

# Charles Patrick Collier

## List of Publications by Year in descending order

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113  
papers

10,799  
citations

87888

38  
h-index

30087

103  
g-index

129  
all docs

129  
docs citations

129  
times ranked

9253  
citing authors

| #  | ARTICLE   | IF   | CITATIONS |
|----|---|------|-----------|
| 1  | Electronically Configurable Molecular-Based Logic Gates. <i>Science</i> , 1999, 285, 391-394.   | 12.6 | 1,474     |
| 2  | A [2]Catenane-Based Solid State Electronically Reconfigurable Switch. <i>Science</i> , 2000, 289, 1172-1175.  | 12.6 | 1,326     |
| 3  | Reversible Tuning of Silver Quantum Dot Monolayers Through the Metal-Insulator Transition. <i>Science</i> , 1997, 277, 1978-1981.   | 12.6 | 814       |
| 4  | Switching Devices Based on Interlocked Molecules. <i>Accounts of Chemical Research</i> , 2001, 34, 433-444.   | 15.6 | 770       |
| 5  | NANOCRYSTAL SUPERLATTICES. <i>Annual Review of Physical Chemistry</i> , 1998, 49, 371-404.  | 10.8 | 687       |
| 6  | Two-Dimensional Molecular Electronics Circuits. <i>ChemPhysChem</i> , 2002, 3, 519-525.   | 2.1  | 520       |
| 7  | Delayed Frost Growth on Jumping-Drop Superhydrophobic Surfaces. <i>ACS Nano</i> , 2013, 7, 1618-1627.   | 14.6 | 485       |
| 8  | Architectonic Quantum Dot Solids. <i>Accounts of Chemical Research</i> , 1999, 32, 415-423.   | 15.6 | 349       |
| 9  | Molecular-Based Electronically Switchable Tunnel Junction Devices. <i>Journal of the American Chemical Society</i> , 2001, 123, 12632-12641.                                  | 13.7 | 294       |
| 10 | Direct Measurement of Water Cluster Concentrations by Infrared Cavity Ringdown Laser Absorption Spectroscopy. <i>Journal of Physical Chemistry A</i> , 1997, 101, 5211-5214.  | 2.5  | 218       |
| 11 | Tuning Superhydrophobic Nanostructures To Enhance Jumping-Droplet Condensation. <i>ACS Nano</i> , 2017, 11, 8499-8510.  | 14.6 | 185       |
| 12 | Noncovalent Functionalization of Single-Walled Carbon Nanotubes with Water-Soluble Porphyrins. <i>Journal of Physical Chemistry B</i> , 2005, 109, 7605-7609.                 | 2.6  | 180       |
| 13 | Fabrication and Transport Properties of Single-Molecule-Thick Electrochemical Junctions. <i>Journal of the American Chemical Society</i> , 2000, 122, 5831-5840.              | 13.7 | 167       |
| 14 | Dynamic Defrosting on Nanostructured Superhydrophobic Surfaces. <i>Langmuir</i> , 2013, 29, 9516-9524.  | 3.5  | 158       |
| 15 | Reversible Metal-Insulator Transition in Ordered Metal Nanocrystal Monolayers Observed by Impedance Spectroscopy. <i>Physical Review Letters</i> , 1998, 80, 3807-3810.       | 7.8  | 140       |
| 16 | Electrowetting in Carbon Nanotubes. <i>Science</i> , 2005, 310, 1480-1483.  | 12.6 | 126       |
| 17 | Air-stable droplet interface bilayers on oil-infused surfaces. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 7588-7593. | 7.1  | 125       |
| 18 | Controlling condensation and frost growth with chemical micropatterns. <i>Scientific Reports</i> , 2016, 6, 19131.  | 3.3  | 111       |

