

Shih-Kang Fan

List of Publications by Year in descending order

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113
papers

1,998
citations

236925

25
h-index

276875

41
g-index

115
all docs

115
docs citations

115
times ranked

2333
citing authors

#	ARTICLE	IF	CITATIONS
1	Cross-scale electric manipulations of cells and droplets by frequency-modulated dielectrophoresis and electrowetting. Lab on A Chip, 2008, 8, 1325.	6.0	138
2	General digital microfluidic platform manipulating dielectric and conductive droplets by dielectrophoresis and electrowetting. Lab on A Chip, 2009, 9, 1236.	6.0	132
3	Microfluidic Surface Plasmon Resonance Sensors: From Principles to Point-of-Care Applications. Sensors, 2016, 16, 1175.	3.8	103
4	EWOD microfluidic systems for biomedical applications. Microfluidics and Nanofluidics, 2014, 16, 965-987.	2.2	100
5	Roadmap for optofluidics. Journal of Optics (United Kingdom), 2017, 19, 093003.	2.2	78
6	Constructing 3D heterogeneous hydrogels from electrically manipulated prepolymer droplets and crosslinked microgels. Science Advances, 2016, 2, e1600964.	10.3	70
7	Liquid Lenses and Driving Mechanisms: A Review. Journal of Adhesion Science and Technology, 2012, 26, 1773-1788.	2.6	67
8	Asymmetric electrowetting- ϵ moving droplets by a square wave. Lab on A Chip, 2007, 7, 1330.	6.0	63
9	Droplet-on-a-wristband: Chip-to-chip digital microfluidic interfaces between replaceable and flexible electrowetting modules. Lab on A Chip, 2011, 11, 343-347.	6.0	59
10	Digital Microfluidics for Manipulation and Analysis of a Single Cell. International Journal of Molecular Sciences, 2015, 16, 22319-22332.	4.1	53
11	Droplet routing in high-level synthesis of configurable digital microfluidic biochips based on microelectrode dot array architecture. Biochip Journal, 2011, 5, 343-352.	4.9	44
12	Digital Microfluidic Dynamic Culture of Mammalian Embryos on an Electrowetting on Dielectric (EWOD) Chip. PLoS ONE, 2015, 10, e0124196.	2.5	43
13	Encapsulated droplets with metered and removable oil shells by electrowetting and dielectrophoresis. Lab on A Chip, 2011, 11, 2500.	6.0	42
14	Single-Cell-Derived Tumor-Sphere Formation and Drug-Resistance Assay Using an Integrated Microfluidics. Analytical Chemistry, 2019, 91, 8318-8325.	6.5	40
15	Reversible Hydrophobic/Hydrophilic Adhesive of PS-b-PNIPAAm Copolymer Brush Nanopillar Arrays for Mimicking the Climbing Aptitude of Geckos. Journal of Physical Chemistry C, 2012, 116, 6980-6992.	3.1	39
16	Towards digital microfluidic circuits: creating, transporting, cutting and merging liquid droplets by electrowetting-based actuation. , 0, , .		37
17	Reconfigurable liquid pumping in electric-field-defined virtual microchannels by dielectrophoresis. Lab on A Chip, 2009, 9, 1590.	6.0	37
18	Electrorheological Operation of Low-/High-Permittivity Core/Shell SiO ₂ /Au Nanoparticle Microspheres for Display Media. ACS Applied Materials & Interfaces, 2012, 4, 5650-5661.	8.0	36

