Aaron R Wheeler

List of Publications by Year
in descending order

148 papers	12,481 citations	16411 64 h-index	24915 109 g-index
153 all docs	153 docs citations	153 times ranked	10222 citing authors

#	Article	IF	Citations
1	Digital Microfluidics. Annual Review of Analytical Chemistry, 2012, 5, 413-440.	2.8	664
2	Microfluidic Device for Single-Cell Analysis. Analytical Chemistry, 2003, 75, 3581-3586.	3.2	545
3	Biodegradable scaffold with built-in vasculature for organ-on-a-chip engineering and direct surgical anastomosis. Nature Materials, 2016, 15, 669-678.	13.3	471
4	The Digital Revolution: A New Paradigm for Microfluidics. Advanced Materials, 2009, 21, 920-925.	11.1	365
5	Bio-Microarray Fabrication Techniquesâ€"A Review. Critical Reviews in Biotechnology, 2006, 26, 237-259.	5.1	334
6	A microfluidic platform for complete mammalian cell culture. Lab on A Chip, 2010, 10, 1536.	3.1	326
7	Putting Electrowetting to Work. Science, 2008, 322, 539-540.	6.0	324
8	Immunoassays in microfluidic systems. Analytical and Bioanalytical Chemistry, 2010, 397, 991-1007.	1.9	307
9	Digital Microfluidics with In-Line Sample Purification for Proteomics Analyses with MALDI-MS. Analytical Chemistry, 2005, 77, 534-540.	3.2	301
10	Electrowetting-Based Microfluidics for Analysis of Peptides and Proteins by Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry. Analytical Chemistry, 2004, 76, 4833-4838.	3.2	295
11	Digital microfluidics for cell-based assays. Lab on A Chip, 2008, 8, 519.	3.1	292
12	Electrochemistry, biosensors and microfluidics: a convergence of fields. Chemical Society Reviews, 2015, 44, 5320-5340.	18.7	279
13	An integrated digital microfluidic chip for multiplexed proteomic sample preparation and analysis by MALDI-MS. Lab on A Chip, 2006, 6, 1213.	3.1	266
14	Pluronic Additives: A Solution to Sticky Problems in Digital Microfluidics. Langmuir, 2008, 24, 6382-6389.	1.6	242
15	Chemical cytometry on a picoliter-scale integrated microfluidic chip. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 12809-12813.	3.3	232
16	Droplet-based microfluidics with nonaqueous solvents and solutions. Lab on A Chip, 2006, 6, 199.	3.1	220
17	DropBot: An open-source digital microfluidic control system with precise control of electrostatic driving force and instantaneous drop velocity measurement. Applied Physics Letters, 2013, 102, .	1.5	173
18	Digital Microfluidic Magnetic Separation for Particle-Based Immunoassays. Analytical Chemistry, 2012, 84, 8805-8812.	3.2	167