| #  | ARTICLE  | IF   | CITATIONS |
|----|--|------|-----------|
| 19 | Memristive Ion Channel-Doped Biomembranes as Synaptic Mimics. ACS Nano, 2018, 12, 4702-4711.   | 14.6 | 107       |
| 20 | Infrared cavity ringdown laser absorption spectroscopy (IR-CRLAS). Chemical Physics Letters, 1995, 245, 273-280.   | 2.6  | 106       |
| 21 | Dip-Pen Nanolithography of Reactive Alkoxysilanes on Glass. Journal of the American Chemical Society, 2003, 125, 12096-12097.  | 13.7 | 104       |
| 22 | Cooperative Phenomena in Artificial Solids Made from Silver Quantum Dots: The Importance of Classical Coupling. Journal of Physical Chemistry B, 1998, 102, 3425-3430.                 | 2.6  | 103       |
| 23 | Self-propelled sweeping removal of dropwise condensate. Applied Physics Letters, 2015, 106, .  | 3.3  | 95        |
| 24 | Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet-cooled copper silicides. Journal of Chemical Physics, 1995, 102, 5190-5199.                  | 3.0  | 93        |
| 25 | Direct in situ measurement of specific capacitance, monolayer tension, and bilayer tension in a droplet interface bilayer. Soft Matter, 2015, 11, 7592-7605.                           | 2.7  | 85        |
| 26 | Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet-cooled gold silicides. Journal of Chemical Physics, 1995, 103, 9187-9192.                    | 3.0  | 78        |
| 27 | Correlating AFM Probe Morphology to Image Resolution for Single-Wall Carbon Nanotube Tips. Nano Letters, 2004, 4, 725-731.   | 9.1  | 73        |
| 28 | Asymmetric Wettability of Nanostructures Directs Leidenfrost Droplets. ACS Nano, 2014, 8, 860-867.   | 14.6 | 72        |
| 29 | The Dielectric Function of Silver Nanoparticle Langmuir Monolayers Compressed through the Metal Insulator Transition. Journal of the American Chemical Society, 2000, 122, 4077-4083.  | 13.7 | 63        |
| 30 | Passive Antifrosting Surfaces Using Microscopic Ice Patterns. ACS Applied Materials & Interfaces, 2018, 10, 32874-32884.   | 8.0  | 61        |
| 31 | Adsorption Kinetics Dictate Monolayer Self-Assembly for Both Lipid-In and Lipid-Out Approaches to Droplet Interface Bilayer Formation. Langmuir, 2015, 31, 12883-12893.                | 3.5  | 58        |
| 32 | Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet-cooled silver silicides. Journal of Chemical Physics, 1995, 103, 113-120.                    | 3.0  | 54        |
| 33 | Networks of Quantum Nanodots: The Role of Disorder in Modifying Electronic and Optical Properties. Journal of Physical Chemistry B, 1998, 102, 7727-7734.                              | 2.6  | 53        |
| 34 | Dynamical nonlinear memory capacitance in biomimetic membranes. Nature Communications, 2019, 10, 3239.   | 12.8 | 51        |
| 35 | Surfactant Activated Dip-Pen Nanolithography. Nano Letters, 2004, 4, 2171-2177.  | 9.1  | 48        |
| 36 | The transition from localized to collective electronic states in a silver quantum dots monolayer examined by nonlinear optical response. Chemical Physics Letters, 1998, 291, 453-458. | 2.6  | 46        |

