

# F Pelayo GarcÃ-a De Arquer

## List of Publications by Year in descending order

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125  
papers

26,814  
citations

17429

63  
h-index

16164

124  
g-index

132  
all docs

132  
docs citations

132  
times ranked

25187  
citing authors

#	ARTICLE	IF	CITATIONS
1	Perovskite light-emitting diodes with external quantum efficiency exceeding 20 per cent. <i>Nature</i> , 2018, 562, 245-248.	13.7	2,589
2	Efficient and stable solution-processed planar perovskite solar cells via contact passivation. <i>Science</i> , 2017, 355, 722-726.	6.0	2,019
3	Homogeneously dispersed multimetal oxygen-evolving catalysts. <i>Science</i> , 2016, 352, 333-337.	6.0	1,948
4	Hybrid graphene-quantum dot phototransistors with ultrahigh gain. <i>Nature Nanotechnology</i> , 2012, 7, 363-368.	15.6	1,936
5	CO <sub>2</sub> electroreduction to ethylene via hydroxide-mediated copper catalysis at an abrupt interface. <i>Science</i> , 2018, 360, 783-787.	6.0	1,638
6	Enhanced electrocatalytic CO <sub>2</sub> reduction via field-induced reagent concentration. <i>Nature</i> , 2016, 537, 382-386.	13.7	1,429
7	Solution-processed semiconductors for next-generation photodetectors. <i>Nature Reviews Materials</i> , 2017, 2, .	23.3	992
8	CO <sub>2</sub> electrolysis to multicarbon products at activities greater than 1 A cm <sup>-2</sup> . <i>Science</i> , 2020, 367, 661-666.	6.0	860
9	Semiconductor quantum dots: Technological progress and future challenges. <i>Science</i> , 2021, 373, .	6.0	600
10	Hybrid organic-inorganic inks flatten the energy landscape in colloidal quantum dot solids. <i>Nature Materials</i> , 2017, 16, 258-263.	13.3	563
11	CO <sub>2</sub> electrolysis to multicarbon products in strong acid. <i>Science</i> , 2021, 372, 1074-1078.	6.0	541
12	Theory-driven design of high-valence metal sites for water oxidation confirmed using in situ soft X-ray absorption. <i>Nature Chemistry</i> , 2018, 10, 149-154.	6.6	476
13	Multi-site electrocatalysts for hydrogen evolution in neutral media by destabilization of water molecules. <i>Nature Energy</i> , 2019, 4, 107-114.	19.8	470
14	Perovskites for Light Emission. <i>Advanced Materials</i> , 2018, 30, e1801996.	11.1	417
15	Tailoring the Energy Landscape in Quasi-2D Halide Perovskites Enables Efficient Green-Light Emission. <i>Nano Letters</i> , 2017, 17, 3701-3709.	4.5	409
16	Sulfur-Modulated Tin Sites Enable Highly Selective Electrochemical Reduction of CO <sub>2</sub> to Formate. <i>Joule</i> , 2017, 1, 794-805.	11.7	390
17	High-valence metals improve oxygen evolution reaction performance by modulating 3d metal oxidation cycle energetics. <i>Nature Catalysis</i> , 2020, 3, 985-992.	16.1	390
18	Efficient electrically powered CO <sub>2</sub> -to-ethanol via suppression of deoxygenation. <i>Nature Energy</i> , 2020, 5, 478-486.	19.8	363

