

Jongyoon Han

List of Publications by Year in descending order

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125
papers

10,816
citations

53660

45
h-index

30848

102
g-index

129
all docs

129
docs citations

129
times ranked

9978
citing authors

#	ARTICLE	IF	CITATIONS
1	Transport phenomena in nanofluidics. <i>Reviews of Modern Physics</i> , 2008, 80, 839-883.	16.4	1,587
2	Isolation and retrieval of circulating tumor cells using centrifugal forces. <i>Scientific Reports</i> , 2013, 3, 1259.	1.6	618
3	Million-fold Preconcentration of Proteins and Peptides by Nanofluidic Filter. <i>Analytical Chemistry</i> , 2005, 77, 4293-4299.	3.2	565
4	Slanted spiral microfluidics for the ultra-fast, label-free isolation of circulating tumor cells. <i>Lab on A Chip</i> , 2014, 14, 128-137.	3.1	485
5	Concentration Polarization and Nonlinear Electrokinetic Flow near a Nanofluidic Channel. <i>Physical Review Letters</i> , 2007, 99, 044501.	2.9	476
6	Ultra-fast, label-free isolation of circulating tumor cells from blood using spiral microfluidics. <i>Nature Protocols</i> , 2016, 11, 134-148.	5.5	439
7	Nanofluidic concentration devices for biomolecules utilizing ion concentration polarization: theory, fabrication, and applications. <i>Chemical Society Reviews</i> , 2010, 39, 912.	18.7	338
8	Desalination at overlimiting currents: State-of-the-art and perspectives. <i>Desalination</i> , 2014, 342, 85-106.	4.0	301
9	Molecular sieving using nanofilters: Past, present and future. <i>Lab on A Chip</i> , 2008, 8, 23-33.	3.1	268
10	Direct evidence for cancer-cell-autonomous extracellular protein catabolism in pancreatic tumors. <i>Nature Medicine</i> , 2017, 23, 235-241.	15.2	263
11	Spiral microchannel with rectangular and trapezoidal cross-sections for size based particle separation. <i>Scientific Reports</i> , 2013, 3, 1475.	1.6	230
12	Multiplexed proteomic sample preconcentration device using surface-patterned ion-selective membrane. <i>Lab on A Chip</i> , 2008, 8, 596.	3.1	198
13	Separation of Leukocytes from Blood Using Spiral Channel with Trapezoid Cross-Section. <i>Analytical Chemistry</i> , 2012, 84, 9324-9331.	3.2	191
14	Microfluidic modelling of the tumor microenvironment for anti-cancer drug development. <i>Lab on A Chip</i> , 2019, 19, 369-386.	3.1	182
15	An ultra-high-throughput spiral microfluidic biochip for the enrichment of circulating tumor cells. <i>Analyst</i> , 2014, 139, 3245-3255.	1.7	173
16	Continuous micro-vortex-based nanoparticle manipulation via focused surface acoustic waves. <i>Lab on A Chip</i> , 2017, 17, 91-103.	3.1	166
17	Clinical Validation of an Ultra High-Throughput Spiral Microfluidics for the Detection and Enrichment of Viable Circulating Tumor Cells. <i>PLoS ONE</i> , 2014, 9, e99409.	1.1	165
18	Nanofluidic preconcentration device in a straight microchannel using ion concentration polarization. <i>Lab on A Chip</i> , 2012, 12, 4472.	3.1	158