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19	All-terrain droplet actuation. Lab on A Chip, 2008, 8, 672.	3.1	158
20	DStat: A Versatile, Open-Source Potentiostat for Electroanalysis and Integration. PLoS ONE, 2015, 10, e0140349.	1.1	157
21	Integrated microbioreactor for culture and analysis of bacteria, algae and yeast. Biomedical Microdevices, 2011, 13, 41-50.	1.4	154
22	A Digital Microfluidic Approach to Homogeneous Enzyme Assays. Analytical Chemistry, 2008, 80, 1614-1619.	3.2	151
23	A circular cross-section PDMS microfluidics system for replication of cardiovascular flow conditions. Biomaterials, 2010, 31, 3459-3464.	5.7	143
24	Matrix-dependent adhesion of vascular and valvular endothelial cells in microfluidic channels. Lab on A Chip, 2007, 7, 1759.	3.1	139
25	Maze exploration and learning in C. elegans. Lab on A Chip, 2007, 7, 186-192.	3.1	134
26	Automated Digital Microfluidic Platform for Magnetic-Particle-Based Immunoassays with Optimization by Design of Experiments. Analytical Chemistry, 2013, 85, 9638-9646.	3.2	127
27	A 3D microfluidic platform incorporating methacrylated gelatin hydrogels to study physiological cardiovascular cellâ€“cell interactions. Lab on A Chip, 2013, 13, 2591.	3.1	126
28	Hepatic organoids for microfluidic drug screening. Lab on A Chip, 2014, 14, 3290.	3.1	126
29	Proteome-on-a-chip: Mirage, or on the horizon?. Lab on A Chip, 2006, 6, 1415.	3.1	121
30	A digital microfluidic system for serological immunoassays in remote settings. Science Translational Medicine, 2018, 10, .	5.8	117
31	Hybrid microfluidics: A digital-to-channel interface for in-line sample processing and chemical separations. Lab on A Chip, 2009, 9, 1046.	3.1	111
32	Dried Blood Spot Analysis by Digital Microfluidics Coupled to Nanoelectrospray Ionization Mass Spectrometry. Analytical Chemistry, 2012, 84, 3731-3738.	3.2	109
33	Paper Microfluidics Goes Digital. Advanced Materials, 2014, 26, 2838-2843.	11.1	109
34	Low-cost, rapid-prototyping of digital microfluidics devices. Microfluidics and Nanofluidics, 2008, 4, 349-355.	1.0	108
35	A digital microfluidic electrochemical immunoassay. Lab on A Chip, 2014, 14, 547-554.	3.1	106
36	A digital microfluidic method for dried blood spot analysis. Lab on A Chip, 2011, 11, 3218.	3.1	104

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37	Digital microfluidics with impedance sensing for integrated cell culture andanalysis. Biosensors and Bioelectronics, 2013, 42, 314-320.	5.3	101
38	Digital microfluidic immunocytochemistry in single cells. Nature Communications, 2015, 6, 7513.	5.8	98
39	A Digital Microfluidic Approach to Proteomic Sample Processing. Analytical Chemistry, 2009, 81, 4524-4530.	3.2	97
40	Digital Microfluidic Method for Protein Extraction by Precipitation. Analytical Chemistry, 2009, 81, 330-335.	3.2	95
41	A New Angle on Pluronic Additives: Advancing Droplets and Understanding in Digital Microfluidics. Langmuir, 2011, 27, 8586-8594.	1.6	95
42	Let's get digital: digitizing chemical biology with microfluidics. Current Opinion in Chemical Biology, 2010, 14, 574-581.	2.8	94
43	Synchronized Synthesis of Peptideâ€Based Macrocycles by Digital Microfluidics. Angewandte Chemie - International Edition, 2010, 49, 8625-8629.	7.2	92
44	Rapid Prototyping in Copper Substrates for Digital Microfluidics. Advanced Materials, 2007, 19, 133-137.	11.1	91
45	A digital microfluidic method for multiplexed cell-based apoptosis assays. Lab on A Chip, 2012, 12, 627-634.	3.1	90
46	A digital microfluidic platform for primary cell culture and analysis. Lab on A Chip, 2012, 12, 369-375.	3.1	89
47	Droplet-Scale Estrogen Assays in Breast Tissue, Blood, and Serum. Science Translational Medicine, 2009, 1, 1ra2.	5.8	88
48	An inkjet printed, roll-coated digital microfluidic device for inexpensive, miniaturized diagnostic assays. Lab on A Chip, 2016, 16, 4560-4568.	3.1	88
49	Technique for Real-Time Measurements of Endothelial Permeability in a Microfluidic Membrane Chip Using Laser-Induced Fluorescence Detection. Analytical Chemistry, 2010, 82, 808-816.	3.2	86
50	A feedback control system for high-fidelity digital microfluidics. Lab on A Chip, 2011, 11, 535-540.	3.1	86
51	Digital microfluidic isolation of single cells for -Omics. Nature Communications, 2020, 11, 5632.	5.8	85
52	Microgels on-demand. Nature Communications, 2014, 5, 3355.	5.8	80
53	Programmable modification of cell adhesion and zeta potential in silica microchips. Lab on A Chip, 2003, 3, 5.	3.1	79
54	The optoelectronic microrobot: A versatile toolbox for micromanipulation. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 14823-14828.	3.3	79

