Gerasimos Konstantatos

List of Publications by Year
in descending order

134 papers	21,524 citations	29994 54 h-index	15218 126 g-index
138 all docs	138 docs citations	138 times ranked	23634 citing authors

#	Article	IF	Citations
1	Science and technology roadmap for graphene, related two-dimensional crystals, and hybrid systems. Nanoscale, 2015, 7, 4598-4810.	2.8	2,452
2	Hybrid grapheneâ€“quantum dot phototransistors with ultrahigh gain. Nature Nanotechnology, 2012, 7, 363-368.	15.6	1,936
3	Solution-processed PbS quantum dot infrared photodetectors and photovoltaics. Nature Materials, 2005, 4, 138-142.	13.3	1,793
4	Ultrasensitive solution-cast quantum dot photodetectors. Nature, 2006, 442, 180-183.	13.7	1,634
5	Nanostructured materials for photon detection. Nature Nanotechnology, 2010, 5, 391-400.	15.6	1,215
6	Prospects of Nanoscience with Nanocrystals. ACS Nano, 2015, 9, 1012-1057.	7.3	1,005
7	Depleted-Heterojunction Colloidal Quantum Dot Solar Cells. ACS Nano, 2010, 4, 3374-3380.	7.3	781
8	Hybrid 2Dâ€“0D MoS₂â€“PbS Quantum Dot Photodetectors. Advanced Materials, 2015, 27, 176-180.	11.1	638
9	Broadband image sensor array based on grapheneâ€“CMOS integration. Nature Photonics, 2017, 11, 366-371.	15.6	523
10	Highly Sensitive, Encapsulated MoS₂ Photodetector with Gate Controllable Gain and Speed. Nano Letters, 2015, 15, 7307-7313.	4.5	515
11	Fast, sensitive and spectrally tuneable colloidal-quantum-dot photodetectors. Nature Nanotechnology, 2009, 4, 40-44.	15.6	475
12	Sensitive solution-processed visible-wavelength photodetectors. Nature Photonics, 2007, 1, 531-534.	15.6	411
13	Recent Progress and Future Prospects of 2Dâ€Based Photodetectors. Advanced Materials, 2018, 30, e1801164.	11.1	408
14	Solution-processed solar cells based on environmentally friendly AgBiS2 nanocrystals. Nature Photonics, 2016, 10, 521-525.	15.6	298
15	Near-Unity Photoluminescence Quantum Yield in CsPbBr₃ Nanocrystal Solid-State Films via Postsynthesis Treatment with Lead Bromide. Chemistry of Materials, 2017, 29, 7663-7667.	3.2	295
16	Sensitive Solution-Processed Bi₂S₃ Nanocrystalline Photodetectors. Nano Letters, 2008, 8, 4002-4006.	4.5	282
17	The role of surface passivation for efficient and photostable PbS quantum dot solar cells. Nature Energy, 2016, 1, .	19.8	279
18	MoS₂â€“HgTe Quantum Dot Hybrid Photodetectors beyond 2 Âµm. Advanced Materials, 2017, 29, 1606576.	11.1	248

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19	Synthesis of Monodispersed Wurtzite Structure CuInSe₂ Nanocrystals and Their Application in High-Performance Organicâˆ'Inorganic Hybrid Photodetectors. Journal of the American Chemical Society, 2010, 132, 12218-12221.	6.6	242
20	Solution-processed inorganic bulk nano-heterojunctions and their application to solar cells. Nature Photonics, 2012, 6, 529-534.	15.6	221
21	Engineering the Temporal Response of Photoconductive Photodetectors via Selective Introduction of Surface Trap States. Nano Letters, 2008, 8, 1446-1450.	4.5	219
22	Integrating an electrically active colloidal quantum dot photodiode with a graphene phototransistor. Nature Communications, 2016, 7, 11954.	5.8	217
23	Photo-FETs: Phototransistors Enabled by 2D and 0D Nanomaterials. ACS Photonics, 2016, 3, 2197-2210.	3.2	217
24	Flexible graphene photodetectors for wearable fitness monitoring. Science Advances, 2019, 5, eaaw7846.	4.7	186