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19	pH-Responsive One-Dimensional Periodic Relief Grating of Polymer Brush-Gold Nanoassemblies on Silicon Surface. ACS Applied Materials & Interfaces, 2012, 4, 1935-1947.	8.0	34
20	Genomic DNA extraction from whole blood using a digital microfluidic (DMF) platform with magnetic beads. Microsystem Technologies, 2017, 23, 313-320.	2.0	34
21	Digital microfluidics for cell manipulation. TrAC - Trends in Analytical Chemistry, 2019, 117, 291-299.	11.4	34
22	Manipulation of multiple droplets on N ⁺ -M grid by cross-reference EWOD driving scheme and pressure-contact packaging. , 0, , .		31
23	Chemiluminescence detector based on a single planar transparent digital microfluidic device. Lab on A Chip, 2013, 13, 2714.	6.0	30
24	Micromachining of mesoporous oxide films for microelectromechanical system structures. Journal of Materials Research, 2002, 17, 2121-2129.	2.6	28
25	Electrowetting of Superhydrophobic ZnO Inverse Opals. Journal of the Electrochemical Society, 2011, 158, P93.	2.9	27
26	Liver microsystems in vitro for drug response. Journal of Biomedical Science, 2019, 26, 88.	7.0	27
27	Using colloid lithography to fabricate silicon nanopillar arrays on silicon substrates. Journal of Colloid and Interface Science, 2012, 367, 40-48.	9.4	25
28	Reconfigurable liquid-core/liquid-cladding optical waveguides with dielectrophoresis-driven virtual microchannels on an electromicrofluidic platform. Lab on A Chip, 2016, 16, 847-854.	6.0	24
29	Portable digital microfluidics platform with active but disposable Lab-On-Chip. , 0, , .		23
30	A new supramolecular film formed from a silsesquioxane derivative for application in proton exchange membranes. Journal of Materials Chemistry, 2012, 22, 731-734.	6.7	23
31	Microstructure-based techniques for single-cell manipulation and analysis. TrAC - Trends in Analytical Chemistry, 2020, 129, 115940.	11.4	23
32	A portable microfluidic device for the rapid diagnosis of cancer metastatic potential which is programmable for temperature and CO ₂ . Lab on A Chip, 2014, 14, 3621-3628.	6.0	21
33	A highly efficient bead extraction technique with low bead number for digital microfluidic immunoassay. Biomicrofluidics, 2016, 10, 011901.	2.4	21
34	Electrowetting on polymer dispersed liquid crystal. Applied Physics Letters, 2009, 94, .	3.3	20
35	Multiphase optofluidics on an electro-microfluidic platform powered by electrowetting and dielectrophoresis. Lab on A Chip, 2014, 14, 2728-2738.	6.0	20
36	Microfabrication of a digital microfluidic platform integrated with an on-chip electrochemical cell. Journal of Micromechanics and Microengineering, 2013, 23, 095025.	2.6	17

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37	Womb-on-a-chip biomimetic system for improved embryo culture and development. <i>Sensors and Actuators B: Chemical</i> , 2016, 226, 218-226.	7.8	17
38	Determination of blood lithium-ion concentration using digital microfluidic whole-blood separation and preloaded paper sensors. <i>Biosensors and Bioelectronics</i> , 2022, 195, 113631.	10.1	17
39	Transmittance tuning by particle chain polarization in electrowetting-driven droplets. <i>Biomicrofluidics</i> , 2010, 4, 43011.	2.4	16
40	Customizable Optical and Biofunctional Properties of a Medical Lens Based on Chemical Vapor Deposition Encapsulation of Liquids. <i>Chemistry of Materials</i> , 2015, 27, 7028-7033.	6.7	16
41	Opto-Microfluidic Immunosensors: From Colorimetric to Plasmonic. <i>Micromachines</i> , 2016, 7, 29.	2.9	16
42	Digital Microfluidic qPCR Cartridge for SARS-CoV-2 Detection. <i>Micromachines</i> , 2022, 13, 196.	2.9	16
43	Digital microfluidic operations on micro-electrode array architecture. , 2011, , .		15
44	AMPFLUID: Aggregation Magnified Post-Assay Fluorescence for Ultrasensitive Immunodetection on Digital Microfluidics. <i>Proceedings of the IEEE</i> , 2015, 103, 225-235.	21.3	15
45	Study of vibrational droplet triboelectric nanogenerator on structural and operational parameters. <i>Nano Energy</i> , 2020, 70, 104473.	16.0	15
46	The proximity between C&Etermini of dimeric vacuolar H⁺â&Epyrophosphatase determined using atomic force microscopy and a gold nanoparticle technique. <i>FEBS Journal</i> , 2009, 276, 4381-4394.	4.7	14
47	Pore-Spanning Lipid Membrane under Indentation by a Probe Tip: A Molecular Dynamics Simulation Study. <i>Langmuir</i> , 2011, 27, 11930-11942.	3.5	12
48	Atmospheric-pressure microplasma in dielectrophoresis-driven bubbles for optical emission spectroscopy. <i>Lab on A Chip</i> , 2012, 12, 3694.	6.0	12
49	Star Poly(N-isopropylacrylamide) Tethered to Polyhedral Oligomeric Silsesquioxane (POSS) Nanoparticles by a Combination of ATRP and Click Chemistry. <i>Journal of Nanomaterials</i> , 2012, 2012, 1-10.	2.7	12
50	Liver-lobule-mimicking patterning via dielectrophoresis and hydrogel photopolymerization. <i>Sensors and Actuators B: Chemical</i> , 2021, 343, 130159.	7.8	12
51	Fertilization of Mouse Gametes in Vitro Using a Digital Microfluidic System. <i>IEEE Transactions on Nanobioscience</i> , 2015, 14, 857-863.	3.3	11
52	Thermally switchable adhesions of polystyrene-block-poly(n-isopropylacrylamide) copolymer pillar array mimicking climb attitude of geckos. <i>Applied Physics Letters</i> , 2012, 101, 123701.	3.3	9
53	MEMS with thin-film aerogel. , 0, , .		8
54	Recoverable electrowetting-on-dielectric device in chemiluminescence enzymatic detector. <i>Japanese Journal of Applied Physics</i> , 2014, 53, 060304.	1.5	8

