

# Mark A Burns

## List of Publications by Year in descending order

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115  
papers

5,663  
citations

57631

44  
h-index

85405

71  
g-index

116  
all docs

116  
docs citations

116  
times ranked

5609  
citing authors

| #  | ARTICLE   | IF   | CITATIONS |
|----|---|------|-----------|
| 1  | Tuneable elastomeric nanochannels for nanofluidic manipulation. <i>Nature Materials</i> , 2007, 6, 424-428.   | 13.3 | 323       |
| 2  | Thermocapillary pumping of discrete drops in microfabricated analysis devices. <i>AIChE Journal</i> , 1999, 45, 350-366.                                  | 1.8  | 256       |
| 3  | PCR in a Rayleigh-Benard Convection Cell. <i>Science</i> , 2002, 298, 793-793.  | 6.0  | 239       |
| 4  | Next-generation integrated microfluidic circuits. <i>Lab on A Chip</i> , 2011, 11, 2813.  | 3.1  | 227       |
| 5  | Electrokinetic Protein Preconcentration Using a Simple Glass/Poly(dimethylsiloxane) Microfluidic Chip. <i>Analytical Chemistry</i> , 2006, 78, 4779-4785. | 3.2  | 208       |
| 6  | Flexible casting of modular self-aligning microfluidic assembly blocks. <i>Lab on A Chip</i> , 2011, 11, 1679.  | 3.1  | 205       |
| 7  | Integrated microsystems for controlled drug delivery. <i>Advanced Drug Delivery Reviews</i> , 2004, 56, 185-198.  | 6.6  | 199       |
| 8  | Rapid, continuous additive manufacturing by volumetric polymerization inhibition patterning. <i>Science Advances</i> , 2019, 5, eaau8723.                 | 4.7  | 178       |
| 9  | Microdroplet-Enabled Highly Parallel Co-Cultivation of Microbial Communities. <i>PLoS ONE</i> , 2011, 6, e17019.  | 1.1  | 152       |
| 10 | Isotachophoretic Separations on a Microchip. Normal Raman Spectroscopy Detection. <i>Analytical Chemistry</i> , 1998, 70, 3766-3769.                      | 3.2  | 130       |
| 11 | Nanopore sequencing technology: research trends and applications. <i>Trends in Biotechnology</i> , 2006, 24, 580-586.                                     | 4.9  | 130       |
| 12 | Nanopore sequencing technology: nanopore preparations. <i>Trends in Biotechnology</i> , 2007, 25, 174-181.  | 4.9  | 122       |
| 13 | Phase Change Microvalve for Integrated Devices. <i>Analytical Chemistry</i> , 2004, 76, 3740-3748.  | 3.2  | 121       |
| 14 | Analysis of Non-Newtonian Liquids Using a Microfluidic Capillary Viscometer. <i>Analytical Chemistry</i> , 2006, 78, 1690-1696.                           | 3.2  | 120       |
| 15 | Continuous Affinity Chromatography Using a Magnetically Stabilized Fluidized Bed. <i>Biotechnology Progress</i> , 1985, 1, 95-103.                        | 1.3  | 114       |
| 16 | Nanoliter Viscometer for Analyzing Blood Plasma and Other Liquid Samples. <i>Analytical Chemistry</i> , 2005, 77, 383-392.                                | 3.2  | 105       |
| 17 | Microfluidic pneumatic logic circuits and digital pneumatic microprocessors for integrated microfluidic systems. <i>Lab on A Chip</i> , 2009, 9, 3131.    | 3.1  | 99        |
| 18 | Microfluidic assembly blocks. <i>Lab on A Chip</i> , 2008, 8, 1365.   | 3.1  | 91        |

