Zuzanna S Siwy

List of Publications by Year
in descending order

120 papers	12,207 citations	31902 53 h-index	24915 109 g-index
121 all docs	121 docs citations	121 times ranked	6462 citing authors

#	Article	IF	Citations
1	Nanopore analytics: sensing of single molecules. Chemical Society Reviews, 2009, 38, 2360.	18.7	1,035
2	Ion-Current Rectification in Nanopores and Nanotubes with Broken Symmetry. Advanced Functional Materials, 2006, 16, 735-746.	7.8	733
3	Nanofluidic Diode. Nano Letters, 2007, 7, 552-556.	4.5	562
4	Protein Biosensors Based on Biofunctionalized Conical Gold Nanotubes. Journal of the American Chemical Society, 2005, 127, 5000-5001.	6.6	491
5	Conical-Nanotube Ion-Current Rectifiers:Â The Role of Surface Charge. Journal of the American Chemical Society, 2004, 126, 10850-10851.	6.6	461
6	Engineered voltage-responsive nanopores. Chemical Society Reviews, 2010, 39, 1115-1132.	18.7	436
7	Voltage-Gated Sodium Channel Expression and Potentiation of Human Breast Cancer Metastasis. Clinical Cancer Research, 2005, 11, 5381-5389.	3.2	410
8	Ionic Selectivity of Single Nanochannels. Nano Letters, 2008, 8, 1978-1985.	4.5	387
9	Biosensing with Nanofluidic Diodes. Journal of the American Chemical Society, 2009, 131, 8211-8220.	6.6	360
10	Electric-field-induced wetting and dewetting in single hydrophobic nanopores. Nature Nanotechnology, 2011, 6, 798-802.	15.6	292
11	Learning Nature's Way: Biosensing with Synthetic Nanopores. Science, 2007, 317, 331-332.	6.0	255
12	DNAâ^'Nanotube Artificial Ion Channels. Journal of the American Chemical Society, 2004, 126, 15646-15647.	6.6	253
13	Detecting Single Porphyrin Molecules in a Conically Shaped Synthetic Nanopore. Nano Letters, 2005, 5, 1824-1829.	4.5	252
14	Nanofluidic Bipolar Transistors. Advanced Materials, 2008, 20, 293-297.	11.1	250
15	Tuning Transport Properties of Nanofluidic Devices with Local Charge Inversion. Journal of the American Chemical Society, 2009, 131, 5194-5202.	6.6	246
16	Critical Knowledge Gaps in Mass Transport through Single-Digit Nanopores: A Review and Perspective. Journal of Physical Chemistry C, 2019, 123, 21309-21326.	1.5	234
17	An Asymmetric Polymer Nanopore for Single Molecule Detection. Nano Letters, 2004, 4, 497-501.	4.5	230
18	Nanofluidic Ionic Diodes. Comparison of Analytical and Numerical Solutions. ACS Nano, 2008, 2, 1589-1602.	7.3	221