25	Ultrasensitive all-2D MoS2 phototransistors enabled by an out-of-plane MoS2 PN homojunction. Nature Communications, 2017, 8, 572.	5.8	181
26	High-efficiency colloidal quantum dot infrared light-emitting diodes via engineering at the supra-nanocrystalline level. Nature Nanotechnology, 2019, 14, 72-79.	15.6	180
27	Solutionâ€Processed Heterojunction Solar Cells Based on pâ€type PbS Quantum Dots and nâ€type Bi₂S₃ Nanocrystals. Advanced Materials, 2011, 23, 3712-3717.	11.1	179
28	Current status and technological prospect of photodetectors based on two-dimensional materials. Nature Communications, 2018, 9, 5266.	5.8	177
29	PbS colloidal quantum dot photoconductive photodetectors: Transport, traps, and gain. Applied Physics Letters, 2007, 91, 173505.	1.5	164
30	Solution-Processed Quantum Dot Photodetectors. Proceedings of the IEEE, 2009, 97, 1666-1683.	16.4	127
31	Interface Engineering in Hybrid Quantum Dotâ€"2D Phototransistors. ACS Photonics, 2016, 3, 1324-1330.	3.2	122
32	Enhanced infrared photovoltaic efficiency in PbS nanocrystal/semiconducting polymer composites: 600-fold increase in maximum power output via control of the ligand barrier. Applied Physics Letters, 2005, 87, 233101.	1.5	120
33	Wurtzite Cu2ZnSnSe4 nanocrystals for high-performance organicâ€"inorganic hybrid photodetectors. NPG Asia Materials, 2012, 4, e2-e2.	3.8	116
34	Photoelectric Energy Conversion of Plasmon-Generated Hot Carriers in Metalâ€"Insulatorâ€"Semiconductor Structures. ACS Nano, 2013, 7, 3581-3588.	7.3	116
35	Colloidal quantum dot photodetectors. Infrared Physics and Technology, 2011, 54, 278-282.	1.3	114
36	Efficient Infrared Electroluminescent Devices Using Solution-Processed Colloidal Quantum Dots. Advanced Functional Materials, 2005, 15, 1865-1869.	7.8	112

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37	Heterovalent cation substitutional doping for quantum dot homojunction solar cells. Nature Communications, 2013, 4, 2981.	5.8	111
38	High Performance Photodetectors of Individual InSe Single Crystalline Nanowire. Journal of the American Chemical Society, 2009, 131, 15602-15603.	6.6	108
39	Ultrahigh Carrier Mobility Achieved in Photoresponsive Hybrid Perovskite Films via Coupling with Singleâ€Walled Carbon Nanotubes. Advanced Materials, 2017, 29, 1602432.	11.1	106
40	Cation disorder engineering yields AgBiS2 nanocrystals with enhanced optical absorption for efficient ultrathin solar cells. Nature Photonics, 2022, 16, 235-241.	15.6	100
41	Bandgap Engineering of Monodispersed Cu_{2â€“<i>x</i>}S_{<i>y</i>}Se_{1â€“<i>y</i>} Nanocrystals through Chalcogen Ratio and Crystal Structure. Journal of the American Chemical Society, 2011, 133, 18558-18561.	6.6	96
42	Infrared Solutionâ€Processed Quantum Dot Solar Cells Reaching External Quantum Efficiency of 80% at 1.35 Âµm and <i>J</i>_{sc} in Excess of 34 mA cm^{âˆ’2}. Advanced Materials, 2018, 30, 1704928.	11.1	92
43	Suppressing Deep Traps in PbS Colloidal Quantum Dots via Facile Iodide Substitutional Doping for Solar Cells with Efficiency >10%. ACS Energy Letters, 2017, 2, 739-744.	8.8	91
44	Size and bandgap tunability in Bi₂S₃ colloidal nanocrystals and its effect in solution processed solar cells. Journal of Materials Chemistry A, 2015, 3, 20642-20648.	5.2	83
45	Near IRâ€Sensitive, Nonâ€toxic, Polymer/Nanocrystal Solar Cells Employing Bi₂S₃ as the Electron Acceptor. Advanced Energy Materials, 2011, 1, 1029-1035.	10.2	78