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19	High-throughput cell cycle synchronization using inertial forces in spiral microchannels. <i>Lab on A Chip</i> , 2011, 11, 1359.	3.1	150
20	Multivariate biophysical markers predictive of mesenchymal stromal cell multipotency. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, E4409-18.	3.3	143
21	Continuous-Flow Biomolecule and Cell Concentrator by Ion Concentration Polarization. <i>Analytical Chemistry</i> , 2011, 83, 7348-7355.	3.2	134
22	Shear Flow of an Electrically Charged Fluid by Ion Concentration Polarization: Scaling Laws for Electroconvective Vortices. <i>Physical Review Letters</i> , 2013, 110, 114501.	2.9	134
23	Expansion of patient-derived circulating tumor cells from liquid biopsies using a CTC microfluidic culture device. <i>Nature Protocols</i> , 2018, 13, 34-58.	5.5	128
24	Membrane-less microfiltration using inertial microfluidics. <i>Scientific Reports</i> , 2015, 5, 11018.	1.6	126
25	Liquid biopsy and therapeutic response: Circulating tumor cell cultures for evaluation of anticancer treatment. <i>Science Advances</i> , 2016, 2, e1600274.	4.7	120
26	Direct detection and drug-resistance profiling of bacteremias using inertial microfluidics. <i>Lab on A Chip</i> , 2015, 15, 2297-2307.	3.1	119
27	Micromagnetic resonance relaxometry for rapid label-free malaria diagnosis. <i>Nature Medicine</i> , 2014, 20, 1069-1073.	15.2	111
28	Malaria detection using inertial microfluidics. <i>Lab on A Chip</i> , 2015, 15, 1101-1109.	3.1	108
29	Large-Volume Microfluidic Cell Sorting for Biomedical Applications. <i>Annual Review of Biomedical Engineering</i> , 2015, 17, 1-34.	5.7	96
30	Stabilization of Ion Concentration Polarization Using a Heterogeneous Nanoporous Junction. <i>Nano Letters</i> , 2010, 10, 16-23.	4.5	94
31	Microfluidic probe for single-cell analysis in adherent tissue culture. <i>Nature Communications</i> , 2014, 5, 3421.	5.8	90
32	Selective particle and cell capture in a continuous flow using micro-vortex acoustic streaming. <i>Lab on A Chip</i> , 2017, 17, 1769-1777.	3.1	84
33	Characterizing Deformability and Electrical Impedance of Cancer Cells in a Microfluidic Device. <i>Analytical Chemistry</i> , 2018, 90, 912-919.	3.2	83
34	Jetting microfluidics with size-sorting capability for single-cell protease detection. <i>Biosensors and Bioelectronics</i> , 2015, 66, 19-23.	5.3	81
35	Tunable Ionic Transport for a Triangular Nanochannel in a Polymeric Nanofluidic System. <i>ACS Nano</i> , 2013, 7, 740-747.	7.3	71
36	Purification of High Salinity Brine by Multi-Stage Ion Concentration Polarization Desalination. <i>Scientific Reports</i> , 2016, 6, 31850.	1.6	67

