Piotr Garstecki

List of Articles by Year
in descending order

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153 peer-reviewed articles	10,685 peer-reviewed citations	54697 46 peer-reviewed h-index	348626 4.49 score
185 documents	12759 doc citations	49846 51 h-index	15050 citing authors

#	Article	IF	Citations
1	Bacterial strain type and TEM-1 enzyme allele impact antibiotic susceptibility distribution in monoclonal populations: a single-cell droplet approach. Royal Society Open Science, 2025, 12, .	1.6	2
2	Opto-hydrodynamic tweezers. Lab on A Chip, 2024, 24, 517-527.	4.0	13
3	Formation of droplets in microfluidic cross-junctions at small capillary numbers: Breakdown of the classical squeezing regime. Chemical Engineering Journal, 2023, 474, 145601.	8.6	24
4	Tuna-step: tunable parallelized step emulsification for the generation of droplets with dynamic volume control to 3D print functionally graded porous materials. Lab on A Chip, 2023, 24, 113-126.	4.0	17
5	Droplet Microfluidics for High-Throughput Analysis of Antibiotic Susceptibility in Bacterial Cells and Populations. Accounts of Chemical Research, 2022, 55, 605-615.	11.6	105
6	From dynamic self-organization to avalanching instabilities in soft-granular threads. Soft Matter, 2022, 18, 1801-1818.	1.9	2
7	Microfluidic One-Pot Digital Droplet FISH Using LNA/DNA Molecular Beacons for Bacteria Detection and Absolute Quantification. Biosensors, 2022, 12, 237.	3.9	8
8	A double-step emulsification device for direct generation of double emulsions. Soft Matter, 2022, 18, 6157-6166.	1.9	6
9	Droplet-based methods for tackling antimicrobial resistance. Current Opinion in Biotechnology, 2022, 76, 102755.	4.7	20
10	Microfluidics for antibiotic susceptibility testing. Lab on A Chip, 2022, 22, 3637-3662.	4.0	56
11	You will know by its tail: a method for quantification of heterogeneity of bacterial populations using single-cell MIC profiling. Lab on A Chip, 2022, 22, 4317-4326.	4.0	6
12	High-Throughput Monitoring of Bacterial Cell Density in Nanoliter Droplets: Label-Free Detection of Unmodified Gram-Positive and Gram-Negative Bacteria. Analytical Chemistry, 2021, 93, 843-850.	5.2	36
13	Biofabricating murine and human myo-substitutes for rapid volumetric muscle loss restoration. EMBO Molecular Medicine, 2021, 13, .	4.7	49
14	Study of Active Janus Particles in the Presence of an Engineered Oil–Water Interface. Langmuir, 2021, 37, 204-210.	3.0	19
15	Gravity-driven microfluidic assay for digital enumeration of bacteria and for antibiotic susceptibility testing. Lab on A Chip, 2020, 20, 54-63.	4.0	60
16	Diffusion and flow in complex liquids. Soft Matter, 2020, 16, 114-124.	1.9	34
17	Ions in an AC Electric Field: Strong Long-Range Repulsion between Oppositely Charged Surfaces. Physical Review Letters, 2020, 125, .	5.8	27
18	A Method for Simultaneous Polishing and Hydrophobization of Polycarbonate for Microfluidic Applications. Polymers, 2020, 12, 2490.	3.4	13