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19	Resistive-Pulse DNA Detection with a Conical Nanopore Sensor. Langmuir, 2006, 22, 10837-10843.	1.6	193
20	Preparation of synthetic nanopores with transport properties analogous to biological channels. Surface Science, 2003, 532-535, 1061-1066.	0.8	187
21	Poisson-Nernst-Planck model of ion current rectification through a nanofluidic diode. Physical Review E, 2007, 76, 041202.	0.8	187
22	Rectification of Concentration Polarization in Mesopores Leads To High Conductance Ionic Diodes and High Performance Osmotic Power. Journal of the American Chemical Society, 2019, 141, 3691-3698.	6.6	187
23	Hydrogen Peroxide Sensing with Horseradish Peroxidase-Modified Polymer Single Conical Nanochannels. Analytical Chemistry, 2011, 83, 1673-1680.	3.2	168
24	DNA-Modified Polymer Pores Allow pH- and Voltage-Gated Control of Channel Flux. Journal of the American Chemical Society, 2014, 136, 9902-9905.	6.6	160
25	Control of ionic transport through gated single conical nanopores. Analytical and Bioanalytical Chemistry, 2009, 394, 413-419.	1.9	153
26	Nanoprecipitation-assisted ion current oscillations. Nature Nanotechnology, 2008, 3, 51-57.	15.6	152
27	A nanodevice for rectification and pumping ions. American Journal of Physics, 2004, 72, 567-574.	0.3	151
28	A nanofluidic ion regulation membrane with aligned cellulose nanofibers. Science Advances, 2019, 5, eaau4238.	4.7	148
29	Conical Nanopore Membranes: Controlling the Nanopore Shape. Small, 2006, 2, 194-198.	5.2	146
30	Versatile ultrathin nanoporous silicon nitride membranes. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 21039-21044.	3.3	146
31	Calcium-Induced Voltage Gating in Single Conical Nanopores. Nano Letters, 2006, 6, 1729-1734.	4.5	140
32	Biomimetic potassium-selective nanopores. Science Advances, 2019, 5, eaav2568.	4.7	128
33	The Role of Pore Geometry in Single Nanoparticle Detection. ACS Nano, 2012, 6, 8366-8380.	7.3	115
34	Graphene opens up to DNA. Nature Nanotechnology, 2010, 5, 697-698.	15.6	112
35	Transport of ions and biomolecules through single asymmetric nanopores in polymer films. Nuclear Instruments & Methods in Physics Research B, 2005, 236, 109-116.	0.6	90
36	Voltage-Induced Modulation of Ionic Concentrations and Ion Current Rectification in Mesopores with Highly Charged Pore Walls. Journal of Physical Chemistry Letters, 2018, 9, 393-398.	2.1	90

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37	Negative Incremental Resistance Induced by Calcium in Asymmetric Nanopores. Nano Letters, 2006, 6, 473-477.	4.5	84
38	Squeezing Ionic Liquids through Nanopores. Nano Letters, 2009, 9, 2125-2128.	4.5	78
39	Biomolecular conjugation inside synthetic polymer nanopores via glycoproteinâ€"lectin interactions. Nanoscale, 2011, 3, 1894.	2.8	78
40	Rectification of Ion Current in Nanopores Depends on the Type of Monovalent Cations: Experiments and Modeling. Journal of Physical Chemistry C, 2014, 118, 9809-9819.	1.5	77
41	Charge Inversion and Calcium Gating in Mixtures of Ions in Nanopores. Journal of the American Chemical Society, 2020, 142, 2925-2934.	6.6	73
42	Synthetic Nanopores as a Test Case for Ion Channel Theories: The Anomalous Mole Fraction Effect without Single Filing. Biophysical Journal, 2008, 95, 609-619.	0.2	72
43	Charged Particles Modulate Local Ionic Concentrations and Cause Formation of Positive Peaks in Resistive-Pulse-Based Detection. Journal of Physical Chemistry C, 2014, 118, 2391-2398.	1.5	72
44	Comparison of bipolar and unipolar ionic diodes. Nanotechnology, 2010, 21, 265301.	1.3	68
45	The Design and Characterization of Multifunctional Aptamer Nanopore Sensors. ACS Nano, 2018, 12, 4844-4852.	7.3	66
46	Polystyrene Particles Reveal Pore Substructure As They Translocate. ACS Nano, 2012, 6, 7295-7302.	7.3	64
47	Statistical analysis of ionic current fluctuations in membrane channels. Physical Review E, 1999, 60, 7343-7348.	0.8	63
48	Salt Solutions in Carbon Nanotubes: The Role of Cationâˆ'Ï€ Interactions. Journal of Physical Chemistry C, 2016, 120, 7332-7338.	1.5	62
49	Pores within pores. Nature Materials, 2004, 3, 284-285.	13.3	60
50	Nonequilibrium<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mn>1</mml:mn><mml:mo>/</mml:mo><mml:mi>f</mml:mi></mml:math>Noise in Rectifying Nanopores. Physical Review Letters, 2009, 103, 248104.	2.9	58
51	Nanopores as protein sensors. Nature Biotechnology, 2012, 30, 506-507.	9.4	58
52	Highly Charged Particles Cause a Larger Current Blockage in Micropores Compared to Neutral Particles. ACS Nano, 2016, 10, 8413-8422.	7.3	57
53	Pores with Longitudinal Irregularities Distinguish Objects by Shape. ACS Nano, 2015, 9, 4390-4397.	7.3	55
54	Particle Deformation and Concentration Polarization in Electroosmotic Transport of Hydrogels through Pores. ACS Nano, 2013, 7, 3720-3728.	7.3	49