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55	Direct Handwriting Manipulation of Droplets by Self-Aligned Mirror-Ewod Across a Dielectric Sheet. , 0, , .		7
56	Particle chain display “ an optofluidic electronic paper. Lab on A Chip, 2012, 12, 4870.	6.0	7
57	Development of Spin Coated Mesoporous Oxide Films for MEMS Structures. Journal of Electroceramics, 2004, 13, 423-428.	2.0	6
58	Integrated Digital and Analog Microfluidics by EWOD and LDEP. , 2006, , .		6
59	Microfluidics-Based Single-Cell Research for Intercellular Interaction. Frontiers in Cell and Developmental Biology, 2021, 9, 680307.	3.7	6
60	3D Droplet Transportation by EWOD Actuators on Flexible Polymer Films. , 2005, , 249.		5
61	Dielectrophoretic Cell Concentrator on EWOD-Based Chips. , 2006, , .		5
62	DNA diagnosis in a microseparator based on particle aggregation. Biosensors and Bioelectronics, 2013, 50, 8-13.	10.1	5
63	Energy Harvester and Cell Proliferation from Biocompatible PMLG Nanofibers Prepared Using Near-Field Electrospinning and Electrospray Technology. Journal of Nanoscience and Nanotechnology, 2018, 18, 156-164.	0.9	5
64	Droplets Oscillation and Continuous Pumping by Asymmetric Electrowetting. , 0, , .		4
65	Enhanced Droplet Mixer by LDEP on Spiral Microelectrodes. , 2007, , .		4
66	Realizing Temperature-Controlled Digital Microfluidic Chips with Versatile Microelectrodes. , 2007, , .		4
67	Formation of suspended bilayer lipid membrane between electrowetting-driven encapsulated droplets. Biomicrofluidics, 2014, 8, 052006.	2.4	4
68	Determination of Aqueous Two-Phase System Binodals and Tie-Lines by Electrowetting-Driven Dielectric Droplet Manipulation. ChemBioChem, 2018, 20, 270-275.	2.6	4
69	45.2: Reflective Electronic Paper Display Utilizing Electric Polarized Particle Chains. Digest of Technical Papers SID International Symposium, 2007, 38, 1466-1469.	0.3	3
70	Separation of dendritic and T cells using electrowetting and dielectrophoresis. , 2012, , .		3
71	Three-dimensional digital microfluidics and applications. , 2012, , .		3
72	Adjustment and Measurement of Contact Angle with Electrowetting on a Quartz-Crystal Microbalance. Inventions, 2018, 3, 46.	2.5	3