46	Heavy-Metal-Free Solution-Processed Nanoparticle-Based Photodetectors: Doping of Intrinsic Vacancies Enables Engineering of Sensitivity and Speed. ACS Nano, 2009, 3, 331-338.	7.3	76
47	Complete Colloidal Synthesis of Cu₂SnSe₃ Nanocrystals with Crystal Phase and Shape Control. Journal of the American Chemical Society, 2014, 136, 7954-7960.	6.6	76
48	Breaking the Open-Circuit Voltage Deficit Floor in PbS Quantum Dot Solar Cells through Synergistic Ligand and Architecture Engineering. ACS Energy Letters, 2017, 2, 1444-1449.	8.8	74
49	High carrier mobility in monolayer CVD-grown MoS₂ through phonon suppression. Nanoscale, 2018, 10, 15071-15077.	2.8	74
50	Trapâ€State Suppression and Improved Charge Transport in PbS Quantum Dot Solar Cells with Synergistic Mixedâ€Ligand Treatments. Small, 2017, 13, 1700598.	5.2	68
51	Reduction of moisture sensitivity of PbS quantum dot solar cells by incorporation of reduced graphene oxide. Solar Energy Materials and Solar Cells, 2018, 183, 1-7.	3.0	68
52	Large-Area Plasmonic-Crystalâ€“Hot-Electron-Based Photodetectors. ACS Photonics, 2015, 2, 950-957.	3.2	63
53	Remote Trap Passivation in Colloidal Quantum Dot Bulk Nanoâ€heterojunctions and Its Effect in Solutionâ€Processed Solar Cells. Advanced Materials, 2014, 26, 4741-4747.	11.1	62
54	High-Open-Circuit-Voltage Solar Cells Based on Bright Mixed-Halide CsPbBrI₂ Perovskite Nanocrystals Synthesized under Ambient Air Conditions. Journal of Physical Chemistry C, 2018, 122, 7621-7626.	1.5	56

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55	Mid- and Long-Wave Infrared Optoelectronics via Intraband Transitions in PbS Colloidal Quantum Dots. Nano Letters, 2020, 20, 1003-1008.	4.5	56
56	Plasmonic light trapping leads to responsivity increase in colloidal quantum dot photodetectors. Applied Physics Letters, 2012, 100, .	1.5	52
57	Luminescence from processible quantum dot-polymer light emitters 1100â€“1600 nm: Tailoring spectral width and shape. Applied Physics Letters, 2004, 84, 3459-3461.	1.5	49
58	Smoothâ€Morphology Ultrasensitive Solutionâ€Processed Photodetectors. Advanced Materials, 2008, 20, 4398-4402.	11.1	49
59	Strategies for the Controlled Electronic Doping of Colloidal Quantum Dot Solids. ChemPhysChem, 2016, 17, 632-644.	1.0	49
60	Solution-processed PbS quantum dot infrared laser with room-temperature tunable emission in the optical telecommunications window. Nature Photonics, 2021, 15, 738-742.	15.6	49
61	High Sensitivity Hybrid PbS CQD-TMDC Photodetectors up to 2 Î¼m. ACS Photonics, 2019, 6, 2381-2386.	3.2	48
62	Integrated colloidal quantum dot photodetectors with color-tunable plasmonic nanofocusing lenses. Light: Science and Applications, 2015, 4, e234-e234.	7.7	46
63	Eco-friendly visible-wavelength photodetectors based on bandgap engineerable nanomaterials. Journal of Materials Chemistry, 2011, 21, 17582.	6.7	42
64	Integrated Prototype Nanodevices via SnO2 Nanoparticles Decorated SnSe Nanosheets. Scientific Reports, 2013, 3, 2613.	1.6	42
65	Solution processed infrared- and thermo-photovoltaics based on 0.7 eV bandgap PbS colloidal quantum dots. Nanoscale, 2019, 11, 838-843.	2.8	41
66	Colloidal AgBiS2 nanocrystals with reduced recombination yield 6.4% power conversion efficiency in solution-processed solar cells. Nano Energy, 2020, 75, 104961.	8.2	41
67	Hybrid solution-processed bulk heterojunction solar cells based on bismuth sulfide nanocrystals. Physical Chemistry Chemical Physics, 2013, 15, 5482.	1.3	40
