and the source of flicker noise in passivated carbon nanotube transistors. *Nanotechnology*, **2010**, 21, 385203	3.4	8

75	Anisotropic strain-induced curvature in type-II CdSe/CdTe nanorod heterostructures. *Journal of the American Chemical Society*, **2010**, 132, 3286-8	16.4	39
74	Layer-by-layer transfer of multiple, large area sheets of graphene grown in multilayer stacks on a single SiC wafer. *ACS Nano*, **2010**, 4, 5591-8	16.7	60
73	Anisotropic nanocrystal heterostructures: Synthesis and lattice strain. *Current Opinion in Solid State and Materials Science*, **2010**, 14, 83-94	12	30
72	Lifetimes of optical phonons in graphene and graphite by time-resolved incoherent anti-Stokes Raman scattering. *Physical Review B*, **2010**, 81,	3.3	105
71	SERS EM field enhancement study through fast Raman mapping of Sierpinski carpet arrays. *Journal of Raman Spectroscopy*, **2010**, 41, 1124-1130	2.3	11
70	Intraband Spectroscopy and Dynamics of Colloidal Semiconductor Quantum Dots **2010**, 133-145		2
69	Fully transparent thin-film transistors based on aligned carbon nanotube arrays and indium tin oxide electrodes. *Advanced Materials*, **2009**, 21, 564-8	24	53
68	Sub-Ångström-resolution diffractive imaging of single nanocrystals. *Nature Physics*, **2009**, 5, 129-133	16.2	76
67	Manifestation of Kohn anomaly in 1/f fluctuations in metallic carbon nanotubes. *Physical Review Letters*, **2009**, 103, 215501	7.4	7
66	Nonuniform compressive strain in horizontally aligned single-walled carbon nanotubes grown on single crystal quartz. *ACS Nano*, **2009**, 3, 2217-24	16.7	16
65	Size and growth rate dependent structural diversification of Fe3O4/CdS anisotropic nanocrystal heterostructures. *ACS Nano*, **2009**, 3, 434-40	16.7	60
64	Role of covalent defects on phonon softening in metallic carbon nanotubes. *Journal of the American Chemical Society*, **2009**, 131, 7103-6	16.4	15
63	Medium-scale carbon nanotube thin-film integrated circuits on flexible plastic substrates. *Nature*, **2008**, 454, 495-500	50.4	977
62	Spectral Diversity in Raman G-band Modes of Metallic Carbon Nanotubes within a Single Chirality. *Journal of Physical Chemistry C*, **2008**, 112, 13017-13023	3.8	16
61	Performance and photovoltaic response of polymer-doped carbon nanotube p-n diodes. *ACS Nano*, **2008**, 2, 2154-9	16.7	34
60	Low-frequency noise in ambipolar carbon nanotube transistors. *Nano Letters*, **2008**, 8, 1090-4	11.5	13
59	Environment-Induced Effects on the Temperature Dependence of Raman Spectra of Single-Layer Graphene. *Journal of Physical Chemistry C*, **2008**, 112, 20131-20134	3.8	43
58	Optical phonon lifetimes in single-walled carbon nanotubes by time-resolved Raman scattering. *Nano Letters*, **2008**, 8, 4642-7	11.5	40