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55	Flow Injection Analysis in a Microfluidic Format. Analytical Chemistry, 2003, 75, 967-972.	3.2	78
56	Virtual microwells for digital microfluidic reagent dispensing and cell culture. Lab on A Chip, 2012, 12, 750-757.	3.1	75
57	Soft lithography: masters on demand. Lab on A Chip, 2008, 8, 1379.	3.1	72
58	A World-to-Chip Interface for Digital Microfluidics. Analytical Chemistry, 2009, 81, 1061-1067.	3.2	72
59	Optimization of device geometry in single-plate digital microfluidics. Journal of Applied Physics, 2009, 105, .	1.1	71
60	A digital microfluidic approach to heterogeneous immunoassays. Analytical and Bioanalytical Chemistry, 2011, 399, 337-345.	1.9	70
61	Electrochemiluminescence on digital microfluidics for microRNA analysis. Biosensors and Bioelectronics, 2016, 77, 845-852.	5.3	69
62	Digital bioanalysis. Analytical and Bioanalytical Chemistry, 2009, 393, 419-426.	1.9	68
63	Analysis on the Go: Quantitation of Drugs of Abuse in Dried Urine with Digital Microfluidics and Miniature Mass Spectrometry. Analytical Chemistry, 2014, 86, 6121-6129.	3.2	67
64	Upon the Shoulders of Giants: Open-Source Hardware and Software in Analytical Chemistry. Analytical Chemistry, 2017, 89, 4330-4338.	3.2	67
65	Digital Microfluidic Cell Culture. Annual Review of Biomedical Engineering, 2015, 17, 91-112.	5.7	65
66	Digital Microfluidics: An Emerging Sample Preparation Platform for Mass Spectrometry. Analytical Chemistry, 2013, 85, 6178-6184.	3.2	64
67	Digital microfluidic hydrogel microreactors for proteomics. Proteomics, 2012, 12, 1310-1318.	1.3	63
68	A Digital Microfluidic Method for in Situ Formation of Porous Polymer Monoliths with Application to Solid-Phase Extraction. Analytical Chemistry, 2011, 83, 3824-3830.	3.2	59
69	A microfluidic membrane device to mimic critical components of the vascular microenvironment. Biomicrofluidics, 2011, 5, 13409.	1.2	59
70	A digital microfluidic device with integrated nanostructured microelectrodes for electrochemical immunoassays. Lab on A Chip, 2015, 15, 3776-3784.	3.1	58
71	Multilayer Hybrid Microfluidics: A Digital-to-Channel Interface for Sample Processing and Separations. Analytical Chemistry, 2010, 82, 6680-6686.	3.2	55
72	Digital Microfluidic Platform for the Detection of Rubella Infection and Immunity: A Proof of Concept. Clinical Chemistry, 2015, 61, 420-429.	1.5	55