68	Imprinted Electrodes for Enhanced Light Trapping in Solution Processed Solar Cells. Advanced Materials, 2014, 26, 443-448.	11.1	40
69	Matildite versus schapbachite: First-principles investigation of the origin of photoactivity in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>AgBi</mml:mi><mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2016, 94, .	1.1	39
70	Single-Exciton Gain and Stimulated Emission Across the Infrared Telecom Band from Robust Heavily Doped PbS Colloidal Quantum Dots. Nano Letters, 2020, 20, 5909-5915.	4.5	38
71	Solution Processed Bismuth Sulfide Nanowire Array Core/Silver Sulfide Shell Solar Cells. Chemistry of Materials, 2015, 27, 3700-3706.	3.2	37
72	Engineering Vacancies in Bi₂S₃ yielding Subâ€Bandgap Photoresponse and Highly Sensitive Shortâ€Wave Infrared Photodetectors. Advanced Optical Materials, 2019, 7, 1900258.	3.6	37

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73	A facile phosphine-free colloidal synthesis of Cu₂SnS₃ and Cu₂ZnSnS₄ nanorods with a controllable aspect ratio. Chemical Communications, 2015, 51, 13810-13813.	2.2	36
74	Size- and Temperature-Dependent Carrier Dynamics in Oleic Acid Capped PbS Quantum Dots. Journal of Physical Chemistry C, 2013, 117, 1887-1892.	1.5	35
75	Tailoring the Electronic Properties of Colloidal Quantum Dots in Metalâ€“Semiconductor Nanocomposites for High Performance Photodetectors. Small, 2015, 11, 2636-2641.	5.2	35
76	Thiol-Free Synthesized Copper Indium Sulfide Nanocrystals as Optoelectronic Quantum Dot Solids. Chemistry of Materials, 2015, 27, 8424-8432.	3.2	33
77	Molecular interfaces for plasmonic hot electron photovoltaics. Nanoscale, 2015, 7, 2281-2288.	2.8	33
78	Solid-state colloidal CuInS₂quantum dot solar cells enabled by bulk heterojunctions. Nanoscale, 2016, 8, 16776-16785.	2.8	33
79	Colloidal Quantum Dot Tandem Solar Cells Using Chemical Vapor Deposited Graphene as an Atomically Thin Intermediate Recombination Layer. ACS Energy Letters, 2018, 3, 1753-1759.	8.8	33
80	Reducing Interface Recombination through Mixed Nanocrystal Interlayers in PbS Quantum Dot Solar Cells. ACS Applied Materials & Interfaces, 2017, 9, 27390-27395.	4.0	32
81	Negative capacitance in polymer-nanocrystal composites. Applied Physics Letters, 2004, 85, 3567-3569.	1.5	30
82	High-Efficiency Light-Emitting Diodes Based on Formamidinium Lead Bromide Nanocrystals and Solution Processed Transport Layers. Chemistry of Materials, 2018, 30, 6231-6235.	3.2	29
83	Size- and Temperature-Dependent Intraband Optical Properties of Heavily n-Doped PbS Colloidal Quantum Dot Solid-State Films. ACS Nano, 2020, 14, 7161-7169.	7.3	28
84	Low-Cost RoHS Compliant Solution Processed Photovoltaics Enabled by Ambient Condition Synthesis of AgBiS₂ Nanocrystals. ACS Photonics, 2020, 7, 588-595.	3.2	28
85	Determination of carrier lifetime and mobility in colloidal quantum dot films via impedance spectroscopy. Applied Physics Letters, 2014, 104, .	1.5	27
86	Solidâ€State Thinâ€Film Broadband Shortâ€Wave Infrared Light Emitters. Advanced Materials, 2020, 32, e2003830.	11.1	27
87	Surface Plasmon Polariton Couplers for Light Trapping in Thin-Film Absorbers and Their Application to Colloidal Quantum Dot Optoelectronics. ACS Photonics, 2014, 1, 1197-1205.	3.2	26
88	White and Brightly Colored 3D Printing Based on Resonant Photothermal Sensitizers. Nano Letters, 2018, 18, 6660-6664.	4.5	26