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19	Split or slip – passive generation of monodisperse double emulsions with cores of varying viscosity in microfluidic tandem step emulsification system. RSC Advances, 2020, 10, 23058-23065.	4.0	14
20	Combinatorial Antimicrobial Susceptibility Testing Enabled by Non-Contact Printing. Micromachines, 2020, 11, 142.	2.0	12
21	Droplet-based digital antibiotic susceptibility screen reveals single-cell clonal heteroresistance in an isogenic bacterial population. Scientific Reports, 2020, 10, .	2.7	84
22	Microfluidic measurement of the dissolution rate of gypsum in water using the reactive infiltration-instability. E3S Web of Conferences, 2019, 98, 04010.	0.2	1
23	Passive and parallel microfluidic formation of droplet interface bilayers (DIBs) for measurement of leakage of small molecules through artificial phospholipid membranes. Sensors and Actuators B: Chemical, 2019, 286, 258-265.	6.3	19
24	Accounting for corner flow unifies the understanding of droplet formation in microfluidic channels. Nature Communications, 2019, 10, .	10.8	69
25	Oscillating droplet trains in microfluidic networks and their suppression in blood flow. Nature Physics, 2019, 15, 706-713.	10.6	42
26	Evaluation of droplet-based microfluidic platforms as a convenient tool for lipases and esterases assays. Preparative Biochemistry and Biotechnology, 2019, 49, 727-734.	1.5	7
27	3D-Printing of Functionally Graded Porous Materials Using On-Demand Reconfigurable Microfluidics. Angewandte Chemie - International Edition, 2019, 58, 7620-7625.	11.6	106
28	3D-Printing of Functionally Graded Porous Materials Using On-Demand Reconfigurable Microfluidics. Angewandte Chemie, 2019, 131, 7702-7707.	0.9	8
29	Non-wetting droplets in capillaries of circular cross-section: Scaling function. Physics of Fluids, 2019, 31, .	2.2	3
30	Grooved step emulsification systems optimize the throughput of passive generation of monodisperse emulsions. Lab on A Chip, 2019, 19, 1183-1192.	4.0	19
31	Recent developments of microfluidics as a tool for biotechnology and microbiology. Current Opinion in Biotechnology, 2019, 55, 60-67.	4.7	80
32	Droplet Microfluidics as a Tool for the Generation of Granular Matters and Functional Emulsions. KONA Powder and Particle Journal, 2019, 36, 50-71.	3.0	17
33	A microfluidic platform for screening and optimization of organic reactions in droplets. Journal of Flow Chemistry, 2019, 10, 397-408.	1.4	19
34	In vivo volumetric imaging by crosstalk-free full-field OCT. Optica, 2019, 6, 608.	5.3	74
35	Wall fluidization in two acts: from stiff to soft roughness. Soft Matter, 2018, 14, 1088-1093.	1.9	10
36	Electric Field Assisted Microfluidic Platform for Generation of Tailorable Porous Microbeads as Cell Carriers for Tissue Engineering. Advanced Functional Materials, 2018, 28, .	11.9	36

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37	Teflon microreactors for organic syntheses. Sensors and Actuators B: Chemical, 2018, 255, 2274-2281.	6.3	16
38	Fast selective trapping and release of picoliter droplets in a 3D microfluidic PDMS multi-trap system with bubbles. Analyst, The, 2018, 143, 843-849.	2.6	16
39	Microfluidic screening of antibiotic susceptibility at a single-cell level shows the inoculum effect of cefotaxime on E. coli. Lab on A Chip, 2018, 18, 3668-3677.	4.0	51
40	An FEP Microfluidic Reactor for Photochemical Reactions. Micromachines, 2018, 9, 156.	2.0	8
41	A passive microfluidic system based on step emulsification allows the generation of libraries of nanoliter-sized droplets from microliter droplets of varying and known concentrations of a sample. Lab on A Chip, 2017, 17, 1323-1331.	4.0	52
42	Formation of printable granular and colloidal chains through capillary effects and dielectrophoresis. Nature Communications, 2017, 8, .	10.8	43
43	Optimized droplet digital CFU assay (ddCFU) provides precise quantification of bacteria over a dynamic range of 6 logs and beyond. Lab on A Chip, 2017, 17, 1980-1987.	4.0	51
44	A precise and accurate microfluidic droplet dilutor. Analyst, The, 2017, 142, 2901-2911.	2.6	22
45	Microfluidic-enhanced 3D bioprinting of aligned myoblast-laden hydrogels leads to functionally organized myofibers in vitro and in vivo. Biomaterials, 2017, 131, 98-110.	9.5	321
46	Calibration-free assays on standard real-time PCR devices. Scientific Reports, 2017, 7, .	2.7	9
47	Controlled droplet microfluidic systems for multistep chemical and biological assays. Chemical Society Reviews, 2017, 46, 6210-6226.	32.1	302
48	Fluidization and wall slip of soft glassy materials by controlled surface roughness. Physical Review E, 2017, 95, .	1.5	27
49	An Automated Microfluidic System for the Generation of Droplet Interface Bilayer Networks. Micromachines, 2017, 8, 93.	2.0	13
50	Designing and interpretation of digital assays: Concentration of target in the sample and in the source of sample. Biomolecular Detection and Quantification, 2016, 10, 24-30.	10.6	13
51	Dodecylresorufin (C12R) Outperforms Resorufin in Microdroplet Bacterial Assays. ACS Applied Materials & Interfaces, 2016, 8, 11318-11325.	5.5	46
52	Droplet microfluidics for microbiology: techniques, applications and challenges. Lab on A Chip, 2016, 16, 2168-2187.	4.0	423
53	Whole Teflon valves for handling droplets. Lab on A Chip, 2016, 16, 2198-2210.	4.0	18
54	Nano-liter droplet libraries from a pipette: step emulsificator that stabilizes droplet volume against variation in flow rate. Lab on A Chip, 2016, 16, 2044-2049.	4.0	51