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73	Microfluidic origami: a new device format for in-line reaction monitoring by nanoelectrospray ionization mass spectrometry. Lab on A Chip, 2013, 13, 2533.	3.1	54
74	Integrated Digital Microfluidic Platform for Voltammetric Analysis. Analytical Chemistry, 2013, 85, 8809-8816.	3.2	48
75	A droplet-based screen for wavelength-dependent lipid production in algae. Energy and Environmental Science, 2014, 7, 2366.	15.6	48
76	Digital Microfluidic Platform for Human Plasma Protein Depletion. Analytical Chemistry, 2014, 86, 8466-8472.	3.2	46
77	Direct loading of blood for plasma separation and diagnostic assays on a digital microfluidic device. Lab on A Chip, 2020, 20, 1845-1855.	3.1	43
78	Interfacing digital microfluidics with high-field nuclear magnetic resonance spectroscopy. Lab on A Chip, 2016, 16, 4424-4435.	3.1	42
79	Printed Microfluidics. Advanced Functional Materials, 2017, 27, 1604824.	7.8	41
80	Patterned Optoelectronic Tweezers: A New Scheme for Selecting, Moving, and Storing Dielectric Particles and Cells. Small, 2018, 14, e1803342.	5.2	41
81	Reconfigurable multi-component micromachines driven by optoelectronic tweezers. Nature Communications, 2021, 12, 5349.	5.8	41
82	Digital microfluidics and nuclear magnetic resonance spectroscopy for in situ diffusion measurements and reaction monitoring. Lab on A Chip, 2019, 19, 641-653.	3.1	39
83	Microcontact Printing-Based Fabrication of Digital Microfluidic Devices. Analytical Chemistry, 2006, 78, 7877-7885.	3.2	37
84	Durable, region-specific protein patterning in microfluidic channels. Biomaterials, 2010, 31, 315-320.	5.7	36
85	Hydrogel discs for digital microfluidics. Biomicrofluidics, 2012, 6, 14112-1411211.	1.2	36
86	â€œPlug-n-Playâ€•Sensing with Digital Microfluidics. Analytical Chemistry, 2019, 91, 2506-2515.	3.2	35
87	A switchable digital microfluidic droplet dye-laser. Lab on A Chip, 2011, 11, 3716.	3.1	34
88	Digital Microfluidics for Immunoprecipitation. Analytical Chemistry, 2016, 88, 10223-10230.	3.2	33
89	Rapid Chemical Reaction Monitoring by Digital Microfluidicsâ€NMR: Proof of Principle Towards an Automated Synthetic Discovery Platform. Angewandte Chemie - International Edition, 2019, 58, 15372-15376.	7.2	33
90	Ionotronics Based on Horizontally Aligned Carbon Nanotubes. Advanced Functional Materials, 2020, 30, 2003177.	7.8	33

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91	Poly(dimethylsiloxane) microfluidic flow cells for surface plasmon resonance spectroscopy. Sensors and Actuators B: Chemical, 2004, 98, 208-214.	4.0	32
92	Electroosmotic flow in a poly(dimethylsiloxane) channel does not depend on percent curing agent. Electrophoresis, 2004, 25, 1120-1124.	1.3	32
93	Flow of microgel capsules through topographically patterned microchannels. Lab on A Chip, 2007, 7, 863.	3.1	31
94	A practical interface for microfluidics and nanoelectrospray mass spectrometry. Electrophoresis, 2008, 29, 1836-1843.	1.3	31
95	Cellular bias on the microscale: probing the effects of digital microfluidic actuation on mammalian cell health, fitness and phenotype. Integrative Biology (United Kingdom), 2013, 5, 1014.	0.6	29
96	A digital microfluidic interface between solid-phase microextraction and liquid chromatographyâ€“mass spectrometry. Journal of Chromatography A, 2016, 1444, 1-7.	1.8	29
97	Combinatorial Synthesis of Peptidomimetics Using Digital Microfluidics. Journal of Flow Chemistry, 2012, 2, 103-107.	1.2	28
98	Multiplexed extraction and quantitative analysis of pharmaceuticals from DBS samples using digital microfluidics. Bioanalysis, 2014, 6, 307-318.	0.6	28
99	Pre-concentration by liquid intake by paper (P-CLIP): a new technique for large volumes and digital microfluidics. Lab on A Chip, 2017, 17, 2272-2280.	3.1	27
100	Towards a personalized approach to aromatase inhibitor therapy: a digital microfluidic platform for rapid analysis of estradiol in core-needle-biopsies. Lab on A Chip, 2017, 17, 1594-1602.	3.1	27
101	When robotics met fluidics. Lab on A Chip, 2020, 20, 709-716.	3.1	27
102	Attractive Design: An Elution Solvent Optimization Platform for Magnetic-Bead-based Fractionation Using Digital Microfluidics and Design of Experiments. Analytical Chemistry, 2015, 87, 3902-3910.	3.2	26
103	Dynamic Fluoroalkyl Polyethylene Glycol Coâ€Polymers: A New Strategy for Reducing Protein Adhesion in Labâ€onâ€aâ€Chip Devices. Advanced Functional Materials, 2015, 25, 506-515.	7.8	25
104	Velocity Saturation in Digital Microfluidics. Langmuir, 2019, 35, 5342-5352.	1.6	25
105	Cell invasion in digital microfluidic microgel systems. Science Advances, 2020, 6, eaba9589.	4.7	24
106	A guiding light: spectroscopy on digital microfluidic devices using in-plane optical fibre waveguides. Analytical and Bioanalytical Chemistry, 2015, 407, 7467-7475.	1.9	23
107	A microfluidic method for dopamine uptake measurements in dopaminergic neurons. Lab on A Chip, 2016, 16, 543-552.	3.1	23
108	Bacterial classification and antibiotic susceptibility testing on an integrated microfluidic platform. Lab on A Chip, 2021, 21, 4208-4222.	3.1	23