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|----|---|-----|-----------|
| 19 | Reactions and Fluidics in Miniaturized Natural Convection Systems. <i>Analytical Chemistry</i> , 2004, 76, 6254-6265.   | 3.2 | 90        |
| 20 | Microfluidic Chemical Analysis Systems. <i>Annual Review of Chemical and Biomolecular Engineering</i> , 2011, 2, 325-353.   | 3.3 | 88        |
| 21 | Microfabricated reaction and separation systems. <i>Current Opinion in Biotechnology</i> , 2001, 12, 92-98.   | 3.3 | 83        |
| 22 | Push-Pull Perfusion Sampling with Segmented Flow for High Temporal and Spatial Resolution in Vivo Chemical Monitoring. <i>Analytical Chemistry</i> , 2011, 83, 5207-5213.           | 3.2 | 79        |
| 23 | Advances in on-chip photodetection for applications in miniaturized genetic analysis systems. <i>Journal of Micromechanics and Microengineering</i> , 2004, 14, 81-90.              | 1.5 | 76        |
| 24 | Asynchronous magnetic bead rotation (AMBR) biosensor in microfluidic droplets for rapid bacterial growth and susceptibility measurements. <i>Lab on A Chip</i> , 2011, 11, 2604.    | 3.1 | 75        |
| 25 | Low-Power Concentration and Separation Using Temperature Gradient Focusing via Joule Heating. <i>Analytical Chemistry</i> , 2006, 78, 8028-8035.                                    | 3.2 | 72        |
| 26 | Programmable Fluidic Production of Microparticles with Configurable Anisotropy. <i>Journal of the American Chemical Society</i> , 2008, 130, 1335-1340.                             | 6.6 | 66        |
| 27 | Electrophoresis in microfabricated devices using photopolymerized polyacrylamide gels and electrode-defined sample injection. <i>Electrophoresis</i> , 2001, 22, 300-311.           | 1.3 | 65        |
| 28 | Electrostretching DNA Molecules Using Polymer-Enhanced Media within Microfabricated Devices. <i>Analytical Chemistry</i> , 2002, 74, 3378-3385.                                     | 3.2 | 61        |
| 29 | Dried calcium alginate/magnetite spheres: A new support for chromatographic separations and enzyme immobilization. <i>Biotechnology and Bioengineering</i> , 1985, 27, 137-145.     | 1.7 | 57        |
| 30 | Performance of nanoliter-sized droplet-based microfluidic PCR. <i>Biomedical Microdevices</i> , 2009, 11, 1071-1080.  | 1.4 | 57        |
| 31 | Continuous protein separations in a magnetically stabilized fluidized bed using nonmagnetic supports. <i>Biotechnology and Bioengineering</i> , 1991, 38, 963-971.                  | 1.7 | 56        |
| 32 | Electronic drop sensing in microfluidic devices: automated operation of a nanoliter viscometer. <i>Lab on A Chip</i> , 2006, 6, 744.  | 3.1 | 55        |
| 33 | Monitoring the growth and drug susceptibility of individual bacteria using asynchronous magnetic bead rotation sensors. <i>Biosensors and Bioelectronics</i> , 2011, 26, 2751-2755. | 5.3 | 55        |
| 34 | Temperature-Programmed Natural Convection for Micromixing and Biochemical Reaction in a Single Microfluidic Chamber. <i>Analytical Chemistry</i> , 2009, 81, 4510-4516.             | 3.2 | 54        |
| 35 | ANALYTIC CHEMISTRY: Everyone's a (Future) Chemist. <i>Science</i> , 2002, 296, 1818-1819.   | 6.0 | 51        |
| 36 | DNA molecular configurations in an evaporating droplet near a glass surface. <i>Journal of Rheology</i> , 2003, 47, 1111-1132.  | 1.3 | 51        |