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37	Microfluidic Cell Retention Device for Perfusion of Mammalian Suspension Culture. <i>Scientific Reports</i> , 2017, 7, 6703.	1.6	66
38	Enhanced Salt Removal by Unipolar Ion Conduction in Ion Concentration Polarization Desalination. <i>Scientific Reports</i> , 2016, 6, 25349.	1.6	65
39	Self-Aligned Acoustofluidic Particle Focusing and Patterning in Microfluidic Channels from Channel-Based Acoustic Waveguides. <i>Physical Review Letters</i> , 2018, 120, 074502.	2.9	65
40	Enhancing malaria diagnosis through microfluidic cell enrichment and magnetic resonance relaxometry detection. <i>Scientific Reports</i> , 2015, 5, 11425.	1.6	63
41	Multiplexed Affinity-Based Separation of Proteins and Cells Using Inertial Microfluidics. <i>Scientific Reports</i> , 2016, 6, 23589.	1.6	62
42	Identification of malaria parasite-infected red blood cell surface aptamers by inertial microfluidic SELEX (I-SELEX). <i>Scientific Reports</i> , 2015, 5, 11347.	1.6	57
43	Deciphering ion concentration polarization-based electrokinetic molecular concentration at the micro-nanofluidic interface: theoretical limits and scaling laws. <i>Nanoscale</i> , 2018, 10, 15187-15194.	2.8	56
44	Biophysical phenotyping of single cells using a differential multiconstriction microfluidic device with self-aligned 3D electrodes. <i>Biosensors and Bioelectronics</i> , 2019, 133, 16-23.	5.3	51
45	Direct numerical simulation of continuous lithium extraction from high Mg ²⁺ /Li ⁺ ratio brines using microfluidic channels with ion concentration polarization. <i>Journal of Membrane Science</i> , 2018, 556, 34-41.	4.1	49
46	Universal amplification-free molecular diagnostics by billion-fold hierarchical nanofluidic concentration. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 16240-16249.	3.3	47
47	Adhesive-based liquid metal radio-frequency microcoil for magnetic resonance relaxometry measurement. <i>Lab on A Chip</i> , 2012, 12, 287-294.	3.1	44
48	Direct In Vivo Electrochemical Detection of Haemoglobin in Red Blood Cells. <i>Scientific Reports</i> , 2014, 4, 6209.	1.6	44
49	Bone Marrow Regeneration Promoted by Biophysically Sorted Osteoprogenitors From Mesenchymal Stromal Cells. <i>Stem Cells Translational Medicine</i> , 2015, 4, 56-65.	1.6	44
50	Helical vortex formation in three-dimensional electrochemical systems with ion-selective membranes. <i>Physical Review E</i> , 2016, 93, 033114.	0.8	44
51	Negative Selection by Spiral Inertial Microfluidics Improves Viral Recovery and Sequencing from Blood. <i>Analytical Chemistry</i> , 2018, 90, 4657-4662.	3.2	44
52	Microfluidic label-free selection of mesenchymal stem cell subpopulation during culture expansion extends the chondrogenic potential <i>in vitro</i> . <i>Lab on A Chip</i> , 2018, 18, 878-889.	3.1	42
53	Patient-Derived Airway Secretion Dissociation Technique To Isolate and Concentrate Immune Cells Using Closed-Loop Inertial Microfluidics. <i>Analytical Chemistry</i> , 2017, 89, 5549-5556.	3.2	40
54	Continuous removal of small nonviable suspended mammalian cells and debris from bioreactors using inertial microfluidics. <i>Lab on A Chip</i> , 2018, 18, 2826-2837.	3.1	40

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55	Leukocyte function assessed via serial microlitre sampling of peripheral blood from sepsis patients correlates with disease severity. <i>Nature Biomedical Engineering</i> , 2019, 3, 961-973.	11.6	39
56	Fully-automated and field-deployable blood leukocyte separation platform using multi-dimensional double spiral (MDDS) inertial microfluidics. <i>Lab on A Chip</i> , 2020, 20, 3612-3624.	3.1	39
57	Diffraction-based acoustic manipulation in microchannels enables continuous particle and bacteria focusing. <i>Lab on A Chip</i> , 2020, 20, 2674-2688.	3.1	38
58	Development of miniaturized, portable magnetic resonance relaxometry system for point-of-care medical diagnosis. <i>Review of Scientific Instruments</i> , 2012, 83, 095115.	0.6	37
59	Gene disruption of dematin causes precipitous loss of erythrocyte membrane stability and severe hemolytic anemia. <i>Blood</i> , 2016, 128, 93-103.	0.6	35
60	High-throughput sorting of eggs for synchronization of <i>C. elegans</i> in a microfluidic spiral chip. <i>Lab on A Chip</i> , 2018, 18, 679-687.	3.1	35
61	Femtomolar Detection of Lipopolysaccharide in Injectables and Serum Samples Using Aptamer-Coupled Reduced Graphene Oxide in a Continuous Injection-Electrostacking Biochip. <i>Analytical Chemistry</i> , 2019, 91, 2360-2367.	3.2	35
62	Accurate Multi-Physics Numerical Analysis of Particle Preconcentration Based on Ion Concentration Polarization. <i>International Journal of Applied Mechanics</i> , 2017, 09, 1750107.	1.3	34
63	Characterization and application of size-sorted zonal chondrocytes for articular cartilage regeneration. <i>Biomaterials</i> , 2018, 165, 66-78.	5.7	33
64	Massively Multiplexed Submicron Particle Patterning in Acoustically Driven Oscillating Nanocavities. <i>Small</i> , 2020, 16, e2000462.	5.2	32
65	Pressure-Modulated Selective Electrokinetic Trapping for Direct Enrichment, Purification, and Detection of Nucleic Acids in Human Serum. <i>Analytical Chemistry</i> , 2018, 90, 11366-11375.	3.2	29
66	Acoustic fields and microfluidic patterning around embedded micro-structures subject to surface acoustic waves. <i>Soft Matter</i> , 2019, 15, 8691-8705.	1.2	29
67	Sensitive CometChip assay for screening potentially carcinogenic DNA adducts by trapping DNA repair intermediates. <i>Nucleic Acids Research</i> , 2020, 48, e13-e13.	6.5	29
68	Label-free separation of mesenchymal stem cell subpopulations with distinct differentiation potencies and paracrine effects. <i>Biomaterials</i> , 2020, 240, 119881.	5.7	28
69	Sheltering the perturbed vortical layer of electroconvection under shear flow. <i>Journal of Fluid Mechanics</i> , 2017, 813, 799-823.	1.4	27
70	Deformation behavior of normal human enamel: A study by nanoindentation. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2020, 108, 103799.	1.5	27
71	Nanofluidic device for continuous multiparameter quality assurance of biologics. <i>Nature Nanotechnology</i> , 2017, 12, 804-812.	15.6	25
72	Force fields of charged particles in micro-nanofluidic preconcentration systems. <i>AIP Advances</i> , 2017, 7, 125020.	0.6	25