89	Bandgap engineering by cationic disorder: case study on AgBiS₂. Physical Chemistry Chemical Physics, 2017, 19, 27940-27944.	1.3	25
90	Absorption Enhancement in Solution Processed Metal-Semiconductor Nanocomposites. Optics Express, 2011, 19, 21038.	1.7	24

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91	Improved electronic coupling in hybrid organicâ€“inorganic nanocomposites employing thiol-functionalized P3HT and bismuth sulfide nanocrystals. Nanoscale, 2014, 6, 10018-10026.	2.8	24
92	Highly transparent and conductive ITO substrates for near infrared applications. APL Materials, 2021, 9, .	2.2	24
93	Auâ€“Cu alloy bridged synthesis and optoelectronic properties of Au@CuInSe₂coreâ€“shell hybrid nanostructures. Journal of Materials Chemistry, 2012, 22, 1765-1769.	6.7	23
94	Highly Efficient, Bright, and Stable Colloidal Quantum Dot Shortâ€Wave Infrared Lightâ€Emitting Diodes. Advanced Functional Materials, 2020, 30, 2004445.	7.8	23
95	Low-temperature colloidal synthesis of CuBiS₂ nanocrystals for optoelectronic devices. Journal of Materials Chemistry A, 2017, 5, 24621-24625.	5.2	20
96	Electrical effects of metal nanoparticles embedded in ultra-thin colloidal quantum dot films. Applied Physics Letters, 2012, 101, 041103.	1.5	19
97	On-Demand Activation of Photochromic Nanoheaters for High Color Purity 3D Printing. Nano Letters, 2020, 20, 3485-3491.	4.5	18
98	Hybrid 2Dâ€QD MoS₂â€“PbSe Quantum Dot Broadband Photodetectors with Highâ€Sensitivity and Roomâ€Temperature Operation at 2.5ÂÂµm. Advanced Optical Materials, 2021, 9, 2101378.	3.6	18
99	Low-Temperature, Solution-Based Sulfurization and Necking of PbS CQD Films. Journal of Physical Chemistry C, 2016, 120, 20315-20322.	1.5	17
100	Ag₂ZnSnS₄ Nanocrystals Expand the Availability of RoHS Compliant Colloidal Quantum Dots. Chemistry of Materials, 2020, 32, 2148-2155.	3.2	17
101	Visibleâ€Blind ZnMgO Colloidal Quantum Dot Downconverters Expand Silicon CMOS Sensors Spectral Coverage into Ultraviolet and Enable UVâ€Band Discrimination. Advanced Materials, 2022, 34, e2109498.	11.1	17
102	Origin of the Below-Bandgap Turn-On Voltage in Light-Emitting Diodes and the High <i>V</i>_{OC} in Solar Cells Comprising Colloidal Quantum Dots with an Engineered Density of States. Journal of Physical Chemistry Letters, 2019, 10, 3029-3034.	2.1	16
103	Colloidal synthesis of lead-free Cs₂TiBr_{6âˆ’<i>x</i>}I_{<i>x</i>}perovskite nanocrystals. Journal of Materials Chemistry C, 2021, 9, 11098-11103.	2.7	16
104	Coupling Resonant Modes of Embedded Dielectric Microspheres in Solutionâ€Processed Solar Cells. Advanced Optical Materials, 2013, 1, 139-143.	3.6	15
105	Metal-insulator-semiconductor heterostructures for plasmonic hot-carrier optoelectronics. Optics Express, 2015, 23, 14715.	1.7	15
106	Aliovalent Doping in Colloidal Quantum Dots and Its Manifestation on Their Optical Properties: Surface Attachment versus Structural Incorporation. Chemistry of Materials, 2016, 28, 5384-5393.	3.2	15
107	Matildite Contact with Media: First-Principles Study of AgBiS₂ Surfaces and Nanoparticle Morphology. Journal of Physical Chemistry B, 2018, 122, 521-526.	1.2	15
108	Lowâ€Threshold, Highly Stable Colloidal Quantum Dot Shortâ€Wave Infrared Laser enabled by Suppression of Trapâ€Assisted Auger Recombination. Advanced Materials, 2022, 34, e2107532.	11.1	15

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109	Colloidal Quantum Dot Light Emitting Diodes at Telecom Wavelength with 18% Quantum Efficiency and Over 1ÂMHz Bandwidth. Advanced Science, 2022, 9, e2200637.	5.6	15