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109	Digital Microfluidic Hemagglutination Assays for Blood Typing, Donor Compatibility Testing, and Hematocrit Analysis. Clinical Chemistry, 2021, 67, 1699-1708.	1.5	23
110	A Microfluidic Technique for Quantification of Steroids in Core Needle Biopsies. Analytical Chemistry, 2015, 87, 4688-4695.	3.2	21
111	Direct Interface between Digital Microfluidics and High Performance Liquid Chromatographyâ€“Mass Spectrometry. Analytical Chemistry, 2015, 87, 11967-11972.	3.2	20
112	Size-scaling effects for microparticles and cells manipulated by optoelectronic tweezers. Optics Letters, 2019, 44, 4171.	1.7	20
113	Escape from an Optoelectronic Tweezer Trap: experimental results and simulations. Optics Express, 2018, 26, 5300.	1.7	19
114	Ion-Exchange Based Immobilization of Chromogenic Reagents on Microfluidic Paper Analytical Devices. Analytical Chemistry, 2019, 91, 8756-8761.	3.2	19
115	Digital Microfluidics for Automated Proteomic Processing. Journal of Visualized Experiments, 2009, , .	0.2	17
116	Augmenting microgel flow viareceptor-ligand binding in the constrained geometries of microchannels. Lab on A Chip, 2009, 9, 286-290.	3.1	16
117	Folded emitters for nanoelectrospray ionization mass spectrometry. Rapid Communications in Mass Spectrometry, 2010, 24, 3425-3431.	0.7	16
118	Next-Generation Microfluidic Point-of-Care Diagnostics. Clinical Chemistry, 2015, 61, 1233-1234.	1.5	16
119	A microfluidic platform for continuous monitoring of dopamine homeostasis in dopaminergic cells. Microsystems and Nanoengineering, 2019, 5, 10.	3.4	16
120	A Digitalâ€toâ€Channel Microfluidic Interface via Inkjet Printing of Silver and UV Curing of Thiolâ€“Enes. Advanced Materials Technologies, 2020, 5, 2000451.	3.0	16
121	Strong and small: strong cation-exchange solid-phase extractions using porous polymer monoliths on a digital microfluidic platform. Canadian Journal of Chemistry, 2014, 92, 179-185.	0.6	15
122	Understanding Carbon Nanotubeâ€Based Ionic Diodes: Design and Mechanism. Small, 2021, 17, e2100383.	5.2	15
123	Portable sample processing for molecular assays: application to Zika virus diagnostics. Lab on A Chip, 2022, 22, 1748-1763.	3.1	15
124	Assembly of Topographical Micropatterns with Optoelectronic Tweezers. Advanced Optical Materials, 2019, 7, 1900669.	3.6	14
125	Interaction between positive and negative dielectric microparticles/microorganism in optoelectronic tweezers. Lab on A Chip, 2021, 21, 4379-4389.	3.1	13
126	Gradient Elution in Microchannel Electrochromatography. Analytical Chemistry, 2009, 81, 3851-3857.	3.2	12