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73	Return flow ion concentration polarization desalination: A new way to enhance electromembrane desalination. <i>Water Research</i> , 2019, 159, 501-510.	5.3	24
74	Microfluidic Platform for Assessment of Therapeutic Proteins Using Molecular Charge Modulation Enhanced Electrokinetic Concentration Assays. <i>Analytical Chemistry</i> , 2016, 88, 9669-9677.	3.2	23
75	Liquid biopsy for minimal residual disease detection in leukemia using a portable blast cell biochip. <i>Npj Precision Oncology</i> , 2019, 3, 30.	2.3	23
76	Partial desalination of hypersaline brine by lab-scale ion concentration polarization device. <i>Desalination</i> , 2017, 412, 20-31.	4.0	22
77	Engineering a deformation-free plastic spiral inertial microfluidic system for CHO cell clarification in biomanufacturing. <i>Lab on A Chip</i> , 2022, 22, 272-285.	3.1	22
78	K13-Mediated Reduced Susceptibility to Artemisinin in Plasmodium falciparum Is Overlaid on a Trait of Enhanced DNA Damage Repair. <i>Cell Reports</i> , 2020, 32, 107996.	2.9	21
79	One-Step Nucleic Acid Purification and Noise-Resistant Polymerase Chain Reaction by Electrokinetic Concentration for Ultralow-Abundance Nucleic Acid Detection. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 10981-10988.	7.2	21
80	Improved zonal chondrocyte production protocol integrating size-based inertial spiral microchannel separation and dynamic microcarrier culture for clinical application. <i>Biomaterials</i> , 2019, 220, 119409.	5.7	20
81	Techno-economic analysis of ion concentration polarization desalination for high salinity desalination applications. <i>Water Research</i> , 2019, 155, 162-174.	5.3	20
82	A multiscale-pore ion exchange membrane for better energy efficiency. <i>Journal of Materials Chemistry A</i> , 2018, 6, 7714-7723.	5.2	19
83	Enabling electrical biomolecular detection in high ionic concentrations and enhancement of the detection limit thereof by coupling a nanofluidic crystal with reconfigurable ion concentration polarization. <i>Lab on A Chip</i> , 2017, 17, 3772-3784.	3.1	18
84	Numerical simulation of continuous extraction of highly concentrated Li ⁺ from high Mg ²⁺ /Li ⁺ ratio brines in an ion concentration polarization-based microfluidic system. <i>Separation and Purification Technology</i> , 2019, 217, 174-182.	3.9	18
85	Molecular phenotyping of oxidative stress in diabetes mellitus with point-of-care NMR system. <i>Npj Aging and Mechanisms of Disease</i> , 2020, 6, 11.	4.5	18
86	Reply to "Considerations regarding the micromagnetic resonance relaxometry technique for rapid label-free malaria diagnosis". <i>Nature Medicine</i> , 2015, 21, 1387-1389.	15.2	17
87	Microfluidic studies of hydrostatic pressure-enhanced doxorubicin resistance in human breast cancer cells. <i>Lab on A Chip</i> , 2021, 21, 746-754.	3.1	17
88	Multi-dimensional-double-spiral (MDDS) inertial microfluidic platform for sperm isolation directly from the raw semen sample. <i>Scientific Reports</i> , 2022, 12, 4212.	1.6	17
89	Numerical simulation of electrokinetic desalination using microporous permselective membranes. <i>Desalination</i> , 2020, 477, 114262.	4.0	15
90	Microfluidic label-free bioprocessing of human reticulocytes from erythroid culture. <i>Lab on A Chip</i> , 2020, 20, 3445-3460.	3.1	15