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55	Microfluidic observation of the onset of reactive-infiltration instability in an analog fracture. Geophysical Research Letters, 2016, 43, 6907-6915.	2.9	49
56	Stable hydrophilic surface of polycarbonate. Sensors and Actuators B: Chemical, 2016, 226, 151-155.	6.3	15
57	Antibiograms in five pipetting steps: precise dilution assays in sub-microliter volumes with a conventional pipette. Lab on A Chip, 2016, 16, 893-901.	4.0	41
58	Microfluidic platform for reproducible self-assembly of chemically communicating droplet networks with predesigned number and type of the communicating compartments. Lab on A Chip, 2016, 16, 764-772.	4.0	50
59	Scaling up the Throughput of Synthesis and Extraction in Droplet Microfluidic Reactors. Journal of Flow Chemistry, 2015, 5, 110-118.	1.4	12
60	Between giant oscillations and uniform distribution of droplets: The role of varying lumen of channels in microfluidic networks. Physical Review E, 2015, 92, .	1.5	11
61	Droplet Microfluidic Technique for the Study of Fermentation. Micromachines, 2015, 6, 1514-1525.	2.0	10
62	Thin-finger growth and droplet pinch-off in miscible and immiscible displacements in a periodic network of microfluidic channels. Physics of Fluids, 2015, 27, .	2.2	17
63	Droplet Clusters: Exploring the Phase Space of Soft Mesoscale Atoms. Physical Review Letters, 2015, 114, .	5.8	34
64	Blood diagnostics using sedimentation to extract plasma on a fully integrated point-of-care microfluidic system. Engineering in Life Sciences, 2015, 15, 333-339.	3.0	8
65	Rational Design of Digital Assays. Analytical Chemistry, 2015, 87, 8203-8209.	5.2	15
66	Chemical computing with reaction–diffusion processes. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2015, 373, 20140219.	1.6	54
67	Microfluidic Foaming: A Powerful Tool for Tailoring the Morphological and Permeability Properties of Sponge-like Biopolymeric Scaffolds. ACS Applied Materials & Interfaces, 2015, 7, 23660-23671.	5.5	65
68	Differentiation of morphotic elements in human blood using optical coherence tomography and a microfluidic setup. Optics Express, 2015, 23, 27724.	2.3	13
69	A droplet microfluidic system for sequential generation of lipid bilayers and transmembrane electrical recordings. Lab on A Chip, 2015, 15, 541-548.	4.0	47
70	Generation of Nanoliter Droplets on Demand at Hundred-Hz Frequencies. Micromachines, 2014, 5, 1002-1011.	2.0	14
71	Highly ordered and tunable polyHIPEs by using microfluidics. Journal of Materials Chemistry B, 2014, 2, 2290.	4.3	82
72	Microfluidic traps for hard-wired operations on droplets. Lab on A Chip, 2013, 13, 4096.	4.0	58