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55	Modulation of Ionic Current Rectification in Ultrashort Conical Nanopores. Analytical Chemistry, 2020, 92, 16188-16196.	3.2	48
56	Molecular control of ionic conduction in polymer nanopores. Faraday Discussions, 2009, 143, 47.	1.6	45
57	Ionic amplifying circuits inspired by electronics and biology. Nature Communications, 2020, 11, 1568.	5.8	45
58	Effect of Crown Ether on Ion Currents through Synthetic Membranes Containing a Single Conically Shaped Nanopore. Journal of Physical Chemistry B, 2005, 109, 18400-18407.	1.2	44
59	Nanopores and Nanochannels: From Gene Sequencing to Genome Mapping. ACS Nano, 2016, 10, 9768-9771.	7.3	43
60	Direction Dependence of Resistive-Pulse Amplitude in Conically Shaped Mesopores. Analytical Chemistry, 2016, 88, 4917-4925.	3.2	42
61	Modulation of Charge Density and Charge Polarity of Nanopore Wall by Salt Gradient and Voltage. ACS Nano, 2019, 13, 9868-9879.	7.3	42
62	Tunable Current Rectification and Selectivity Demonstrated in Nanofluidic Diodes through Kinetic Functionalization. Journal of Physical Chemistry Letters, 2020, 11, 60-66.	2.1	42
63	Rectification of nanopores in aprotic solvents â€“ transport properties of nanopores with surface dipoles. Nanoscale, 2015, 7, 19080-19091.	2.8	40
64	Gating of Hydrophobic Nanopores with Large Anions. ACS Nano, 2020, 14, 4306-4315.	7.3	39
65	Polarization of Gold in Nanopores Leads to Ion Current Rectification. Journal of Physical Chemistry Letters, 2016, 7, 4152-4158.	2.1	38
66	Precipitation-Induced Voltage-Dependent Ion Current Fluctuations in Conical Nanopores. Journal of Physical Chemistry C, 2010, 114, 8126-8134.	1.5	36
67	Solid-State Ionic Diodes Demonstrated in Conical Nanopores. Journal of Physical Chemistry C, 2017, 121, 6170-6176.	1.5	36
68	A hydrophobic entrance enhances ion current rectification and induces dewetting in asymmetric nanopores. Analyst, The, 2012, 137, 2944.	1.7	35
69	Reading amino acids in a nanopore. Nature Biotechnology, 2020, 38, 159-160.	9.4	35
70	Viscosity and Conductivity Tunable Diode-like Behavior for Meso- and Micropores. Journal of Physical Chemistry Letters, 2017, 8, 3846-3852.	2.1	34
71	Anomalous Mobility of Highly Charged Particles in Pores. Analytical Chemistry, 2015, 87, 8517-8523.	3.2	33
72	Abnormal Ionic-Current Rectification Caused by Reversed Electroosmotic Flow under Viscosity Gradients across Thin Nanopores. Analytical Chemistry, 2019, 91, 996-1004.	3.2	32