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19	Binding Site Diversity Promotes CO <sub>2</sub> Electroreduction to Ethanol. <i>Journal of the American Chemical Society</i> , 2019, 141, 8584-8591.	6.6	338
20	Metal-Organic Frameworks Mediate Cu Coordination for Selective CO <sub>2</sub> Electroreduction. <i>Journal of the American Chemical Society</i> , 2018, 140, 11378-11386.	6.6	326
21	10.6% Certified Colloidal Quantum Dot Solar Cells via Solvent-Polarity-Engineered Halide Passivation. <i>Nano Letters</i> , 2016, 16, 4630-4634.	4.5	312
22	Passivation Using Molecular Halides Increases Quantum Dot Solar Cell Performance. <i>Advanced Materials</i> , 2016, 28, 299-304.	11.1	312
23	2D matrix engineering for homogeneous quantum dot coupling in photovoltaic solids. <i>Nature Nanotechnology</i> , 2018, 13, 456-462.	15.6	252
24	High Rate, Selective, and Stable Electroreduction of CO <sub>2</sub> to CO in Basic and Neutral Media. <i>ACS Energy Letters</i> , 2018, 3, 2835-2840.	8.8	230
25	Solution-processed inorganic bulk nano-heterojunctions and their application to solar cells. <i>Nature Photonics</i> , 2012, 6, 529-534.	15.6	221
26	Lattice anchoring stabilizes solution-processed semiconductors. <i>Nature</i> , 2019, 570, 96-101.	13.7	208
27	Pure Cubic Phase Hybrid Iodobismuthates AgBi <sub>2</sub> I <sub>7</sub> for Thin-Film Photovoltaics. <i>Angewandte Chemie - International Edition</i> , 2016, 55, 9586-9590.	7.2	201
28	A Surface Reconstruction Route to High Productivity and Selectivity in CO <sub>2</sub> Electroreduction toward C <sub>2+</sub> Hydrocarbons. <i>Advanced Materials</i> , 2018, 30, e1804867.	11.1	200
29	2D Metal Oxyhalide-Derived Catalysts for Efficient CO <sub>2</sub> Electroreduction. <i>Advanced Materials</i> , 2018, 30, e1802858.	11.1	200
30	High-Efficiency Colloidal Quantum Dot Photovoltaics via Robust Self-Assembled Monolayers. <i>Nano Letters</i> , 2015, 15, 7691-7696.	4.5	198
31	Cascade surface modification of colloidal quantum dot inks enables efficient bulk homojunction photovoltaics. <i>Nature Communications</i> , 2020, 11, 103.	5.8	181
32	Enhanced optical path and electron diffusion length enable high-efficiency perovskite tandems. <i>Nature Communications</i> , 2020, 11, 1257.	5.8	180
33	Colloidal Quantum Dot Photovoltaics Enhanced by Perovskite Shelling. <i>Nano Letters</i> , 2015, 15, 7539-7543.	4.5	173
34	Mixed-quantum-dot solar cells. <i>Nature Communications</i> , 2017, 8, 1325.	5.8	148
35	Edge stabilization in reduced-dimensional perovskites. <i>Nature Communications</i> , 2020, 11, 170.	5.8	147
36	Stable, active CO <sub>2</sub> reduction to formate via redox-modulated stabilization of active sites. <i>Nature Communications</i> , 2021, 12, 5223.	5.8	145