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73	Bacterial Growth and Adaptation in Microdroplet Chemostats. Angewandte Chemie - International Edition, 2013, 52, 8908-8911.	11.6	113
74	Simple modular systems for generation of droplets on demand. Lab on A Chip, 2013, 13, 3689.	4.0	30
75	Bacterial Growth and Adaptation in Microdroplet Chemostats. Angewandte Chemie, 2013, 125, 9076-9079.	0.9	22
76	Flow focusing with viscoelastic liquids. Physics of Fluids, 2013, 25, .	2.2	70
77	Custom tailoring multiple droplets one-by-one. Lab on A Chip, 2013, 13, 4308.	4.0	12
78	Block-and-break generation of microdroplets with fixed volume. Biomicrofluidics, 2013, 7, .	1.6	39
79	A micro-rheological method for determination of blood type. Lab on A Chip, 2013, 13, 2796.	4.0	34
80	Assessment of the flow velocity of blood cells in a microfluidic device using joint spectral and time domain optical coherence tomography. Optics Express, 2013, 21, 24025.	2.3	30
81	Rücktitelbild: Bacterial Growth and Adaptation in Microdroplet Chemostats (Angew. Chem. 34/2013). Angewandte Chemie, 2013, 125, 9220-9220.	0.9	0
82	Collapse of a nanoscopic void triggered by a spherically symmetric traveling sound wave. Physical Review E, 2012, 85, .	1.5	10
83	Polyethyleneimine coating renders polycarbonate resistant to organic solvents. Lab on A Chip, 2012, 12, 2580.	4.0	34
84	Iterative operations on microdroplets and continuous monitoring of processes within them; determination of solubility diagrams of proteins. Lab on A Chip, 2012, 12, 4022.	4.0	27
85	The structure and stability of multiple micro-droplets. Soft Matter, 2012, 8, 7269.	1.9	224
86	Rapid screening of antibiotic toxicity in an automated microdroplet system. Lab on A Chip, 2012, 12, 1629.	4.0	223
87	Characterization of Caulobacter crescentus FtsZ Protein Using Dynamic Light Scattering. Journal of Biological Chemistry, 2012, 287, 23878-23886.	1.3	27
88	Functionalization of polycarbonate with proteins; open-tubular enzymatic microreactors. Lab on A Chip, 2012, 12, 2743.	4.0	20
89	Automated generation of libraries of nL droplets. Lab on A Chip, 2012, 12, 3995.	4.0	52
90	Discontinuous Transition in a Laminar Fluid Flow: A Change of Flow Topology inside a Droplet Moving in a Micron-Size Channel. Physical Review Letters, 2012, 108, .	5.8	53

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91	Microfluidic architectures for efficient generation of chemistry gradations in droplets. Microfluidics and Nanofluidics, 2012, 14, 235-245.	2.1	20
92	Hydrophilic polycarbonate chips for generation of oil-in-water (O/W) and water-in-oil-in-water (W/O/W) emulsions. Microfluidics and Nanofluidics, 2012, 14, 597-604.	2.1	12
93	Hydrophilic polycarbonate chips for generation of oil-in-water (O/W) and water-in-oil-in-water (W/O/W) emulsions. Microfluidics and Nanofluidics, 2012, 14, 767-774.	2.1	19
94	Automated high-throughput generation of droplets. Lab on A Chip, 2011, 11, 3593.	4.0	39
95	Speed of flow of individual droplets in microfluidic channels as a function of the capillary number, volume of droplets and contrast of viscosities. Lab on A Chip, 2011, 11, 3603.	4.0	88
96	Bubbles navigating through networks of microchannels. Lab on A Chip, 2011, 11, 3970.	4.0	36
97	Microfluidic formulation of pectin microbeads for encapsulation and controlled release of nanoparticles. Biomicrofluidics, 2011, 5, .	1.6	38
98	Ionic polarization of liquid-liquid interfaces; dynamic control of the rate of electro-coalescence. Applied Physics Letters, 2011, 99, .	2.3	13
99	Transport of resistance through a long microfluidic channel. Physical Review E, 2010, 82, .	1.5	7
100	Large-scale molecular dynamics verification of the Rayleigh-Plesset approximation for collapse of nanobubbles. Physical Review E, 2010, 82, .	1.5	22
101	Dynamic memory in a microfluidic system of droplets traveling through a simple network of microchannels. Lab on A Chip, 2010, 10, 484-493.	4.0	57
102	Droplet on demand system utilizing a computer controlled microvalve integrated into a stiff polymeric microfluidic device. Lab on A Chip, 2010, 10, 512-518.	4.0	54
103	High-throughput automated droplet microfluidic system for screening of reaction conditions. Lab on A Chip, 2010, 10, 816.	4.0	114
104	Propulsion of flexible polymer structures in a rotating magnetic field. Journal of Physics Condensed Matter, 2009, 21, 204110.	1.6	68
105	Thousand-Fold Acceleration of Phase Decomposition in Polymer/Liquid Crystal Blends. ChemPhysChem, 2009, 10, 2620-2622.	1.5	2
106	Dynamic charge separation in a liquid crystalline meniscus. Soft Matter, 2009, 5, 2352-2360.	1.9	3
107	Emulsification in a microfluidic flow-focusing device: effect of the viscosities of the liquids. Microfluidics and Nanofluidics, 2008, 5, 585-594.	2.1	329
108	Formation of Bubbles and Droplets in Parallel, Coupled Flow-Focusing Geometries. Small, 2008, 4, 1795-1805.	7.3	127