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91	Deep-Learning Based Label-Free Classification of Activated and Inactivated Neutrophils for Rapid Immune State Monitoring. <i>Sensors</i> , 2021, 21, 512.	2.1	15
92	Miniature auto-perfusion bioreactor system with spiral microfluidic cell retention device. <i>Biotechnology and Bioengineering</i> , 2021, 118, 1951-1961.	1.7	15
93	Fully Automated, Sample-to-Answer Leukocyte Functional Assessment Platform for Continuous Sepsis Monitoring via Microliters of Blood. <i>ACS Sensors</i> , 2021, 6, 2747-2756.	4.0	12
94	Rapid identification and phylogenetic classification of diverse bacterial pathogens in a multiplexed hybridization assay targeting ribosomal RNA. <i>Scientific Reports</i> , 2019, 9, 4516.	1.6	11
95	Fabrication and Characterization of an Integrated Microsystem for Protein Preconcentration and Sensing. <i>Journal of Microelectromechanical Systems</i> , 2011, 20, 221-230.	1.7	10
96	Study of individual erythrocyte deformability susceptibility to INF α and ethanol using a microfluidic chip. <i>Scientific Reports</i> , 2016, 6, 22929.	1.6	10
97	Electrokinetic flow in the U-shaped micro-nanochannels. <i>Theoretical and Applied Mechanics Letters</i> , 2019, 9, 36-42.	1.3	10
98	Continuous Online Protein Quality Monitoring during Perfusion Culture Production Using an Integrated Micro/Nanofluidic System. <i>Analytical Chemistry</i> , 2020, 92, 5267-5275.	3.2	10
99	Multiplexed Single-Cell Leukocyte Enzymatic Secretion Profiling from Whole Blood Reveals Patient-Specific Immune Signature. <i>Analytical Chemistry</i> , 2021, 93, 4374-4382.	3.2	10
100	Separation of Ultra-High-Density Cell Suspension via Elastoinertial Microfluidics. <i>Small</i> , 2021, 17, e2101880.	5.2	10
101	Dissipative particle dynamics simulation of field-dependent DNA mobility in nanoslits. <i>Microfluidics and Nanofluidics</i> , 2012, 12, 157-163.	1.0	9
102	Rapid and Label-Free Classification of Blood Leukocytes for Immune State Monitoring. <i>Analytical Chemistry</i> , 2022, 94, 6394-6402.	3.2	9
103	Enhanced teeth whitening by nanofluidic transport of hydrogen peroxide into enamel with electrokinetic flows. <i>Dental Materials</i> , 2019, 35, 1637-1643.	1.6	8
104	Portable Seawater Desalination System for Generating Drinkable Water in Remote Locations. <i>Environmental Science & Technology</i> , 2022, 56, 6733-6743.	4.6	8
105	Differential Spleen Remodeling Associated with Different Levels of Parasite Virulence Controls Disease Outcome in Malaria Parasite Infections. <i>MSphere</i> , 2016, 1, .	1.3	7
106	On the validity of ion selective membrane simplification in concentration polarization. <i>AIP Advances</i> , 2021, 11, .	0.6	7
107	Current efficiency and selectivity reduction caused by co-ion leakage in electromembrane processes. <i>Water Research</i> , 2021, 201, 117351.	5.3	7
108	Microfluidic Separation of Canine Adipose-Derived Mesenchymal Stromal Cells. <i>Tissue Engineering - Part C: Methods</i> , 2021, 27, 445-461.	1.1	6