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|----|---|-----|-----------|
| 37 | Nanoelectrode Scanning Probes from Fluorocarbon-Coated Single-Walled Carbon Nanotubes. <i>Nano Letters</i> , 2004, 4, 1873-1879.  | 9.1 | 45        |
| 38 | Probing Cell-Free Gene Expression Noise in Femtoliter Volumes. <i>ACS Synthetic Biology</i> , 2013, 2, 497-505.   | 3.8 | 42        |
| 39 | Dynamic Defrosting on Scalable Superhydrophobic Surfaces. <i>ACS Applied Materials &amp; Interfaces</i> , 2017, 9, 24308-24317.   | 8.0 | 42        |
| 40 | Dewetting Transitions on Superhydrophobic Surfaces: When Are Wenzel Drops Reversible?. <i>Journal of Physical Chemistry C</i> , 2013, 117, 18084-18090.   | 3.1 | 41        |
| 41 | Peptide-Induced Lipid Flip-Flop in Asymmetric Liposomes Measured by Small Angle Neutron Scattering. <i>Langmuir</i> , 2019, 35, 11735-11744.  | 3.5 | 41        |
| 42 | Hydrodynamic trapping for rapid assembly and in situ electrical characterization of droplet interface bilayer arrays. <i>Lab on A Chip</i> , 2016, 16, 3576-3588.   | 6.0 | 39        |
| 43 | Fast Mixing and Reaction Initiation Control of Single-Enzyme Kinetics in Confined Volumes. <i>Langmuir</i> , 2008, 24, 4439-4442.   | 3.5 | 38        |
| 44 | Monodisperse alginate microgel formation in a three-dimensional microfluidic droplet generator. <i>Biomicrofluidics</i> , 2012, 6, 44108.   | 2.4 | 38        |
| 45 | Influence of Elastic Deformation on Single-Wall Carbon Nanotube Atomic Force Microscopy Probe Resolution. <i>Journal of Physical Chemistry B</i> , 2004, 108, 13613-13618.  | 2.6 | 37        |
| 46 | Length scale of Leidenfrost ratchet switches droplet directionality. <i>Nanoscale</i> , 2014, 6, 9293-9299.   | 5.6 | 35        |
| 47 | Electrophysiological interrogation of asymmetric droplet interface bilayers reveals surface-bound alamethicin induces lipid flip-flop. <i>Biochimica Et Biophysica Acta - Biomembranes</i> , 2019, 1861, 335-343. | 2.6 | 35        |
| 48 | Macromolecular Crowding Induces Spatial Correlations That Control Gene Expression Bursting Patterns. <i>ACS Synthetic Biology</i> , 2018, 7, 1251-1258.   | 3.8 | 34        |
| 49 | Flexible approach to vibrational sum-frequency generation using shaped near-infrared light. <i>Optics Letters</i> , 2018, 43, 2038.   | 3.3 | 34        |
| 50 | Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet cooled platinum silicides. <i>Journal of Chemical Physics</i> , 1996, 104, 2782-2788.                                   | 3.0 | 31        |
| 51 | Resource Sharing Controls Gene Expression Bursting. <i>ACS Synthetic Biology</i> , 2017, 6, 334-343.  | 3.8 | 30        |
| 52 | Shear-Driven Redistribution of Surfactant Affects Enzyme Activity in Well-Mixed Femtoliter Droplets. <i>Analytical Chemistry</i> , 2009, 81, 4922-4928.   | 6.5 | 29        |
| 53 | On-demand generation of monodisperse femtolitre droplets by shape-induced shear. <i>Lab on A Chip</i> , 2010, 10, 2688.   | 6.0 | 29        |
| 54 | The Role of Microfilaments in Early Meiotic Maturation of Mouse Oocytes. <i>Microscopy and Microanalysis</i> , 2005, 11, 146-153.   | 0.4 | 28        |