57	Substrate-enhanced O2 adsorption and complexity in the Raman G-band spectra of individual metallic carbon nanotubes. *Physical Review B*, **2008**, 78,	3.3	20
56	Improved Synthesis of Aligned Arrays of Single-Walled Carbon Nanotubes and Their Implementation in Thin Film Type Transistors. *Journal of Physical Chemistry C*, **2007**, 111, 17879-17886	3.8	126
55	PbSe Nanocrystal/TiOx Heterostructured Films: A Simple Route to Nanoscale Heterointerfaces and Photocatalysis. *Journal of Physical Chemistry C*, **2007**, 111, 11734-11741	3.8	45
54	Raman Spectral Evolution in Individual Metallic Single-Walled Carbon Nanotubes upon Covalent Sidewall Functionalization. *Journal of Physical Chemistry C*, **2007**, 111, 17755-17760	3.8	23
53	Semiconductor–polymer hybrid colloidal nanoparticles. *Journal of Materials Chemistry*, **2007**, 17, 1284-1291		15
52	High-performance electronics using dense, perfectly aligned arrays of single-walled carbon nanotubes. *Nature Nanotechnology*, **2007**, 2, 230-6	28.7	897
51	Fano lineshape and phonon softening in single isolated metallic carbon nanotubes. *Physical Review Letters*, **2007**, 98, 145504	7.4	86
50	Atomic layer deposited Al2O3 for gate dielectric and passivation layer of single-walled carbon nanotube transistors. *Applied Physics Letters*, **2007**, 90, 163108	3.4	57
49	Gate capacitance coupling of singled-walled carbon nanotube thin-film transistors. *Applied Physics Letters*, **2007**, 90, 023516	3.4	143
48	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. *Advanced Functional Materials*, **2006**, 16, 2355-2362	15.6	104
47	Highly Bendable, Transparent Thin-Film Transistors That Use Carbon-Nanotube-Based Conductors and Semiconductors with Elastomeric Dielectrics. *Advanced Materials*, **2006**, 18, 304-309	24	315
46	Transparent flexible organic thin-film transistors that use printed single-walled carbon nanotube electrodes. *Applied Physics Letters*, **2006**, 88, 113511	3.4	128
45	Growth modes of carbon nanotubes on metal substrates. *Journal of Applied Physics*, **2006**, 100, 044309	2.5	17
44	Structural Evolution in Metal Oxide/Semiconductor Colloidal Nanocrystal Heterostructures. *Chemistry of Materials*, **2006**, 18, 6357-6363	9.6	52
43	Insights on charge transfer doping and intrinsic phonon line shape of carbon nanotubes by simple polymer adsorption. *Journal of the American Chemical Society*, **2006**, 128, 7522-30	16.4	62
42	pH-dependent electron-transport properties of carbon nanotubes. *Journal of Physical Chemistry B*, **2006**, 110, 23736-41	3.4	38
41	Spatially selective guided growth of high-coverage arrays and random networks of single-walled carbon nanotubes and their integration into electronic devices. *Journal of the American Chemical Society*, **2006**, 128, 4540-1	16.4	132
40	Processing dependent behavior of soft imprint lithography on the 1-10-nm scale. *IEEE Nanotechnology Magazine*, **2006**, 5, 301-308	2.6	44

39	Gamma-Fe2O3/II-VI sulfide nanocrystal heterojunctions. *Journal of the American Chemical Society*, **2005**, 127, 10269-75	16.4	239
38	Electronically selective chemical functionalization of carbon nanotubes: correlation between Raman spectral and electrical responses. *Journal of the American Chemical Society*, **2005**, 127, 11460-8	16.4	104
37	Organic nanodielectrics for low voltage carbon nanotube thin film transistors and complementary logic gates. *Journal of the American Chemical Society*, **2005**, 127, 13808-9	16.4	116
36	Polymer electrolyte gating of carbon nanotube network transistors. *Nano Letters*, **2005**, 5, 905-11	11.5	153
35	Guided growth of large-scale, horizontally aligned arrays of single-walled carbon nanotubes and their use in thin-film transistors. *Small*, **2005**, 1, 1110-6	11	326
34	Effects of oxygen on the electron transport properties of carbon nanotubes: Ultraviolet desorption and thermally induced processes. *Physical Review B*, **2005**, 71,	3.3	45
33	Printed thin-film transistors and complementary logic gates that use polymer-coated single-walled carbon nanotube networks. *Journal of Applied Physics*, **2005**, 98, 114302	2.5	73
32	Polymer Imprint Lithography with Molecular-Scale Resolution. *Nano Letters*, **2004**, 4, 2467-2471	11.5	370
31	Aligned Arrays of Single-Walled Carbon Nanotubes Generated from Random Networks by Orientationally Selective Laser Ablation. *Nano Letters*, **2004**, 4, 2421-2426	11.5	59
30	Highly Efficient Gating and Doping of Carbon Nanotubes with Polymer Electrolytes. *Nano Letters*, **2004**, 4, 927-931	11.5	136
29	p-Channel, n-Channel Thin Film Transistors and p□ Diodes Based on Single Wall Carbon Nanotube Networks. *Nano Letters*, **2004**, 4, 2031-2035	11.5	258
28	Interfacial heat flow in carbon nanotube suspensions. *Nature Materials*, **2003**, 2, 731-4	27	926
27	Noncovalent functionalization of carbon nanotubes for highly specific electronic biosensors. *Proceedings of the National Academy of Sciences of the United States of America*, **2003**, 100, 4984-9	11.5	1238
26	Photo- and Thermal Annealing-Induced Processes in Carbon Nanotube Transistors. *Materials Research Society Symposia Proceedings*, **2003**, 789, 199		
25	Photoinduced conductivity changes in carbon nanotube transistors. *Applied Physics Letters*, **2003**, 83, 3564-3566	3.4	55
24	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". *Physical Review Letters*, **2003**, 91, 169703; author reply 169704	7.4	9
23	Functionalization of Carbon Nanotubes for Biocompatibility and Biomolecular Recognition. *Nano Letters*, **2002**, 2, 285-288	11.5	795
22	Integration of suspended carbon nanotube arrays into electronic devices and electromechanical systems. *Applied Physics Letters*, **2002**, 81, 913-915	3.4	205