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109	Simultaneous generation of droplets with different dimensions in parallel integrated microfluidic droplet generators. Soft Matter, 2008, 4, 258-262.	1.9	101
110	Interfacial instabilities in a microfluidic Hele-Shaw cell. Soft Matter, 2008, 4, 1403.	1.9	72
111	Screening of the Effect of Surface Energy of Microchannels on Microfluidic Emulsification. Langmuir, 2007, 23, 8010-8014.	3.0	84
112	Net Charge and Electrophoretic Mobility of Lysozyme Charge Ladders in Solutions of Nonionic Surfactant. Journal of Physical Chemistry B, 2007, 111, 5503-5510.	2.0	15
113	Synthesis of Composite Emulsions and Complex Foams with the use of Microfluidic Flow-Focusing Devices. Small, 2007, 3, 1792-1802.	7.3	77
114	Diffusion and Viscosity in a Crowded Environment: from Nano- to Macroscale. Journal of Physical Chemistry B, 2006, 110, 25593-25597.	2.0	109
115	Mixing with bubbles: a practical technology for use with portable microfluidic devices. Lab on A Chip, 2006, 6, 207-212.	4.0	131
116	Flowing Crystals: Nonequilibrium Structure of Foam. Physical Review Letters, 2006, 97, .	5.8	72
117	Formation of droplets and bubbles in a microfluidic T-junction—scaling and mechanism of break-up. Lab on A Chip, 2006, 6, 437.	4.0	2,148
118	Flowing Lattices of Bubbles as Tunable, Self-Assembled Diffraction Gratings. Small, 2006, 2, 1292-1298.	7.3	66
119	Bifurcation of droplet flows within capillaries. Physical Review E, 2006, 74, .	1.5	77
120	Tessellation of a stripe. Physical Review E, 2006, 73, .	1.5	17
121	Bubbling in Unbounded Coflowing Liquids. Physical Review Letters, 2006, 96, .	5.8	46
122	Oscillations with uniquely long periods in a microfluidic bubble generator. Nature Physics, 2005, 1, 168-171.	10.6	70
123	Escherichia coli swim on the right-hand side. Nature, 2005, 435, 1271-1274.	30.7	515
124	Combining microscience and neurobiology. Current Opinion in Neurobiology, 2005, 15, 560-567.	3.3	51
125	Generation of Monodisperse Particles by Using Microfluidics: Control over Size, Shape, and Composition. Angewandte Chemie - International Edition, 2005, 44, 724-728.	11.6	724
126	Generation of Monodisperse Particles by Using Microfluidics: Control over Size, Shape, and Composition. Angewandte Chemie, 2005, 117, 734-738.	0.9	202