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|----|--|------|-----------|
| 55 | Capacitive Detection of Low-Enthalpy, Higher-Order Phase Transitions in Synthetic and Natural Composition Lipid Membranes. <i>Langmuir</i> , 2017, 33, 10016-10026.  | 3.5  | 27        |
| 56 | Insight into the Mechanisms Driving the Self-Assembly of Functional Interfaces: Moving from Lipids to Charged Amphiphilic Oligomers. <i>Journal of the American Chemical Society</i> , 2020, 142, 290-299. | 13.7 | 27        |
| 57 | Mechanisms of Single-Walled Carbon Nanotube Probe Sample Multistability in Tapping Mode AFM Imaging. <i>Journal of Physical Chemistry B</i> , 2005, 109, 11493-11500.                                      | 2.6  | 25        |
| 58 | Amplitude Response of Single-Wall Carbon Nanotube Probes during Tapping Mode Atomic Force Microscopy: Modeling and Experiment. <i>Nano Letters</i> , 2006, 6, 1669-1673.                                   | 9.1  | 25        |
| 59 | Deciphering Melatonin-Stabilized Phase Separation in Phospholipid Bilayers. <i>Langmuir</i> , 2019, 35, 12236-12245.   | 3.5  | 25        |
| 60 | Two-Component Membrane Lithography via Lipid Backfilling. <i>ChemPhysChem</i> , 2005, 6, 423-426.  | 2.1  | 24        |
| 61 | Aqueous two-phase microdroplets with reversible phase transitions. <i>Lab on A Chip</i> , 2013, 13, 1295.  | 6.0  | 23        |
| 62 | Evaporation-Induced Buckling and Fission of Microscale Droplet Interface Bilayers. <i>Journal of the American Chemical Society</i> , 2013, 135, 5545-5548.   | 13.7 | 23        |
| 63 | Dynamic morphologies of microscale droplet interface bilayers. <i>Soft Matter</i> , 2014, 10, 2530.  | 2.7  | 23        |
| 64 | Nanopencil as a wear-tolerant probe for ultrahigh density data storage. <i>Applied Physics Letters</i> , 2008, 93, .   | 3.3  | 22        |
| 65 | A Comparison of Single-Molecule Emission in Aluminum and Gold Zero-Mode Waveguides. <i>Journal of Physical Chemistry A</i> , 2016, 120, 6719-6727.   | 2.5  | 22        |
| 66 | Evaporation-induced monolayer compression improves droplet interface bilayer formation using unsaturated lipids. <i>Biomicrofluidics</i> , 2018, 12, 024101.   | 2.4  | 21        |
| 67 | Single-molecule mobility in confined and crowded femtolitre chambers. <i>Lab on A Chip</i> , 2013, 13, 877.  | 6.0  | 18        |
| 68 | Positive and Negative Contrast Lithography on Silver Quantum Dot Monolayers. <i>Journal of Physical Chemistry B</i> , 1999, 103, 3524-3528.  | 2.6  | 17        |
| 69 | Fully inverted single-digit nanometer domains in ferroelectric films. <i>Applied Physics Letters</i> , 2010, 96, .   | 3.3  | 17        |
| 70 | On the ground electronic states of copper silicide and its ions. <i>Journal of Chemical Physics</i> , 1998, 108, 5728-5732.  | 3.0  | 16        |
| 71 | Length Scale Selects Directionality of Droplets on Vibrating Pillar Ratchet. <i>Advanced Materials Interfaces</i> , 2014, 1, 1400337.  | 3.7  | 16        |
| 72 | Micro/nanofabricated environments for synthetic biology. <i>Current Opinion in Biotechnology</i> , 2011, 22, 516-526.  | 6.6  | 15        |