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|----|--|-----|-----------|
| 37 | Electrodeless direct current dielectrophoresis using reconfigurable field-shaping oil barriers. <i>Electrophoresis</i> , 2007, 28, 4572-4581.  | 1.3 | 51        |
| 38 | Asynchronous Magnetic Bead Rotation Microviscometer for Rapid, Sensitive, and Label-Free Studies of Bacterial Growth and Drug Sensitivity. <i>Analytical Chemistry</i> , 2012, 84, 5250-5256.                      | 3.2 | 50        |
| 39 | Drop Mixing in a Microchannel for Lab-on-a-Chip Platforms. <i>Langmuir</i> , 2008, 24, 590-601.  | 1.6 | 49        |
| 40 | A Drinking Water Sensor for Lead and Other Heavy Metals. <i>Analytical Chemistry</i> , 2017, 89, 8748-8756.  | 3.2 | 47        |
| 41 | Polymerase Chain Reaction in High Surface-to-Volume Ratio SiO <sub>2</sub> Microstructures. <i>Analytical Chemistry</i> , 2004, 76, 6588-6593.   | 3.2 | 46        |
| 42 | Viscosity Measurements Using Microfluidic Droplet Length. <i>Analytical Chemistry</i> , 2017, 89, 3996-4006.   | 3.2 | 46        |
| 43 | Heat-transfer analysis of microfabricated thermocapillary pumping and reaction devices. <i>Journal of Micromechanics and Microengineering</i> , 2000, 10, 42-55.   | 1.5 | 45        |
| 44 | Transpiration-based micropump for delivering continuous ultra-low flow rates. <i>Journal of Micromechanics and Microengineering</i> , 2003, 13, 261-271.   | 1.5 | 45        |
| 45 | Fluidic Assembly and Packing of Microspheres in Confined Channels. <i>Langmuir</i> , 2008, 24, 3661-3670.  | 1.6 | 44        |
| 46 | Microfluidic pressure sensing using trapped air compression. <i>Lab on A Chip</i> , 2007, 7, 633.  | 3.1 | 42        |
| 47 | Surface-modified polyolefin microfluidic devices for liquid handling. <i>Journal of Micromechanics and Microengineering</i> , 2005, 15, 2156-2162.   | 1.5 | 40        |
| 48 | Volumetric Photopolymerization Confinement through Dual-Wavelength Photoinitiation and Photoinhibition. <i>ACS Macro Letters</i> , 2019, 8, 899-904.   | 2.3 | 40        |
| 49 | Addressable Electric Fields for Size-Fractionated Sample Extraction in Microfluidic Devices. <i>Analytical Chemistry</i> , 2005, 77, 4338-4347.  | 3.2 | 35        |
| 50 | A versatile microfabricated platform for electrophoresis of double- and single-stranded DNA. <i>Electrophoresis</i> , 2003, 24, 151-157.   | 1.3 | 34        |
| 51 | Cell affinity separations using magnetically stabilized fluidized beds: Erythrocyte subpopulation fractionation utilizing a lectin-magnetite support. <i>Biotechnology and Bioengineering</i> , 2003, 81, 650-665. | 1.7 | 34        |
| 52 | Optimization of Dielectrophoretic DNA Stretching in Microfabricated Devices. <i>Analytical Chemistry</i> , 2006, 78, 2939-2947.  | 3.2 | 34        |
| 53 | Selective extraction of size-fractionated DNA samples in microfabricated electrophoresis devices. <i>Journal of Chromatography A</i> , 2003, 1010, 255-268.  | 1.8 | 32        |
| 54 | Nanoliter droplet viscometer with additive-free operation. <i>Lab on A Chip</i> , 2013, 13, 297-301.   | 3.1 | 32        |

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|----|--|-----|-----------|
| 55 | STRUCTURAL STUDIES OF A LIQUID-FLUIDIZED MAGNETICALLY STABILIZED BED. Chemical Engineering Communications, 1988, 67, 315-330.  | 1.5 | 30        |
| 56 | Continuous cell suspension processing using magnetically stabilized fluidized beds. Biotechnology and Bioengineering, 1991, 37, 110-120.   | 1.7 | 30        |
| 57 | Microfabricated electrophoresis systems for DNA sequencing and genotyping applications: current technology and future directions. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2004, 362, 1105-1129. | 1.6 | 30        |
| 58 | Mobility, diffusion and dispersion of single-stranded DNA in sequencing gels. Electrophoresis, 2001, 22, 1046-1062.  | 1.3 | 28        |
| 59 | Cost-effective thermal isolation techniques for use on microfabricated DNA amplification and analysis devices. Journal of Micromechanics and Microengineering, 2005, 15, 221-230.  | 1.5 | 28        |
| 60 | Magnetically Stabilized Fluidized Bed for Gas Separations: Olefin-Paraffin Separations by $\pi$ -Complexation. Industrial & Engineering Chemistry Research, 1995, 34, 2873-2880.   | 1.8 | 26        |
| 61 | Cross-linked polyacrylamide gel electrophoresis of single-stranded DNA for microfabricated genomic analysis systems. Electrophoresis, 2002, 23, 1450.  | 1.3 | 26        |
| 62 | Acoustically driven programmable liquid motion using resonance cavities. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 12617-12622.  | 3.3 | 26        |
| 63 | Light-Induced Molecular Cutting: A Localized Reaction on a Single DNA Molecule. Analytical Chemistry, 2003, 75, 4188-4194.   | 3.2 | 22        |
| 64 | Microstencils for the Patterning of Nontraditional Materials. Langmuir, 2006, 22, 5392-5397.   | 1.6 | 22        |
| 65 | A droplet-based microfluidic viscometer for the measurement of blood coagulation. Biomicrofluidics, 2020, 14, 014109.  | 1.2 | 21        |
| 66 | Continuous Cell Debris Filtration Using A Magnetically Stabilized Fluidized Bed. Biotechnology Progress, 1989, 5, 98-104.  | 1.3 | 20        |
| 67 | Microdevice-based measurements of diffusion and dispersion in cross-linked and linear polyacrylamide DNA sequencing gels. Electrophoresis, 2002, 23, 2777-2787.  | 1.3 | 19        |
| 68 | Multifunctional Water Sensors for pH, ORP, and Conductivity Using Only Microfabricated Platinum Electrodes. Sensors, 2017, 17, 1655.   | 2.1 | 19        |
| 69 | Simulation of fluidized beds and other fluid-particle systems using statistical mechanics. AIChE Journal, 1996, 42, 660-670.   | 1.8 | 18        |
| 70 | Predicting the filtration of noncoagulating particles in depth filters. Chemical Engineering Science, 1997, 52, 93-105.  | 1.9 | 18        |
| 71 | Modeling and Correcting Cure Through in Continuous Stereolithographic 3D Printing. Advanced Materials Technologies, 2019, 4, 1900700.  | 3.0 | 18        |
| 72 | Asynchronous Magnetic Bead Rotation (AMBR) Microviscometer for Label-Free DNA Analysis. Biosensors, 2014, 4, 76-89.  | 2.3 | 17        |