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127	Integrated Assembly and Photopreservation of Topographical Micropatterns. Small, 2021, 17, e2103702.	5.2	12
128	Influence of light pattern thickness on the manipulation of dielectric microparticles by optoelectronic tweezers. Photonics Research, 0, , .	3.4	6
129	Analysis of the effects of aryl hydrocarbon receptor expression on cancer cell invasion via three-dimensional microfluidic invasion assays. Lab on A Chip, 2022, 22, 313-325.	3.1	6
130	Vertical Addressing of 1â€Plane Electrodes for Digital Microfluidics. Advanced Materials Technologies, 2022, 7, .	3.0	6
131	Early Warning Measurement of SARS-CoV-2 Variants of Concern in Wastewaters by Mass Spectrometry. Environmental Science and Technology Letters, 2022, 9, 638-644.	3.9	4
132	Rapid Chemical Reaction Monitoring by Digital Microfluidicsâ€NMR: Proof of Principle Towards an Automated Synthetic Discovery Platform. Angewandte Chemie, 2019, 131, 15516-15520.	1.6	3
133	Single Organelle Analysis with Integrated Chip Electrophoresis and Optical Tweezers. , 2000, , 25-28.		3
134	3D Droplet Actuation in Digital Microfluidics Devices. , 2007, , .		2
135	Mission impossible to mission control. Lab on A Chip, 2012, 12, 3851.	3.1	2
136	Integrated Assembly and Photopreservation of Topographical Micropatterns (Small 37/2021). Small, 2021, 17, 2170193.	5.2	2
137	Lab on a chip Canada â€“ rapid diffusion over large length scales. Lab on A Chip, 2013, 13, 2438.	3.1	1
138	Lab on a Chip â€“ past, present, and future. Lab on A Chip, 2021, 21, 1197-1198.	3.1	1
139	Autonomous object harvesting using synchronized optoelectronic microrobots. , 2021, , .		1
140	Innentitelbild: Synchronized Synthesis of Peptide-Based Macrocycles by Digital Microfluidics (Angew.) Tj ETQq0 0 0 rgBT /Overlock 10 Tf	1.6	0
141	Inside Cover: Synchronized Synthesis of Peptide-Based Macrocycles by Digital Microfluidics (Angew.) Tj ETQq1 1 0.784314 rgBT /Over	7.2	0
142	Intimidating yet Inspiring: Emerging Investigators special issue. Lab on A Chip, 2010, 10, 2321.	3.1	0
143	Virtual microwells for three-dimensional cell culture on a digital microfluidic platform. , 2012, , .		0
144	A digital microfluidic control system with precise control of electrostatic force and impedance-based velocity measurement. , 2013, , .		0

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145	Reply to the â€˜Comment on â€œTowards a personalized approach to aromatase inhibitor therapy: a digital microfluidic platform for rapid analysis of estradiol in core-needle-biopsiesâ€â€™ by P. E. LÃ¸nning, Lab Chip, 2017, 17, DOI: 10.1039/C7LC00617A. Lab on A Chip, 2017, 17, 3188-3189.	3.1	0
146	A Laser-Polymerized Thin Film Silica Surface Modification for Suppression of Cell Adhesion and Electroosmotic Flow in Microchannels. , 2001, , 605-606.		0
147	Hopping mechanism of particles and cells escaping from optoelectronic tweezer traps. , 2018, , .		0
148	Machine Learning to Automate the Visual Interpretation of Chemical Agglutination Tests. , 2022, , .		0