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|----|--|------|-----------|
| 73 | Droplet Evaporation on Hot Micro-Structured Superhydrophobic Surfaces: Analysis of Evaporation from Droplet Cap and Base Surfaces. <i>International Journal of Heat and Mass Transfer</i> , 2022, 185, 122314.                   | 4.8  | 15        |
| 74 | Biomimetic, Soft-Material Synapse for Neuromorphic Computing: from Device to Network. , 2018, , .  |      | 14        |
| 75 | Loss of carotenoids from membranes of <i>Pantoea</i> sp. YR343 results in altered lipid composition and changes in membrane biophysical properties. <i>Biochimica Et Biophysica Acta - Biomembranes</i> , 2019, 1861, 1338-1345. | 2.6  | 14        |
| 76 | Self-Stabilizing Transpiration in Synthetic Leaves. <i>ACS Applied Materials &amp; Interfaces</i> , 2019, 11, 13768-13776.   | 8.0  | 14        |
| 77 | The Structure of a Tetraazapentacene Molecular Monolayer. <i>Journal of Physical Chemistry B</i> , 2002, 106, 1833-1839.   | 2.6  | 13        |
| 78 | Photochemical Response of Electronically Reconfigurable Molecule-Based Switching Tunnel Junctions. <i>ChemPhysChem</i> , 2002, 3, 458.   | 2.1  | 13        |
| 79 | The effect of retinal pigment epithelial cell patch size on growth factor expression. <i>Biomaterials</i> , 2014, 35, 3999-4004.   | 11.4 | 13        |
| 80 | Evaporation of squeezed water droplets between two parallel hydrophobic/superhydrophobic surfaces. <i>Journal of Colloid and Interface Science</i> , 2020, 576, 127-138.   | 9.4  | 13        |
| 81 | Ion Pairing Mediates Molecular Organization Across Liquid/Liquid Interfaces. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 33734-33743.  | 8.0  | 13        |
| 82 | Ion Pairing and Molecular Orientation at Liquid/Liquid Interfaces: Self-Assembly and Function. <i>Journal of Physical Chemistry B</i> , 2022, 126, 2316-2323.  | 2.6  | 12        |
| 83 | High Aspect Ratio Silicon Dioxide-Coated Single-Walled Carbon Nanotube Scanning Probe Nanoelectrodes. <i>Journal of Physical Chemistry C</i> , 2009, 113, 6815-6820.   | 3.1  | 10        |
| 84 | Interfacial tension controlled fusion of individual femtolitre droplets and triggering of confined chemical reactions on demand. <i>Lab on A Chip</i> , 2010, 10, 3373.  | 6.0  | 9         |
| 85 | Real-Time Sensing of Single-Ligand Delivery with Nanoaperture-Integrated Microfluidic Devices. <i>ACS Omega</i> , 2017, 2, 3858-3867.  | 3.5  | 9         |
| 86 | Disentangling Memristive and Memcapacitive Effects in Droplet Interface Bilayers Using Dynamic Impedance Spectroscopy. <i>Advanced Electronic Materials</i> , 2022, 8, .   | 5.1  | 9         |
| 87 | Control of Membrane Permeability in Air-Stable Droplet Interface Bilayers. <i>Langmuir</i> , 2015, 31, 4224-4231.  | 3.5  | 8         |
| 88 | Photoluminescence Enhancement, Blinking Suppression, and Improved Biexciton Quantum Yield of Single Quantum Dots in Zero Mode Waveguides. <i>Journal of Physical Chemistry Letters</i> , 2021, 12, 3303-3311.                    | 4.6  | 8         |
| 89 | Laser-initiated chain reactions and microexplosions in solid solutions of simple alkenes and chlorine. <i>The Journal of Physical Chemistry</i> , 1992, 96, 1288-1293.   | 2.9  | 7         |
| 90 | Macromolecular Crowding Affects Voltage-Dependent Alamethicin Pore Formation in Lipid Bilayer Membranes. <i>Journal of Physical Chemistry B</i> , 2020, 124, 5095-5102.  | 2.6  | 7         |