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37	Monolayer Perovskite Bridges Enable Strong Quantum Dot Coupling for Efficient Solar Cells. <i>Joule</i> , 2020, 4, 1542-1556.	11.7	143
38	CO <sub>2</sub> Electroreduction from Carbonate Electrolyte. <i>ACS Energy Letters</i> , 2019, 4, 1427-1431.	8.8	141
39	Efficient near-infrared light-emitting diodes based on quantum dots in layered perovskite. <i>Nature Photonics</i> , 2020, 14, 227-233.	15.6	136
40	Advances in solution-processed near-infrared light-emitting diodes. <i>Nature Photonics</i> , 2021, 15, 656-669.	15.6	136
41	Solution-processed upconversion photodetectors based on quantum dots. <i>Nature Electronics</i> , 2020, 3, 251-258.	13.1	135
42	Ultrafast narrowband exciton routing within layered perovskite nanoplatelets enables low-loss luminescent solar concentrators. <i>Nature Energy</i> , 2019, 4, 197-205.	19.8	132
43	Chloride Passivation of ZnO Electrodes Improves Charge Extraction in Colloidal Quantum Dot Photovoltaics. <i>Advanced Materials</i> , 2017, 29, 1702350.	11.1	126
44	Double-Sided Junctions Enable High-Performance Colloidal Quantum Dot Photovoltaics. <i>Advanced Materials</i> , 2016, 28, 4142-4148.	11.1	121
45	Efficient hybrid colloidal quantum dot/organic solar cells mediated by near-infrared sensitizing small molecules. <i>Nature Energy</i> , 2019, 4, 969-976.	19.8	120
46	Photoelectric Energy Conversion of Plasmon-Generated Hot Carriers in Metal-Insulator-Semiconductor Structures. <i>ACS Nano</i> , 2013, 7, 3581-3588.	7.3	116
47	Heterovalent cation substitutional doping for quantum dot homojunction solar cells. <i>Nature Communications</i> , 2013, 4, 2981.	5.8	111
48	High-Rate and Efficient Ethylene Electrosynthesis Using a Catalyst/Promoter/Transport Layer. <i>ACS Energy Letters</i> , 2020, 5, 2811-2818.	8.8	106
49	CO <sub>2</sub> Electroreduction to Formate at a Partial Current Density of 930 mA cm <sup>-2</sup> with InP Colloidal Quantum Dot Derived Catalysts. <i>ACS Energy Letters</i> , 2021, 6, 79-84.	8.8	100
50	Stable Colloidal Quantum Dot Inks Enable Inkjet-Printed High-Sensitivity Infrared Photodetectors. <i>ACS Nano</i> , 2019, 13, 11988-11995.	7.3	99
51	Efficient electrosynthesis of n-propanol from carbon monoxide using a Ag-Ru-Cu catalyst. <i>Nature Energy</i> , 2022, 7, 170-176.	19.8	96
52	Carbon-efficient carbon dioxide electrolyzers. <i>Nature Sustainability</i> , 2022, 5, 563-573.	11.5	95
53	Bright and Stable Light-Emitting Diodes Based on Perovskite Quantum Dots in Perovskite Matrix. <i>Journal of the American Chemical Society</i> , 2021, 143, 15606-15615.	6.6	94
54	2D Quantum Dot: Metal Dichalcogenide Nanocomposite Photocatalyst Achieves Efficient Hydrogen Generation. <i>Advanced Materials</i> , 2017, 29, 1605646.	11.1	89

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55	Colloidal quantum dot photodetectors with 10-ns response time and 80% quantum efficiency at 1,550Ånm. <i>Matter</i> , 2021, 4, 1042-1053.	5.0	88
56	A Facet-Specific Quantum Dot Passivation Strategy for Colloid Management and Efficient Infrared Photovoltaics. <i>Advanced Materials</i> , 2019, 31, e1805580.	11.1	87
57	Increasing Polymer Solar Cell Fill Factor by Trap-Filling with F4TCNQ at Parts Per Thousand Concentration. <i>Advanced Materials</i> , 2016, 28, 6491-6496.	11.1	85
58	Field-emission from quantum-dot-in-perovskite solids. <i>Nature Communications</i> , 2017, 8, 14757.	5.8	83
59	Mixed Lead Halide Passivation of Quantum Dots. <i>Advanced Materials</i> , 2019, 31, e1904304.	11.1	81
60	Overcoming the Ambient Manufacturability-Scalability-Performance Bottleneck in Colloidal Quantum Dot Photovoltaics. <i>Advanced Materials</i> , 2018, 30, e1801661.	11.1	79
61	Near IR-Sensitive, Non-toxic, Polymer/Nanocrystal Solar Cells Employing Bi <sub>2</sub> S <sub>3</sub> as the Electron Acceptor. <i>Advanced Energy Materials</i> , 2011, 1, 1029-1035.	10.2	78
62	Efficient Photon Recycling and Radiation Trapping in Cesium Lead Halide Perovskite Waveguides. <i>ACS Energy Letters</i> , 2018, 3, 1492-1498.	8.8	70
63	Butylamine-Catalyzed Synthesis of Nanocrystal Inks Enables Efficient Infrared CQD Solar Cells. <i>Advanced Materials</i> , 2018, 30, e1803830.	11.1	67
64	Large-Area Plasmonic-Crystal-Hot-Electron-Based Photodetectors. <i>ACS Photonics</i> , 2015, 2, 950-957.	3.2	63
65	Remote Trap Passivation in Colloidal Quantum Dot Bulk Nano-heterojunctions and Its Effect in Solution-Processed Solar Cells. <i>Advanced Materials</i> , 2014, 26, 4741-4747.	11.1	62
66	A Chemically Orthogonal Hole Transport Layer for Efficient Colloidal Quantum Dot Solar Cells. <i>Advanced Materials</i> , 2020, 32, e1906199.	11.1	59
67	Flexible Filter-Free Narrowband Photodetector with High Gain and Customized Responsive Spectrum. <i>Advanced Functional Materials</i> , 2017, 27, 1702360.	7.8	57
68	Activated Electron-Transport Layers for Infrared Quantum Dot Optoelectronics. <i>Advanced Materials</i> , 2018, 30, e1801720.	11.1	57
69	Metal-Organic Framework Thin Films on High-Curvature Nanostructures Toward Tandem Electrocatalysis. <i>ACS Applied Materials &amp; Interfaces</i> , 2018, 10, 31225-31232.	4.0	57
70	Acid-Assisted Ligand Exchange Enhances Coupling in Colloidal Quantum Dot Solids. <i>Nano Letters</i> , 2018, 18, 4417-4423.	4.5	57
71	ZnFe <sub>2</sub> O <sub>4</sub> Leaves Grown on TiO <sub>2</sub> Trees Enhance Photoelectrochemical Water Splitting. <i>Small</i> , 2016, 12, 3181-3188.	5.2	56
72	Multibandgap quantum dot ensembles for solar-matched infrared energy harvesting. <i>Nature Communications</i> , 2018, 9, 4003.	5.8	56