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127	Generation of Monodisperse Particles by Using Microfluidics: Control over Size, Shape, and Composition. Angewandte Chemie, 2005, 117, 3865-3865.	0.9	15
128	An Axisymmetric Flow-Focusing Microfluidic Device. Advanced Materials, 2005, 17, 1067-1072.	17.5	360
129	Mechanism for Flow-Rate Controlled Breakup in Confined Geometries: A Route to Monodisperse Emulsions. Physical Review Letters, 2005, 94, .	5.8	529
130	Nonlinear Dynamics of a Flow-Focusing Bubble Generator: An Inverted Dripping Faucet. Physical Review Letters, 2005, 94, .	5.8	120
131	Microoxen: Microorganisms to move microscale loads. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 11963-11967.	5.2	407
132	Design for mixing using bubbles in branched microfluidic channels. Applied Physics Letters, 2005, 86, 244108.	2.3	78
133	Dynamic control of liquid-core/liquid-cladding optical waveguides. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 12434-12438.	5.2	297
134	Self-Assembled Aggregates of IgGs as Templates for the Growth of Clusters of Gold Nanoparticles. Angewandte Chemie - International Edition, 2004, 43, 1555-1558.	11.6	45
135	Self-Assembled Aggregates of IgGs as Templates for the Growth of Clusters of Gold Nanoparticles. Angewandte Chemie, 2004, 116, 1581-1584.	0.9	6
136	Liquids with internal surfaces at and out of equilibrium: the homogeneity index. Journal of Molecular Liquids, 2004, 112, 29-35.	3.9	0
137	Liquids with internal surfaces at and out of equilibrium: the homogeneity index. Journal of Molecular Liquids, 2004, , .	3.9	0
138	Formation of monodisperse bubbles in a microfluidic flow-focusing device. Applied Physics Letters, 2004, 85, 2649-2651.	2.3	602
139	Scattering Patterns of Multiply Continuous Cubic Phases in Block Copolymers. I. The Model. Macromolecules, 2003, 36, 9181-9190.	3.7	14
140	Scattering Patterns of Multiply Continuous Cubic Phases in Block Copolymers. II. Application to Various Triply Periodic Architectures. Macromolecules, 2003, 36, 9191-9198.	3.7	8
141	Multiple photonic band gaps in the structures composed of core-shell particles. Journal of Applied Physics, 2003, 94, 4244-4247.	1.6	15
142	Photonic properties of an inverted face centered cubic opal under stretch and shear. Applied Physics Letters, 2003, 82, 1553-1555.	2.3	12
143	Two-Dimensional Colloid Crystals Obtained by Coupling of Flow and Confinement. Physical Review Letters, 2003, 91, .	5.8	67
144	Photonic properties of multicontinuous cubic phases. Physical Review B, 2002, 66, .	2.4	27

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145	Scattering Patterns of Self-Assembled Cubic Phases. 2. Analysis of the Experimental Spectra. Langmuir, 2002, 18, 2529-2537.	3.0	51
146	Scattering Patterns of Self-Assembled Cubic Phases. 1. The Model. Langmuir, 2002, 18, 2519-2528.	3.0	45
147	Scattering patterns of self-assembled gyroid cubic phases in amphiphilic systems. Journal of Chemical Physics, 2001, 115, 1095-1099.	2.2	11
148	Periodic surfaces of simple and complex topology: Comparison of scattering patterns. Physical Review E, 2001, 64, .	1.5	15
149	Scattering on triply periodic minimal surfaces—the effect of the topology, Debye–Waller, and molecular form factors. Journal of Chemical Physics, 2000, 113, 3772-3779.	2.2	20
150	Energy landscapes, supergraphs, and “folding funnels” in spin systems. Physical Review E, 1999, 60, 3219-3226.	1.5	64
151	Physicochemical Properties Predict Retention of Antibiotics in Water-in-Oil Droplets. Analytical Chemistry, 0, , .	5.2	7
152	Ciprofloxacin pre-exposure influences individual cell MIC and heteroresistance of bacteria inside microfluidic droplets. Scientific Reports, 0, 15, .	2.7	1
153	Investigating the Impact of Copper-PEDOT:PSS Matrix towards Nonenzymatic Electrochemical Creatinine Detection. ACS Applied Electronic Materials, 0, 8, 5868-5879.	3.3	0