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73	Application of dwell-time series in studies of long-range correlation in single channel ion transport: analysis of ion current through a big conductance locust potassium channel. Physica A: Statistical Mechanics and Its Applications, 2001, 297, 79-96.	1.2	28
74	Electrodiffusioosmosis-Induced Negative Differential Resistance in pH-Regulated Mesopores Containing Purely Monovalent Solutions. ACS Applied Materials & Interfaces, 2020, 12, 3198-3204.	4.0	27
75	DNA Strands Attached Inside Single Conical Nanopores: Ionic Pore Characteristics and Insight into DNA Biophysics. Journal of Membrane Biology, 2011, 239, 105-113.	1.0	26
76	Diffusion and Trapping of Single Particles in Pores with Combined Pressure and Dynamic Voltage. Journal of Physical Chemistry C, 2014, 118, 19214-19223.	1.5	26
77	Making nanopores from nanotubes. Nature Nanotechnology, 2010, 5, 174-175.	15.6	24
78	Improving on aquaporins. Science, 2017, 357, 753-753.	6.0	24
79	Advances in Multi-Scale Pores and Channels Systems. Small, 2018, 14, 1800908.	5.2	23
80	Asymmetric properties of ion current 1/f noise in conically shaped nanopores. Chemical Physics, 2010, 375, 529-535.	0.9	21
81	Role of Particle Focusing in Resistive-Pulse Technique: Direction-Dependent Velocity in Micropores. ACS Nano, 2016, 10, 3509-3517.	7.3	21
82	Disentangling Steric and Electrostatic Factors in Nanoscale Transport Through Confined Space. Nano Letters, 2013, 13, 3890-3896.	4.5	19
83	Velocity Profiles in Pores with Undulating Opening Diameter and Their Importance for Resistive-Pulse Experiments. Analytical Chemistry, 2014, 86, 10445-10453.	3.2	18
84	Ion transport in gel and gelâ€“liquid systems for LiClO₄-doped PMMA at the meso- and nanoscales. Nanoscale, 2017, 9, 16232-16243.	2.8	18
85	Tunable Nanopore Arrays as the Basis for Ionic Circuits. ACS Applied Materials & Interfaces, 2020, 12, 56622-56631.	4.0	18
86	Electrokinetic Phenomena in Organic Solvents. Journal of Physical Chemistry B, 2019, 123, 6123-6131.	1.2	17
87	Presence of electrolyte promotes wetting and hydrophobic gating in nanopores with residual surface charges. Analyst, The, 2015, 140, 4804-4812.	1.7	16
88	Nanopore Current Oscillations: Nonlinear Dynamics on the Nanoscale. Journal of Physical Chemistry Letters, 2015, 6, 1800-1806.	2.1	16
89	DNA-Modified Polymer Pores Enable Ph- and Voltage-Gated Control of Channel Flux. Biophysical Journal, 2015, 108, 176a.	0.2	16
90	Concentration-Polarization-Induced Precipitation and Ionic Current Oscillations with Tunable Frequency. Journal of Physical Chemistry C, 2018, 122, 3648-3654.	1.5	15