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73	A Tuned Alternating D <sup>+</sup> A Copolymer Hole-Transport Layer Enables Colloidal Quantum Dot Solar Cells with Superior Fill Factor and Efficiency. <i>Advanced Materials</i> , 2020, 32, e2004985.	11.1	56
74	Controlled Steric Hindrance Enables Efficient Ligand Exchange for Stable, Infrared-Bandgap Quantum Dot Inks. <i>ACS Energy Letters</i> , 2019, 4, 1225-1230.	8.8	54
75	Engineering the Input Impedance of Optical Nano Dipole Antennas: Materials, Geometry and Excitation Effect. <i>IEEE Transactions on Antennas and Propagation</i> , 2011, 59, 3144-3153.	3.1	52
76	Plasmonic light trapping leads to responsivity increase in colloidal quantum dot photodetectors. <i>Applied Physics Letters</i> , 2012, 100, .	1.5	52
77	Regioselective magnetization in semiconducting nanorods. <i>Nature Nanotechnology</i> , 2020, 15, 192-197.	15.6	51
78	Enhanced Open-Circuit Voltage in Colloidal Quantum Dot Photovoltaics via Reactivity-Controlled Solution-Phase Ligand Exchange. <i>Advanced Materials</i> , 2017, 29, 1703627.	11.1	49
79	Nanostructured Back Reflectors for Efficient Colloidal Quantum-Dot Infrared Optoelectronics. <i>Advanced Materials</i> , 2019, 31, e1901745.	11.1	49
80	Orthogonal colloidal quantum dot inks enable efficient multilayer optoelectronic devices. <i>Nature Communications</i> , 2020, 11, 4814.	5.8	48
81	Stabilizing Surface Passivation Enables Stable Operation of Colloidal Quantum Dot Photovoltaic Devices at Maximum Power Point in an Air Ambient. <i>Advanced Materials</i> , 2020, 32, e1906497.	11.1	47
82	Micron Thick Colloidal Quantum Dot Solids. <i>Nano Letters</i> , 2020, 20, 5284-5291.	4.5	47
83	Nanoimprint-Transfer-Patterned Solids Enhance Light Absorption in Colloidal Quantum Dot Solar Cells. <i>Nano Letters</i> , 2017, 17, 2349-2353.	4.5	46
84	Ligand-Assisted Reconstruction of Colloidal Quantum Dots Decreases Trap State Density. <i>Nano Letters</i> , 2020, 20, 3694-3702.	4.5	46
85	Molecular Doping of the Hole-Transporting Layer for Efficient, Single-Step-Deposited Colloidal Quantum Dot Photovoltaics. <i>ACS Energy Letters</i> , 2017, 2, 1952-1959.	8.8	45
86	Ternary Alloys Enable Efficient Production of Methoxylated Chemicals via Selective Electrocatalytic Hydrogenation of Lignin Monomers. <i>Journal of the American Chemical Society</i> , 2021, 143, 17226-17235.	6.6	43
87	Pure Cubic-Phase Hybrid Iodobismuthates AgBi <sub>2</sub> I <sub>7</sub> for Thin-Film Photovoltaics. <i>Angewandte Chemie</i> , 2016, 128, 9738-9742.	1.6	42
88	Facet-Oriented Coupling Enables Fast and Sensitive Colloidal Quantum Dot Photodetectors. <i>Advanced Materials</i> , 2021, 33, e2101056.	11.1	42
89	Enhanced Solar-to-Hydrogen Generation with Broadband Epsilon-Near-Zero Nanostructured Photocatalysts. <i>Advanced Materials</i> , 2017, 29, 1701165.	11.1	39
90	Tailoring the Electronic Properties of Colloidal Quantum Dots in Metal-Semiconductor Nanocomposites for High Performance Photodetectors. <i>Small</i> , 2015, 11, 2636-2641.	5.2	35