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|-----|--|------|-----------|
| 91  | Mixed metal zero-mode guides (ZMWs) for tunable fluorescence enhancement. <i>Nanoscale Advances</i> , 2020, 2, 1894-1903.  | 4.6  | 7         |
| 92  | Squeezing Out Interfacial Solvation: The Role of Hydrogen-Bonding in the Structural and Orientational Freedom of Molecular Self-Assembly. <i>Journal of Physical Chemistry Letters</i> , 2022, 13, 2273-2280.                        | 4.6  | 7         |
| 93  | Sealable Femtoliter Chamber Arrays for Cell-free Biology. <i>Journal of Visualized Experiments</i> , 2015, , .   | 0.3  | 6         |
| 94  | A Soft-Matter Biomolecular Memristor Synapse for Neuromorphic Systems. , 2018, , .   |      | 6         |
| 95  | Assembly and Characterization of Biomolecular Memristors Consisting of Ion Channel-doped Lipid Membranes. <i>Journal of Visualized Experiments</i> , 2019, , .   | 0.3  | 6         |
| 96  | Bilayer membrane interactions with nanofabricated scaffolds. <i>Chemistry and Physics of Lipids</i> , 2015, 192, 75-86.  | 3.2  | 5         |
| 97  | Synthetic Biology in Aqueous Compartments at the Micro- and Nanoscale. <i>MRS Advances</i> , 2017, 2, 2427-2433.   | 0.9  | 5         |
| 98  | Carbon nanotube tips for scanning probe microscopy. , 2006, , 295-313.   |      | 4         |
| 99  | Response of a Memristive Biomembrane and Demonstration of Potential Use in Online Learning. , 2018, , .  |      | 4         |
| 100 | Absolute quantitation of propranolol from 200- $\mu\text{m}$ regions of mouse brain and liver thin tissues using laser ablation-droplet probe mass spectrometry. <i>Rapid Communications in Mass Spectrometry</i> , 2021, 35, e9010. | 1.5  | 4         |
| 101 | Harnessing autocatalytic reactions in polymerization and depolymerization. <i>MRS Communications</i> , 2021, 11, 377-390.  | 1.8  | 4         |
| 102 | Vibrational spectra and assignments for 3,3,4,4-tetrafluorocyclobutene-d0, -d1, and -d2. <i>Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy</i> , 1995, 51, 45-63.   | 3.9  | 3         |
| 103 | Bilayer self-assembly on a hydrophilic, deterministically nanopatterned surface. <i>Nano Research</i> , 2013, 6, 784-794.  | 10.4 | 3         |
| 104 | Geometry-Dependent Nonequilibrium Steady-State Diffusion and Adsorption of Lipid Vesicles in Micropillar Arrays. <i>Advanced Materials Interfaces</i> , 2019, 6, 1900054.  | 3.7  | 2         |
| 105 | Gold Ion Beam Milled Gold Zero-Mode Waveguides. <i>Nanomaterials</i> , 2022, 12, 1755.   | 4.1  | 2         |
| 106 | Towards the World Smallest Chemical Reactors: On-Demand Generation and Fusion of Femtoliter Aqueous Droplets. <i>Biophysical Journal</i> , 2011, 100, 607a.  | 0.5  | 0         |
| 107 | Interfacial Tension Controlled Fusion of Individual Femtoliter Droplets and Triggering of Confined Chemical Reactions on Demand. <i>Biophysical Journal</i> , 2011, 100, 522a.   | 0.5  | 0         |
| 108 | Developing in vitro models of the sub-retinal microenvironment. , 2013, , .  |      | 0         |

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|-----|--|-----|-----------|
| 109 | Low-Enthalpy Phase Transitions Yield Entropy-Driven Lateral Reorganization and Phase Separation in Synthetic and Natural Multi-Component DIB Membranes. <i>Biophysical Journal</i> , 2017, 112, 84a.             | 0.5 | 0         |
| 110 | Synapse-Inspired Variable Conductance in Biomembranes: A Preliminary Study. , 2017, , .  |     | 0         |
| 111 | Capacitive Detection of Low-Enthalpy, Higher-Order Phase Transitions in Synthetic and Natural Lipid Membranes. <i>Biophysical Journal</i> , 2018, 114, 551a-552a.  | 0.5 | 0         |
| 112 | Integrated laser ablationâ€dropletProbeâ€mass spectrometry for absolute drug quantitation, metabolite detection, and distribution in tissue. <i>Rapid Communications in Mass Spectrometry</i> , 2021, 35, e9202. | 1.5 | 0         |
| 113 | Self-Organization Controls Expression More than Abundance of Molecular Components of Transcription and Translation in Confined Cell-Free Gene Expression. <i>SSRN Electronic Journal</i> , 0, , .                | 0.4 | 0         |