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|----|---|-----|-----------|
| 73 | Co-cultivation of microbial sub-communities in microfluidic droplets facilitates high-resolution genomic dissection of microbial "dark matter"™. <i>Integrative Biology (United Kingdom)</i> , 2020, 12, 263-274. | 0.6 | 16        |
| 74 | Multiphase bioreaction microsystem with automated on-chip droplet operation. <i>Lab on A Chip</i> , 2010, 10, 1308.   | 3.1 | 15        |
| 75 | The Current State of Traumatic Brain Injury Biomarker Measurement Methods. <i>Biosensors</i> , 2021, 11, 319.   | 2.3 | 14        |
| 76 | Simulation of structural phenomena in mixed-particle fluidized beds. <i>AIChE Journal</i> , 1998, 44, 528-537.  | 1.8 | 13        |
| 77 | An electronic Venturi-based pressure microregulator. <i>Lab on A Chip</i> , 2007, 7, 1791.  | 3.1 | 13        |
| 78 | A light writable microfluidic "flash memory". Optically addressed actuator array with latched operation for microfluidic applications. <i>Lab on A Chip</i> , 2008, 8, 488.                                       | 3.1 | 13        |
| 79 | Super-Resolution Imaging of PDMS Nanochannels by Single-Molecule Micelle-Assisted Blink Microscopy. <i>Journal of Physical Chemistry B</i> , 2013, 117, 4406-4411.  | 1.2 | 13        |
| 80 | Integrated plastic microfluidic device for ssDNA separation. <i>Sensors and Actuators B: Chemical</i> , 2007, 125, 343-351.   | 4.0 | 12        |
| 81 | Microfabricated valveless devices for thermal bioreactions based on diffusion-limited evaporation. <i>Lab on A Chip</i> , 2008, 8, 88-97.   | 3.1 | 12        |
| 82 | Toward Assembly of Non-close-packed Colloidal Structures from Anisotropic Pentamer Particles. <i>Macromolecular Rapid Communications</i> , 2010, 31, 196-201.   | 2.0 | 12        |
| 83 | A Variable Height Microfluidic Device for Multiplexed Immunoassay Analysis of Traumatic Brain Injury Biomarkers. <i>Biosensors</i> , 2021, 11, 320.   | 2.3 | 11        |
| 84 | Effect of Hydrodynamic and Magnetic Stabilization on Fluidized-Bed Adsorption. <i>Biotechnology Progress</i> , 1998, 14, 749-755.   | 1.3 | 10        |
| 85 | Electrophoretic separations using sweeping fields. <i>Electrophoresis</i> , 1998, 19, 1388-1393.  | 1.3 | 10        |
| 86 | Low-power micro-fabricated liquid flow-rate sensor. <i>Analytical Methods</i> , 2015, 7, 3981-3987.   | 1.3 | 10        |
| 87 | Self-contained actuation of phase-change pistons in microchannels. <i>Journal of Micromechanics and Microengineering</i> , 2006, 16, 786-793.   | 1.5 | 9         |
| 88 | Bead mediated separation of microparticles in droplets. <i>PLoS ONE</i> , 2017, 12, e0173479.   | 1.1 | 8         |
| 89 | Simple transporter trafficking model for amphetamine-induced dopamine efflux. <i>Synapse</i> , 2007, 61, 500-514.   | 0.6 | 7         |
| 90 | Droplet-based microsystem for multi-step bioreactions. <i>Biomedical Microdevices</i> , 2010, 12, 533-541.  | 1.4 | 7         |