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91	Halide Re-Shelled Quantum Dot Inks for Infrared Photovoltaics. ACS Applied Materials & Interfaces, 2017, 9, 37536-37541.	4.0	35
92	Solution-Processed In <sub>2</sub> O <sub>3</sub> /ZnO Heterojunction Electron Transport Layers for Efficient Organic Bulk Heterojunction and Inorganic Colloidal Quantum Dot Solar Cells. Solar Rrl, 2018, 2, 1800076.	3.1	34
93	Ligand Exchange at a Covalent Surface Enables Balanced Stoichiometry in III-V Colloidal Quantum Dots. Nano Letters, 2021, 21, 6057-6063.	4.5	34
94	Fast Near-Infrared Photodetection Using III-V Colloidal Quantum Dots. Advanced Materials, 2022, 34, .	11.1	34
95	Molecular interfaces for plasmonic hot electron photovoltaics. Nanoscale, 2015, 7, 2281-2288.	2.8	33
96	Control Over Ligand Exchange Reactivity in Hole Transport Layer Enables High-Efficiency Colloidal Quantum Dot Solar Cells. ACS Energy Letters, 2021, 6, 468-476.	8.8	32
97	Optical Resonance Engineering for Infrared Colloidal Quantum Dot Photovoltaics. ACS Energy Letters, 2016, 1, 852-857.	8.8	27
98	Absorption Enhancement in Solution Processed Metal-Semiconductor Nanocomposites. Optics Express, 2011, 19, 21038.	1.7	24
99	Spatial Collection in Colloidal Quantum Dot Solar Cells. Advanced Functional Materials, 2020, 30, 1908200.	7.8	24
100	Efficient and Stable Colloidal Quantum Dot Solar Cells with a Green-Solvent Hole-Transport Layer. Advanced Energy Materials, 2020, 10, 2002084.	10.2	23
101	Colloidal Quantum Dot Bulk Heterojunction Solids with Near-Unity Charge Extraction Efficiency. Advanced Science, 2020, 7, 2000894.	5.6	22
102	A Highly Sensitive Pyroresistive All-Organic Infrared Bolometer. Advanced Electronic Materials, 2015, 1, 1500090.	2.6	21
103	Infrared Cavity-Enhanced Colloidal Quantum Dot Photovoltaics Employing Asymmetric Multilayer Electrodes. ACS Energy Letters, 2018, 3, 2908-2913.	8.8	20
104	Electrical effects of metal nanoparticles embedded in ultra-thin colloidal quantum dot films. Applied Physics Letters, 2012, 101, 041103.	1.5	19
105	Low-Temperature-Processed Colloidal Quantum Dots as Building Blocks for Thermoelectrics. Advanced Energy Materials, 2019, 9, 1803049.	10.2	19
106	Gold Adparticles on Silver Combine Low Overpotential and High Selectivity in Electrochemical CO <sub>2</sub> Conversion. ACS Applied Energy Materials, 2021, 4, 7504-7512.	2.5	18
107	Colloidal-quantum-dot-in-perovskite nanowires. Infrared Physics and Technology, 2019, 98, 16-22.	1.3	16
108	Monolithic Organic/Colloidal Quantum Dot Hybrid Tandem Solar Cells via Buffer Engineering. Advanced Materials, 2020, 32, e2004657.	11.1	16