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91	Statistical and fractal analyses of rat prostate cancer cell motility in a direct current electric field: comparison of strongly and weakly metastatic cells. European Biophysics Journal, 2003, 32, 12-21.	1.2	14
92	Principles of Small-Molecule Transport through Synthetic Nanopores. ACS Nano, 2021, 15, 16194-16206.	7.3	14
93	A hybrid resistive pulse-optical detection platform for microfluidic experiments. Scientific Reports, 2017, 7, 10173.	1.6	13
94	Probing charges on solidâ€"liquid interfaces with the resistive-pulse technique. Nanoscale, 2017, 9, 13527-13537.	2.8	13
95	Experimental Investigation of Dynamic Deprotonation/Protonation of Highly Charged Particles. Journal of Physical Chemistry C, 2017, 121, 6255-6263.	1.5	11
96	Nanopores: Generation, Engineering, and Single-Molecule Applications. , 2009, , 293-339.		11
97	A dual mode mechanism of conductance through fine porous membranes. Journal of Membrane Science, 1998, 145, 253-263.	4.1	10
98	Ag nanotubes and Ag/AgCl electrodes in nanoporous membranes. Nanotechnology, 2011, 22, 155301.	1.3	10
99	What can be learnt from the analysis of short time series of ion channel recordings. Physica A: Statistical Mechanics and Its Applications, 2000, 276, 376-390.	1.2	8
100	Deep learning assisted mechanotyping of individual cells through repeated deformations and relaxations in undulating channels. Biomicrofluidics, 2022, 16, .	1.2	8
101	The electricalâ€double layer revisited. Natural Sciences, 2022, 2, .	1.0	8
102	Rectified and Salt Concentration Dependent Wetting of Hydrophobic Nanopores. Journal of the American Chemical Society, 2022, 144, 11693-11705.	6.6	8
103	Probing Porous Structure of Single Manganese Oxide Mesorods with Ionic Current. Journal of Physical Chemistry C, 2013, 117, 24836-24842.	1.5	7
104	Searching for self-similarity in switching time and turbulent cascades in ion transport through a biochannel. A time delay asymmetry. Physica A: Statistical Mechanics and Its Applications, 2004, 336, 319-333.	1.2	4
105	Ionic conductivity of a single porous MnO2 mesorod at controlled oxidation states. Journal of Materials Chemistry A, 2015, 3, 12858-12863.	5.2	4
106	Synthesis and Biological Evaluation of a Valinomycin Analog Bearing a Pentafluorophenyl Active Ester Moiety. Journal of Organic Chemistry, 2015, 80, 12646-12650.	1.7	4
107	Probing ion current in solid-electrolytes at the meso- and nanoscale. Faraday Discussions, 2018, 210, 55-67.	1.6	4
108	Information Dynamics of a Nonlinear Stochastic Nanopore System. Entropy, 2018, 20, 221.	1.1	4

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109	Enhanced electro-osmosis in propylene carbonate salt solutions. Journal of Chemical Physics, 2021, 154, 134707.	1.2	4
110	Processes at nanopores and bio-nanointerfaces: general discussion. Faraday Discussions, 2018, 210, 145-171.	1.6	3
111	The polymer structure and morphology in terms of the concepts of chaos and fractals. Polimery, 1998, 43, 225-238.	0.4	3
112	Electrochemical Probing of Steric, Electrostatic and Hydrophobic Interactions of Large Cations in Polymers of Intrinsic Microporosity. Journal of the Electrochemical Society, 2022, 169, 020566.	1.3	3
113	Processes at nanoelectrodes: general discussion. Faraday Discussions, 2018, 210, 235-265.	1.6	1
114	Nanopores and Channels for Biomimetics and Biomedical Engineering. Biophysical Journal, 2020, 118, 2a-3a.	0.2	1
115	Polystyrene Beads as a Model System for Virus Particles Reveal Pore Substructure as they Translocate. Biophysical Journal, 2012, 102, 715a.	0.2	0
116	Electroosmosis Induced Pressure Gradients in Pores with Undulating Pore Diameter. Biophysical Journal, 2014, 106, 215a.	0.2	0
117	Macroscopic strain controlled ion current in an elastomeric microchannel. Journal of Applied Physics, 2015, 117, 174904.	1.1	0
118	Deformability of Individual Cells Probed by Electrical and Optical Signals. Biophysical Journal, 2018, 114, 192a.	0.2	0
119	Preface. Analytica Chimica Acta, 2019, 1086, 14-15.	2.6	0
120	A Robust Mechanism to Render Artificial Nanopores Potassium Ion Selective. Biophysical Journal, 2019, 116, 293a.	0.2	0