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109	Investigating the influence of physiologically relevant hydrostatic pressure on CHO cell batch culture. <i>Scientific Reports</i> , 2021, 11, 162.	1.6	5
110	Rapid and Low Cost Manufacturing of Cuff Electrodes. <i>Frontiers in Neuroscience</i> , 2021, 15, 628778.	1.4	5
111	Confined Plunging Liquid Jets for Dilution of Brine from Desalination Plants. <i>Processes</i> , 2021, 9, 856.	1.3	5
112	Refinement of brine for lithium extraction using ion concentration polarization. <i>Separation and Purification Technology</i> , 2022, 282, 120055.	3.9	5
113	Electrochemical modulation enhances the selectivity of peripheral neurostimulation in vivo. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	3.3	5
114	Inflammation resolution circuits are uncoupled in acute sepsis and correlate with clinical severity. <i>JCI Insight</i> , 2021, 6, .	2.3	4
115	Techno-economic analysis of multi-stage ion concentration polarization with recirculation for treatment of oil produced water. <i>Journal of Environmental Management</i> , 2020, 269, 110788.	3.8	3
116	Label-free Neutrophil Enrichment from Patient-derived Airway Secretion Using Closed-loop Inertial Microfluidics. <i>Journal of Visualized Experiments</i> , 2018, , .	0.2	2
117	One-Step Nucleic Acid Purification and Noise-Resistant Polymerase Chain Reaction by Electrokinetic Concentration for Ultralow-Abundance Nucleic Acid Detection. <i>Angewandte Chemie</i> , 2020, 132, 11074-11081.	1.6	2
118	A Pre-Clinical Animal Study for Zonal Articular Cartilage Regeneration Using Stratified Implantation of Microcarrier Expanded Zonal Chondrocytes. <i>Cartilage</i> , 2022, 13, 194760352210930.	1.4	2
119	Accurate prediction of drug-induced heterogeneous response of red cell in vivo using a gravity-driven flow cytometry based on a microfluidic chip. <i>Analytica Chimica Acta</i> , 2022, 1221, 340151.	2.6	2
120	Nanofluidic molecular filters for efficient protein separation and preconcentration. , 0, , .		1
121	Creating Sub-50 Nm Nanofluidic Junctions in PDMS Microfluidic Chip via Self-Assembly Process of Colloidal Particles. <i>Journal of Visualized Experiments</i> , 2016, , .	0.2	1
122	Sub-Micron Particle Trapping: Massively Multiplexed Submicron Particle Patterning in Acoustically Driven Oscillating Nanocavities (Small 17/2020). <i>Small</i> , 2020, 16, 2070095.	5.2	1
123	Inflammation Biomarkers: Label-Free Biophysical Markers from Whole Blood Microfluidic Immune Profiling Reveal Severe Immune Response Signatures (Small 12/2021). <i>Small</i> , 2021, 17, 2170051.	5.2	1
124	Real-time, dynamic monitoring of selectively driven ion-concentration polarization. <i>Electrochimica Acta</i> , 2022, 426, 140770.	2.6	1
125	Microfluidic Probes for Single-Cell Proteomic Analysis. , 0, , 221-248.		0