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109	Metal-insulator-semiconductor heterostructures for plasmonic hot-carrier optoelectronics. <i>Optics Express</i> , 2015, 23, 14715.	1.7	15
110	Colloidal Quantum Dot Solar Cell Band Alignment using Two-Step Ionic Doping. , 2020, 2, 1583-1589.		15
111	Suppression of Auger Recombination by Gradient Alloying in InAs/CdSe/CdS QDs. <i>Chemistry of Materials</i> , 2020, 32, 7703-7709.	3.2	15
112	Concentrated Ethanol Electrosynthesis from CO <sub>2</sub> via a Porous Hydrophobic Adlayer. <i>ACS Applied Materials &amp; Interfaces</i> , 2022, 14, 4155-4162.	4.0	15
113	Colloidal Quantum Dot Photovoltaics Using Ultrathin, Solution-Processed Bilayer In <sub>2</sub> O <sub>3</sub> /ZnO Electron Transport Layers with Improved Stability. <i>ACS Applied Energy Materials</i> , 2020, 3, 5135-5141.	2.5	13
114	Single-Precursor Intermediate Shelling Enables Bright, Narrow Line Width InAs/InZnP-Based QD Emitters. <i>Chemistry of Materials</i> , 2020, 32, 2919-2925.	3.2	13
115	Accelerated solution-phase exchanges minimize defects in colloidal quantum dot solids. <i>Nano Energy</i> , 2019, 63, 103876.	8.2	12
116	Highly Passivated n-Type Colloidal Quantum Dots for Solution-Processed Thermoelectric Generators with Large Output Voltage. <i>Advanced Energy Materials</i> , 2019, 9, 1901244.	10.2	12
117	Band-aligned C <sub>3</sub> N <sub>4</sub> ·xS <sub>3/2</sub> stabilizes CdS/CuInGaS <sub>2</sub> photocathodes for efficient water reduction. <i>Journal of Materials Chemistry A</i> , 2017, 5, 3167-3171.	5.2	9
118	Gradient-Doped Colloidal Quantum Dot Solids Enable Thermophotovoltaic Harvesting of Waste Heat. <i>ACS Energy Letters</i> , 2016, 1, 740-746.	8.8	8
119	InP-Quantum-Dot-in-ZnS-Matrix Solids for Thermal and Air Stability. <i>Chemistry of Materials</i> , 2020, 32, 9584-9590.	3.2	8
120	Self-Aligned Non-Centrosymmetric Conjugated Molecules Enable Electro-Optic Perovskites. <i>Advanced Optical Materials</i> , 0, , 2100730.	3.6	6
121	Perovskite nanowires find an edge. <i>Nature Electronics</i> , 2018, 1, 380-381.	13.1	5
122	Solar Cells: Overcoming the Ambient Manufacturability-Scalability-Performance Bottleneck in Colloidal Quantum Dot Photovoltaics ( <i>Adv. Mater.</i> 35/2018). <i>Advanced Materials</i> , 2018, 30, 1870260.	11.1	3
123	Dopant-Assisted Matrix Stabilization Enables Thermoelectric Performance Enhancement in n-Type Quantum Dot Films. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 18999-19007.	4.0	3
124	Solution-processed nanomaterials for advanced optoelectronic and energy applications. , 2017, , .		0
125	III-V Semiconductor Quantum Dots for Infrared Photodetection. , 0, , .		0