110	Colloidal synthesis of Cu₂SnSe₃nanocrystals with structure induced shape evolution. CrystEngComm, 2016, 18, 3161-3169.	1.3	14
111	Mixed AgBiS₂ nanocrystals for photovoltaics and photodetectors. Nanoscale, 2022, 14, 4987-4993.	2.8	14
112	Exciton capture by nanocrystals in a polymer matrix. Journal of Applied Physics, 2003, 94, 4066-4069.	1.1	13
113	AgBiSe₂ Colloidal Nanocrystals for Use in Solar Cells. ACS Applied Nano Materials, 2021, 4, 2887-2894.	2.4	13
114	Environmentally Friendly AgBiS₂ Nanocrystal Inks for Efficient Solar Cells Employing Green Solvent Processing. Advanced Energy Materials, 2022, 12, .	10.2	13
115	Ultraâ€Thin Infrared Optical Gain Medium and Opticallyâ€Pumped Stimulated Emission in PbS Colloidal Quantum Dot LEDs. Advanced Functional Materials, 2022, 32, .	7.8	11
116	Plasmonic Schottky Nanojunctions for Tailoring the Photogeneration Profile in Thin Film Solar Cells. Advanced Optical Materials, 2014, 2, 493-500.	3.6	10
117	Highly efficient, ultrathin, Cd-free kesterite solar cells in superstrate configuration enabled by band level tuning via Ag incorporation. Nano Energy, 2022, 94, 106898.	8.2	10
118	Ag₂ZnSnS₄â€“ZnS coreâ€“shell colloidal quantum dots: a near-infrared luminescent material based on environmentally friendly elements. Journal of Materials Chemistry C, 2021, 9, 5682-5688.	2.7	9
119	Resonance energy transfer from PbS colloidal quantum dots to bulk silicon: the road to hybrid photovoltaics. , 2012, , .		7
120	Optical gain and lasing in colloidal quantum dots. , 2013, , 199-232.		5
121	Colloidal Quantum Dot Image Sensors: Technology and Marketplace Opportunities. Information Display, 2021, 37, 18-23.	0.1	5
122	Solution-processed PbS quantum dot infrared photodetectors and photovoltaics. , 2010, , 70-74.		4
123	Colloidal quantum dot photodetectors. , 2013, , 173-198.		4
124	Spectroscopic evidence of resonance energy transfer mechanism from PbS QDs to bulk silicon. EPJ Web of Conferences, 2013, 54, 01017.	0.1	4
125	Engineering colloidal quantum dots. , 2013, , 1-29.		2
126	Multiple exciton generation in semiconductor quantum dots and electronically coupled quantum dot arrays for application to thirdgeneration photovoltaic solar cells. , 2013, , 112-147.		2

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127	Cation Disorder and Local Structural Distortions in AgxBi1â€“xS2 Nanoparticles. Nanomaterials, 2020, 10, 316.	1.9	2
128	Microresonators: Coupling Resonant Modes of Embedded Dielectric Microspheres in Solutionâ€Processed Solar Cells (Advanced Optical Materials 2/2013). Advanced Optical Materials, 2013, 1, 194-194.	3.6	1
129	Charge and energy transfer in polymer/nanocrystal blends. , 0, , 87-111.		1
130	Depleted-Heterojunction Colloidal Quantum Dot Solar Cells Employing Low-Cost Metal Contacts. , 2010, , .		1
131	Two-color size-tunable [1100 - 1600 nm] quantum dot nanocrystal electroluminescent devices. , 0, , .		0
132	Solution-processed infrared quantum dot solar cells. , 0, , 256-291.		0
133	Semiconductor quantum dot sensitized TiO2 mesoporous solar cells. , 0, , 292-309.		0
134	66â€5: <i>Invited Paper:</i> Colloidal Quantum Dots: A Material Platform for Highly Sensitive Photodetectors and High Quantum Efficiency Light Emitters in the SWIR. Digest of Technical Papers SID International Symposium, 2021, 52, 991-994.	0.1	0