

## CURRICULUM VITAE

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### EDUCATION:

- **Habilitation in Chemical Physics**, awarded by the Polish National Committee of Science in July 2004 on the basis of research achievements and the dissertation: "Studies on preparation, structure and transport properties of nanopores in polymer membranes".
- **PhD in Chemical Sciences** (summa cum laude), October 1997, Silesian University of Technology, Gliwice, Poland.
- **MSc Eng. in Technology of Polymers**, March 1995, Silesian University of Technology, Gliwice, Poland.

### EMPLOYMENT HISTORY

Time	Position	Institution
July 2012 – present	Professor	Department of Physics and Astronomy, Department of Chemistry, Department of Biomedical Engineering, University of California, Irvine
July 2009 – June 2012	Associate Professor	Department of Physics and Astronomy, University of California, Irvine
July 2005 – June 2009	Assistant Professor	Department of Physics and Astronomy, University of California, Irvine
July 2004 – June 2007	Adjunct with Habilitation degree	Silesian University of Technology, Strzody 9, 44-100 Gliwice, Poland
September 2003 – June 2005	Postdoctoral researcher	University of Florida, Department of Chemistry, Gainesville, FL 32611, group of Prof. Charles R. Martin
October 2000 – August 2003	Postdoctoral researcher; Fellow of the Foundation for Polish Science and the Alexander von Humboldt Foundation	Gesellschaft fuer Schwerionenforschung, 64291 Darmstadt, Germany
April 1998 – June 2004 (on leave from October 2000 to June 2004)	Adjunct with PhD degree	Silesian University of Technology, Strzody 9, 44-100 Gliwice, Poland

### ACADEMIC DINSTINCTIONS

2013 – Fellow of the American Physical Society

2012 - UC Irvine Senate Award: Distinguished Mid-Career Faculty Award for Research

2009 - PECASE Award (Presidential Early Career Award for Scientists and Engineers) nominated by NSF.

2009-2010 - Friedrich Wilhelm Bessel Research Award from the Alexander von Humboldt Foundation

2007-2009 – Alfred P. Sloan Fellow  
2001 - Fellow of the Alexander von Humboldt Foundation  
2000 - Fellow of the Foundation for Polish Science

#### **AWARDS**

2008-2013 – NSF Career Award  
1998 - Prize of the Polish Minister of Education for the PhD Thesis  
1997 - Prize of the Foundation for Polish Science for outstanding results in research  
1995 - Prize of the Foundation for the Silesian University of Technology for outstanding results in research  
1995 - Prize of the President of the Silesian University of Technology, “Omnium Studiosorum Optimo” for the best graduates from the Silesian University of Technology

#### **MEMBERSHIPS**

- The American Biophysical Society, The American Physical Society (Fellow), The American Chemical Society

#### **MEMBERS OF EDITORIAL BOARDS**

- Editorial member of *Nanomedicine* (Future Medicine) – since 2011  
- Member of the Editorial Advisory Board for *ACS Nano* – since 2011.  
- Editor of *Physics Letters A* – since 2013

#### **LIST OF PUBLICATIONS IN PEER REVIEWED JOURNALS**

1. Grzywna Z.J., Siwy Z., Bashford C.L. (1996): Nonlinear Theory for Ionic Transport through Track - Etched Nuclear Filters, *Journal of Membrane Science* **121**, 261-269.
2. Grzywna Z.J., Siwy Z., Bashford C.L. (1996): On the Crowd Model for the Patch-Clamp Data, *Cellular and Molecular Biology Letters* **1**, 291-301.
3. Grzywna Z.J., Siwy Z. (1997): Chaos in Ionic Transport through Membranes, *Int. Journal of Bifurcation and Chaos* **5**, 1115-1123; Special Series in Nonlinear Dynamics, World Scientific, Series B, vol. **10**, World Scientific Publishing Co. Pte Ltd, 329-337 (1997).
4. