# Hairen Tan

## List of Publications by Citations



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|---|---|---|---|
| 96 papers | 10,080 citations | 41 h-index | 100 g-index |
| 104 ext. papers | 12,345 ext. citations | 15 avg, IF | 6.27 L-index |

| # | Paper | IF | Citations |
|---|---|---|---|
| 96 | Efficient and stable solution-processed planar perovskite solar cells via contact passivation. *Science*, **2017**, 355, 722-726 | 33.3 | 1667 |
| 95 | Challenges for commercializing perovskite solar cells. *Science*, **2018**, 361, | 33.3 | 853 |
| 94 | Ultra-bright and highly efficient inorganic based perovskite light-emitting diodes. *Nature Communications*, **2017**, 8, 15640 | 17.4 | 557 |
| 93 | Monolithic all-perovskite tandem solar cells with 24.8% efficiency exploiting comproportionation to suppress Sn(ii) oxidation in precursor ink. *Nature Energy*, **2019**, 4, 864-873 | 62.3 | 463 |
| 92 | Color-stable highly luminescent sky-blue perovskite light-emitting diodes. *Nature Communications*, **2018**, 9, 3541 | 17.4 | 370 |
| 91 | Suppression of atomic vacancies via incorporation of isovalent small ions to increase the stability of halide perovskite solar cells in ambient air. *Nature Energy*, **2018**, 3, 648-654 | 62.3 | 355 |
| 90 | Plasmonic light trapping in thin-film silicon solar cells with improved self-assembled silver nanoparticles. *Nano Letters*, **2012**, 12, 4070-6 | 11.5 | 347 |
| 89 | Tailoring the Energy Landscape in Quasi-2D Halide Perovskites Enables Efficient Green-Light Emission. *Nano Letters*, **2017**, 17, 3701-3709 | 11.5 | 309 |
| 88 | Plasmonic polymer tandem solar cell. *ACS Nano*, **2011**, 5, 6210-7 | 16.7 | 304 |
| 87 | 10.6% Certified Colloidal Quantum Dot Solar Cells via Solvent-Polarity-Engineered Halide Passivation. *Nano Letters*, **2016**, 16, 4630-4 | 11.5 | 275 |
| 86 | Thermal unequilibrium of strained black CsPbI thin films. *Science*, **2019**, 365, 679-684 | 33.3 | 272 |
| 85 | All-perovskite tandem solar cells with 24.2% certified efficiency and area over 1 cm2 using surface-anchoring zwitterionic antioxidant. *Nature Energy*, **2020**, 5, 870-880 | 62.3 | 233 |
| 84 | Perovskite seeding growth of formamidinium-lead-iodide-based perovskites for efficient and stable solar cells. *Nature Communications*, **2018**, 9, 1607 | 17.4 | 218 |
| 83 | Synthetic Control over Quantum Well Width Distribution and Carrier Migration in Low-Dimensional Perovskite Photovoltaics. *Journal of the American Chemical Society*, **2018**, 140, 2890-2896 | 16.4 | 211 |
| 82 | Copper nanocavities confine intermediates for efficient electrosynthesis of C3 alcohol fuels from carbon monoxide. *Nature Catalysis*, **2018**, 1, 946-951 | 36.5 | 205 |
| 81 | 2D matrix engineering for homogeneous quantum dot coupling in photovoltaic solids. *Nature Nanotechnology*, **2018**, 13, 456-462 | 28.7 | 196 |
| 80 | Simultaneous Contact and Grain-Boundary Passivation in Planar Perovskite Solar Cells Using SnO2-KCl Composite Electron Transport Layer. *Advanced Energy Materials*, **2020**, 10, 1903083 | 21.8 | 178 |

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| 79 | Dipolar cations confer defect tolerance in wide-bandgap metal halide perovskites. *Nature Communications*, **2018**, 9, 3100 | 17.4 | 171 |
| 78 | Copper-on-nitride enhances the stable electrosynthesis of multi-carbon products from CO. *Nature Communications*, **2018**, 9, 3828 | 17.4 | 164 |
| 77 | Lattice anchoring stabilizes solution-processed semiconductors. *Nature*, **2019**, 570, 96-101 | 50.4 | 149 |
| 76 | In Situ Back-Contact Passivation Improves Photovoltage and Fill Factor in Perovskite Solar Cells. *Advanced Materials*, **2019**, 31, e1807435 | 24 | 112 |
| 75 | All-perovskite tandem solar cells with improved grain surface passivation.. *Nature*, **2022**, | 50.4 | 112 |
| 74 | Chemically Addressable Perovskite Nanocrystals for Light-Emitting Applications. *Advanced Materials*, **2017**, 29, 1701153 | 24 | 106 |
| 73 | Tin and Mixed Lead-Tin Halide Perovskite Solar Cells: Progress and their Application in Tandem Solar Cells. *Advanced Materials*, **2020**, 32, e1907392 | 24 | 97 |
| 72 | Combining Efficiency and Stability in Mixed Tin-Lead Perovskite Solar Cells by Capping Grains with an Ultrathin 2D Layer. *Advanced Materials*, **2020**, 32, e1907058 | 24 | 92 |
| 71 | CsPb(I Br1)3 solar cells. *Science Bulletin*, **2019**, 64, 1532-1539 | 10.6 | 92 |
| 70 | Suppressed Ion Migration in Reduced-Dimensional Perovskites Improves Operating Stability. *ACS Energy Letters*, **2019**, 4, 1521-1527 | 20.1 | 89 |
| 69 | Mobile-Ion-Induced Degradation of Organic Hole-Selective Layers in Perovskite Solar Cells. *Journal of Physical Chemistry C*, **2017**, 121, 14517-14523 | 3.8 | 83 |
| 68 | Edge stabilization in reduced-dimensional perovskites. *Nature Communications*, **2020**, 11, 170 | 17.4 | 79 |
| 67 | The Main Progress of Perovskite Solar Cells in 2020-2021. *Nano-Micro Letters*, **2021**, 13, 152 | 19.5 | 78 |
| 66 | Ultrasensitive and stable X-ray detection using zero-dimensional lead-free perovskites. *Journal of Energy Chemistry*, **2020**, 49, 299-306 | 12 | 75 |
| 65 | Improved electroluminescence from n-ZnO/AlN/p-GaN heterojunction light-emitting diodes. *Applied Physics Letters*, **2010**, 96, 201102 | 3.4 | 75 |
| 64 | Wide bandgap p-type nanocrystalline silicon oxide as window layer for high performance thin-film silicon multi-junction solar cells. *Solar Energy Materials and Solar Cells*, **2015**, 132, 597-605 | 6.4 | 66 |
| 63 | Electroluminescence behavior of ZnO/Si heterojunctions: Energy band alignment and interfacial microstructure. *Journal of Applied Physics*, **2010**, 107, 083701 | 2.5 | 66 |
| 62 | Amide-Catalyzed Phase-Selective Crystallization Reduces Defect Density in Wide-Bandgap Perovskites. *Advanced Materials*, **2018**, 30, e1706275 | 24 | 62 |

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| 61 | Pseudohalide-Exchanged Quantum Dot Solids Achieve Record Quantum Efficiency in Infrared Photovoltaics. *Advanced Materials*, **2017**, 29, 1700749 | 24 | 61 |
| 60 | A 2.16 eV bandgap polymer donor gives 16% power conversion efficiency. *Science Bulletin*, **2020**, 65, 179-181 | 10.6 | 61 |
| 59 | Photo-oxidative degradation of methylammonium lead iodide perovskite: mechanism and protection. *Journal of Materials Chemistry A*, **2019**, 7, 2275-2282 | 13 | 60 |
| 58 | Micro-textures for efficient light trapping and improved electrical performance in thin-film nanocrystalline silicon solar cells. *Applied Physics Letters*, **2013**, 103, 173905 | 3.4 | 58 |
| 57 | Improved light trapping in microcrystalline silicon solar cells by plasmonic back reflector with broad angular scattering and low parasitic absorption. *Applied Physics Letters*, **2013**, 102, 153902 | 3.4 | 50 |
| 56 | Low-temperature processed inorganic hole transport layer for efficient and stable mixed Pb-Sn low-bandgap perovskite solar cells. *Science Bulletin*, **2019**, 64, 1399-1401 | 10.6 | 42 |
| 55 | Controllable growth of highly ordered ZnO nanorod arrays via inverted self-assembled monolayer template. *ACS Applied Materials & Interfaces*, **2011**, 3, 4388-95 | 9.5 | 41 |
| 54 | Highly transparent modulated surface textured front electrodes for high-efficiency multijunction thin-film silicon solar cells. *Progress in Photovoltaics: Research and Applications*, **2015**, 23, 949-963 | 6.8 | 40 |
| 53 | Synergistic Tandem Solar Electricity-Water Generators. *Joule*, **2020**, 4, 347-358 | 27.8 | 40 |
| 52 | Nanoimprint-Transfer-Patterned Solids Enhance Light Absorption in Colloidal Quantum Dot Solar Cells. *Nano Letters*, **2017**, 17, 2349-2353 | 11.5 | 39 |
| 51 | Quadruple-junction thin-film silicon-based solar cells with high open-circuit voltage. *Applied Physics Letters*, **2014**, 105, 063902 | 3.4 | 39 |
| 50 | Electrical transport properties of the Si-doped cubic boron nitride thin films prepared by in situ cosputtering. *Journal of Applied Physics*, **2011**, 109, 023716 | 2.5 | 39 |
| 49 | Multibandgap quantum dot ensembles for solar-matched infrared energy harvesting. *Nature Communications*, **2018**, 9, 4003 | 17.4 | 39 |
| 48 | Efficient and Stable Thin-Film Luminescent Solar Concentrators Enabled by Near-Infrared Emission Perovskite Nanocrystals. *Angewandte Chemie - International Edition*, **2020**, 59, 7738-7742 | 16.4 | 35 |
| 47 | Highly Efficient Hybrid Polymer and Amorphous Silicon Multijunction Solar Cells with Effective Optical Management. *Advanced Materials*, **2016**, 28, 2170-7 | 24 | 34 |
| 46 | Anchored Ligands Facilitate Efficient B-Site Doping in Metal Halide Perovskites. *Journal of the American Chemical Society*, **2019**, 141, 8296-8305 | 16.4 | 32 |
| 45 | Modeling and analyses of energy performances of photovoltaic greenhouses with sun-tracking functionality. *Applied Energy*, **2019**, 233-234, 424-442 | 10.7 | 32 |
| 44 | Solution-Processed Monolithic All-Perovskite Triple-Junction Solar Cells with Efficiency Exceeding 20%. *ACS Energy Letters*, **2020**, 5, 2819-2826 | 20.1 | 30 |

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| 43 | Plasmon enhanced polymer solar cells by spin-coating Au nanoparticles on indium-tin-oxide substrate. *Applied Physics Letters*, **2012**, 101, 133903 | 3.4 | 27 |
| 42 | A thin-film silicon based photocathode with a hydrogen doped TiO2 protection layer for solar hydrogen evolution. *Journal of Materials Chemistry A*, **2016**, 4, 16841-16848 | 13 | 26 |
| 41 | Precise Control of Thermal and Redox Properties of Organic Hole-Transport Materials. *Angewandte Chemie - International Edition*, **2018**, 57, 15529-15533 | 16.4 | 26 |
| 40 | Combined Optical and Electrical Design of Plasmonic Back Reflector for High-Efficiency Thin-Film Silicon Solar Cells. *IEEE Journal of Photovoltaics*, **2013**, 3, 53-58 | 3.7 | 23 |
| 39 | Perovskite-based tandem solar cells. *Science Bulletin*, **2021**, 66, 621-636 | 10.6 | 23 |
| 38 | Plasmonic Nanoparticle Films for Solar Cell Applications Fabricated by Size-selective Aerosol Deposition. *Energy Procedia*, **2014**, 60, 3-12 | 2.3 | 22 |
| 37 | Compound Homojunction:Heterojunction Reduces Bulk and Interface Recombination in ZnO Photoanodes for Water Splitting. *Small*, **2017**, 13, 1603527 | 11 | 21 |
| 36 | A photovoltaic window with sun-tracking shading elements towards maximum power generation and non-glare daylighting. *Applied Energy*, **2018**, 228, 1454-1472 | 10.7 | 21 |
| 35 | Modulated surface textured glass as substrate for high efficiency microcrystalline silicon solar cells. *Solar Energy Materials and Solar Cells*, **2015**, 133, 156-162 | 6.4 | 19 |
| 34 | Enhancing the driving field for plasmonic nanoparticles in thin-film solar cells. *Optics Express*, **2014**, 22 Suppl 4, A1023-8 | 3.3 | 19 |
| 33 | Optical Resonance Engineering for Infrared Colloidal Quantum Dot Photovoltaics. *ACS Energy Letters*, **2016**, 1, 852-857 | 20.1 | 19 |
| 32 | High pressure processing of hydrogenated amorphous silicon solar cells: Relation between nanostructure and high open-circuit voltage. *Applied Physics Letters*, **2015**, 106, 043905 | 3.4 | 18 |
| 31 | Simultaneously enhanced moisture tolerance and defect passivation of perovskite solar cells with cross-linked grain encapsulation. *Journal of Energy Chemistry*, **2021**, 56, 455-462 | 12 | 18 |
| 30 | Scalable processing for realizing 21.7%-efficient all-perovskite tandem solar modules.. *Science*, **2022**, 376, 762-767 | 33.3 | 18 |
| 29 | An Ultra-low Concentration of Gold Nanoparticles Embedded in the NiO Hole Transport Layer Boosts the Performance of p-i-n Perovskite Solar Cells. *Solar Rrl*, **2018**, 3, 1800278 | 7.1 | 17 |
| 28 | A thin-film silicon/silicon hetero-junction hybrid solar cell for photoelectrochemical water-reduction applications. *Solar Energy Materials and Solar Cells*, **2016**, 150, 82-87 | 6.4 | 15 |
| 27 | Toward stable and efficient Sn-containing perovskite solar cells. *Science Bulletin*, **2020**, 65, 786-790 | 10.6 | 14 |
| 26 | Highly conductive Al-doped tetra-needle-like ZnO whiskers prepared by a solid state method. *Materials Science and Engineering B: Solid-State Materials for Advanced Technology*, **2008**, 150, 203-207 | 3.1 | 14 |

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| 25 | Electrical bistability and negative differential resistance in diodes based on silver nanoparticle-poly(N-vinylcarbazole) composites. *Journal of Applied Physics*, **2010**, 108, 094320 | 2.5 | 13 |
| 24 | Comparison and combination of several stress relief methods for cubic boron nitride films deposited by ion beam assisted deposition. *Surface and Coatings Technology*, **2009**, 203, 1452-1456 | 4.4 | 12 |
| 23 | Dual Coordination of Ti and Pb Using Bilinkable Ligands Improves Perovskite Solar Cell Performance and Stability. *Advanced Functional Materials*, **2020**, 30, 2005155 | 15.6 | 11 |
| 22 | Record Photocurrent Density over 26 mA cm⁻² in Planar Perovskite Solar Cells Enabled by Antireflective Cascaded Electron Transport Layer. *Solar Rrl*, **2020**, 4, 2000169 | 7.1 | 11 |
| 21 | Effects of silicon incorporation on composition, structure and electric conductivity of cubic boron nitride thin films. *Diamond and Related Materials*, **2010**, 19, 1371-1376 | 3.5 | 10 |
| 20 | Recent progress in developing efficient monolithic all-perovskite tandem solar cells. *Journal of Semiconductors*, **2020**, 41, 051201 | 2.3 | 10 |
| 19 | Identification of the physical origin behind disorder, heterogeneity, and reconstruction and their correlation with the photoluminescence lifetime in hybrid perovskite thin films. *Journal of Materials Chemistry A*, **2017**, 5, 21002-21015 | 13 | 9 |
| 18 | Performance improvement of conjugated polymer and ZnO hybrid solar cells using nickel oxide as anode buffer layer. *Physica Status Solidi (A) Applications and Materials Science*, **2011**, 208, 2865-2870 | 1.6 | 9 |
| 17 | Thermally Stable All-Perovskite Tandem Solar Cells Fully Using Metal Oxide Charge Transport Layers and Tunnel Junction. *Solar Rrl*, **2021**, 5, 2100814 | 7.1 | 9 |
| 16 | Precise Control of Thermal and Redox Properties of Organic Hole-Transport Materials. *Angewandte Chemie*, **2018**, 130, 15755-15759 | 3.6 | 7 |
| 15 | Steric Engineering Enables Efficient and Photostable wide-bandgap Perovskites for all-perovskite Tandem Solar Cells.. *Advanced Materials*, **2022**, e2110356 | 24 | 7 |
| 14 | Chemical Stability and Performance of Doped Silicon Oxide Layers for Use in Thin-Film Silicon Solar Cells. *IEEE Journal of Photovoltaics*, **2019**, 9, 3-11 | 3.7 | 6 |
| 13 | Quadruple-Junction Thin-Film Silicon Solar Cells Using Four Different Absorber Materials. *Solar Rrl*, **2017**, 1, 1700036 | 7.1 | 5 |
| 12 | Conductive layer protected and oxide catalyst-coated thin-film silicon solar cell as an efficient photoanode. *Catalysis Science and Technology*, **2017**, 7, 5608-5613 | 5.5 | 4 |
| 11 | Efficient and Stable Thin-Film Luminescent Solar Concentrators Enabled by Near-Infrared Emission Perovskite Nanocrystals. *Angewandte Chemie*, **2020**, 132, 7812-7816 | 3.6 | 4 |
| 10 | Cross-linked hole transport layers for high-efficiency perovskite tandem solar cells. *Science China Chemistry*, **2021**, 64, 2025 | 7.9 | 4 |
| 9 | Efficient and Stable Wide-Bandgap Perovskite Solar Cells Derived from a Thermodynamic Phase-Pure Intermediate. *Solar Rrl*, **2022**, 6, 2100906 | 7.1 | 4 |
| 8 | Polystyrene-microsphere-assisted patterning of ZnO nanostructures: growth and characterization. *Journal of Nanoscience and Nanotechnology*, **2013**, 13, 1101-5 | 1.3 | 3 |

# List of Publications

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|---|---|---|---|
| 7 | Towards Lambertian internal light scattering in solar cells using coupled plasmonic and dielectric nanoparticles as back reflector **2013**, | | 2 |
| 6 | Plasmonic Solar Cells with Embedded Silver Nanoparticles from Vapor Condensation. *Materials Research Society Symposia Proceedings*, **2012**, 1391, 52 | | 2 |
| 5 | Polymer-Supported Liquid Layer Electrolyzer Enabled Electrochemical CO Reduction to CO with High Energy Efficiency. *ChemistryOpen*, **2021**, 10, 639-644 | 2.3 | 2 |
| 4 | Vapor treatment enables efficient and stable FAPbI3 perovskite solar cells. *Science China Chemistry*, **2021**, 64, 5-6 | 7.9 | 2 |
| 3 | Decarboxylative tandem C-N coupling with nitroarenes via S2 mechanism.. *Nature Communications*, **2022**, 13, 2432 | 17.4 | 2 |
| 2 | Photonics for enhanced perovskite optoelectronics. *Nanophotonics*, **2021**, 10, 1941-1942 | 6.3 | 1 |
| 1 | Enhancement of ZnO ultraviolet emission by surface plasmon coupling using a rough NiSi2layer synthesized by ion implantation. *Journal of Semiconductors*, **2011**, 32, 102002 | 2.3 | |