21	Electrical properties and devices of large-diameter single-walled carbon nanotubes. *Applied Physics Letters*, **2002**, 80, 1064-1066	3.4	104
20	Electrochromic semiconductor nanocrystal films. *Applied Physics Letters*, **2002**, 80, 4-6	3.4	88
19	Spontaneous reduction of metal ions on the sidewalls of carbon nanotubes. *Journal of the American Chemical Society*, **2002**, 124, 9058-9	16.4	612
18	Synthesis of Ultralong and High Percentage of Semiconducting Single-walled Carbon Nanotubes. *Nano Letters*, **2002**, 2, 703-708	11.5	170
17	Doping and Charging in Colloidal Semiconductor Nanocrystals. *MRS Bulletin*, **2001**, 26, 1005-1008	3.2	64
16	Organic-capped ZnO nanocrystals: synthesis and n-type character. *Journal of the American Chemical Society*, **2001**, 123, 11651-4	16.4	224
15	Polymer functionalization for air-stable n-type carbon nanotube field-effect transistors. *Journal of the American Chemical Society*, **2001**, 123, 11512-3	16.4	524
14	Intraband hole burning of colloidal quantum dots. *Physical Review B*, **2001**, 64,	3.3	46
13	Charge-Tunable Optical Properties in Colloidal Semiconductor Nanocrystals. *Journal of Physical Chemistry B*, **2001**, 105, 2369-2373	3.4	148
12	Electrochromic nanocrystal quantum dots. *Science*, **2001**, 291, 2390-2	33.3	402
11	n-type colloidal semiconductor nanocrystals. *Nature*, **2000**, 407, 981-3	50.4	411
10	Long-Lived Delocalized Electron States in Quantum Dots: A Step-Scan Fourier Transform Infrared Study. *Journal of Physical Chemistry B*, **2000**, 104, 1494-1496	3.4	51
9	Eine neue Phenylentopologie: Totalsynthesen der zickzackförmigen [4]- und [5]Phenylene. *Angewandte Chemie*, **1999**, 111, 856-860	3.6	7
8	A Novel Phenylene Topology: Total Syntheses of Zigzag [4]- and [5]Phenylene. *Angewandte Chemie - International Edition*, **1999**, 38, 800-804	16.4	31
7	Intraband relaxation in CdSe quantum dots. *Physical Review B*, **1999**, 60, R2181-R2184	3.3	318
6	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□H□□□O hydrogen bonding. *Chemical Communications*, **1999**, 1871-1872	5.8	15
5	Permanent dipole moment and charges in colloidal semiconductor quantum dots. *Journal of Chemical Physics*, **1999**, 111, 6955-6964	3.9	320
4	A Novel Phenylene Topology: Total Syntheses of Zigzag [4]- and [5]Phenylene **1999**, 38, 800		1

3	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. *Angewandte Chemie International Edition in English*, **1997**, 36, 2103-2108		61
2	5,6,11,12,17,18-Hexadehydro-1,4,7,10,13,16-hexaethinyltribenzo[a,e,i]cyclododecen: Synthese und CpCo-katalysierte Cycloisomerisierung zu den ersten superdelokalisierten Oligophenylenen. *Angewandte Chemie*, **1997**, 109, 2194-2199	3.6	13
1	Doubly clamped single-walled carbon nanotube resonators operating in MHz frequencies		2