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73	Digital Microfluidics with Bubble Manipulations by Dielectrophoresis. International Journal of Automation and Smart Technology, 2012, 2, 69-74.	0.4	3
74	Differential response of vacuolar proton pumps to osmotica. Functional Plant Biology, 2006, 33, 195.	2.1	2
75	Formation, transportation, and evaporation of encapsulated droplets. , 2009, , .		2
76	Real time contact angle measurement by quartz crystal microbalance for EWOD studies. , 2010, , .		2
77	Dynamic embryo culture on a digital microfluidic chip. , 2012, , .		2
78	Label-free separation and sorting of human monocytes and T-cells by electrowetting and dielectrophoresis. , 2013, , .		2
79	Optofluidic liquid sensing on electromicrofluidic devices. Materials Research Express, 2020, 7, 036407.	1.6	2
80	Preparation of Mesoporous Oxides for Mems Structures. Materials Research Society Symposia Proceedings, 2000, 657, 731.	0.1	1
81	Droplet Manipulation by Electrowetting on Polymer Dispersed Liquid Crystal. , 2007, , .		1
82	Parallel Transportation of Droplets in a Multilayer Device by MEWOD. , 2007, , .		1
83	Liquid-core liquid-cladding optical waveguide by liquid dielectrophoresis. , 2009, , .		1
84	P&A106: Characterization and Packaging of Electronic Paper Display Based on Particle Polarization. Digest of Technical Papers SID International Symposium, 2009, 40, 1512-1515.	0.3	1
85	Electric manipulations of hydrogel on a digital microfluidic platform. , 2012, , .		1
86	A monolithic lab-on-a-chip for electrochemical detection. , 2012, , .		1
87	Teflon wetting and dewetting on EWOD device for chemiluminescence detector. , 2014, , .		1
88	Using gelatin methacrylate covering and dielectrophoresis force manipulating for lobule-mimicking culture chip in vitro. , 2015, , .		1
89	Embryo lab chip taking advantage of microfluidics and cell co-culturing. , 2015, , .		1
90	Field-effect pump: liquid dielectrophoresis along a virtual microchannel with source-gate-drain electric fields. Lab on A Chip, 2021, 21, 2372-2382.	6.0	1

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91	Mechatronic Systems in Digital Microfluidics. International Journal of Automation and Smart Technology, 2014, 4, 216-221.	0.4	1
92	Digital Microfluidics for Single Cell Manipulation and Analysis. , 2022, , 185-205.		1
93	Smart lens: tunable liquid lens for laser tracking. , 2007, , .		0
94	Connecting interface for modularization of digital microfluidics. Proceedings of SPIE, 2008, , .	0.8	0
95	AN AFFINITY SENSOR IMPROVED BY EWOD ACTUATOR-BASED MICROFLUIDIC CHIP. Biomedical Engineering - Applications, Basis and Communications, 2009, 21, 461-465.	0.6	0
96	Electroosmotic flow in dielectrophoresis-formed microchannel. , 2009, , .		0
97	Microfluidic immunosensor based on insulator dielectrophoresis and electrowetting-on-dielectric. , 2010, , .		0
98	Electroosmotic flow control in a virtual microchannel based on liquid dielectrophoresis. , 2011, , .		0
99	Formation of droplets interface bilayer by coplanar EWOD device. , 2011, , .		0
100	Optical properties measurement of a dielectrophoresis-driven liquid-core/liquid-cladding optical waveguide. , 2011, , .		0
101	Fabrication of 3D microfluidic chip integrating concentration gradient design and perfusion system for embryo coculture with stromal cells. , 2012, , .		0
102	Development of microbead-based affinity biosensor by insulator-based dielectrophoresis. , 2012, , .		0
103	Microbubble and microplasma manipulations for gas analyses. , 2012, , .		0
104	Encoding and manipulating microcomponent on electromicrofluidic platform. , 2015, , .		0
105	Electromolding for 3D cell culture. , 2015, , .		0
106	Constructung 3D cell-laden hydrogels on electromolding. , 2015, , .		0
107	Three-dimensional biomimetic liver tissue platform for drug testing. , 2016, , .		0
108	Preface to Special Topic: Selected Papers from the 5th International Conference on Optofluidics. Biomicrofluidics, 2016, 10, 011701.	2.4	0

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109	Cross-scale manipulations of heterogeneous components with arbitrary shapes. , 2017, , .		0
110	Cell coculture within electrically patterned cells and hydrogel structures. , 2017, , .		0
111	Display medium with particle manipulations in an emulsion droplet array. , 2017, , .		0
112	DNA stretching in surfactant-stabilized microchannel. , 2017, , .		0
113	2D35 Microfluidic Device for High Throughput Measurement of Mechanical Properties of Single Cells. The Proceedings of the Bioengineering Conference Annual Meeting of BED/JSM E, 2016, 2016.28, _2D35-1_- _2D35-5_.	0.0	0