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| 91  | The development of microfabricated devices for influenza A detection and genotyping. International Congress Series, 2004, 1263, 367-371.                  | 0.2 | 6         |
| 92  | Modeling ssDNA electrophoretic migration with band broadening in an entangled or cross-linked network. Electrophoresis, 2007, 28, 2783-2800.              | 1.3 | 6         |
| 93  | Variable-height channels for microparticle characterization and display. Lab on A Chip, 2020, 20, 2510-2519.  | 3.1 | 6         |
| 94  | Recuperative parametric pumping in adsorptive membranes. AIChE Journal, 1996, 42, 131-146.  | 1.8 | 5         |
| 95  | Application of membrane-based preferential transport to whole broth processing. , 1997, 55, 581-591.  |     | 5         |
| 96  | Selective extraction using preferential transport through adsorptive membranes. , 2000, 52, 539-548.  |     | 5         |
| 97  | Effect of buffer flow on DNA separation in a microfabricated electrophoresis system. Electrophoresis, 2005, 26, 4718-4728.                                | 1.3 | 5         |
| 98  | Selective arraying of complex particle patterns. Lab on A Chip, 2010, 10, 1142.   | 3.1 | 5         |
| 99  | Asymmetric traps array for particle transport. RSC Advances, 2015, 5, 3358-3364.  | 1.7 | 5         |
| 100 | Micro-Particle Operations Using Asymmetric Traps. Scientific Reports, 2019, 9, 1278.  | 1.6 | 5         |
| 101 | The Magnetically Stabilized Fluidized Bed as a Biochemical Processing Tool. Annals of the New York Academy of Sciences, 1987, 501, 103-107.               | 1.8 | 4         |
| 102 | One-Way Particle Transport Using Oscillatory Flow in Asymmetric Traps. Small, 2018, 14, 1702724.  | 5.2 | 4         |
| 103 | Application of magnetically stabilized fluidized beds to bioseparations. Reactive Polymers, Ion Exchangers, Sorbents, 1987, 6, 45-50.                     | 0.1 | 3         |
| 104 | Solute Focusing Techniques for Bioseparations. Nature Biotechnology, 1995, 13, 46-52.   | 9.4 | 3         |
| 105 | A novel strategy for the design of multiple reaction systems for genetic analysis. Sensors and Actuators A: Physical, 2002, 95, 250-258.                  | 2.0 | 3         |
| 106 | A Venturi microregulator array module for distributed pressure control. Microfluidics and Nanofluidics, 2010, 9, 671-680.                                 | 1.0 | 3         |
| 107 | Detection and quantification of vitamins in microliter volumes of biological samples by LC-MS for clinical screening. AIChE Journal, 2018, 64, 3709-3718. | 1.8 | 3         |
| 108 | Countercurrent gradient chromatography: A continuous focusing technique. Biotechnology and Bioengineering, 1995, 48, 461-475.                             | 1.7 | 2         |

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|-----|--|-----|-----------|
| 109 | Active control of nanolitre droplet contents with convective concentration gradients across permeable walls. Lab on A Chip, 2011, 11, 4022.  | 3.1 | 2         |
| 110 | Accuracy Evaluation of a Tetrabromophenolphthalein Ethyl Ester Colorimetric Assay for Urinary Albumin. journal of applied laboratory medicine, The, 2019, 4, 201-213.                        | 0.6 | 2         |
| 111 | Imaging Cross-section of DNA electrophoresis in a microfabricated glass device with CLSM. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , . | 0.5 | 1         |
| 112 | Cell Affinity Chromatography. Journal of Chromatography Library, 2000, 61, 667-702.  | 0.1 | 0         |
| 113 | The Flow and Adsorption of DNA Polymers Near Surfaces. AIP Conference Proceedings, 2004, , .   | 0.3 | 0         |
| 114 | Theoretical considerations for counting nucleic acid molecules in microdevices. Journal of Micromechanics and Microengineering, 2005, 15, N6-N10.  | 1.5 | 0         |
| 115 | Transverse imaging and simulation of dsDNA electrophoresis in microfabricated glass channels. Electrophoresis, 2008, 29, 4768-4774.  | 1.3 | 0         |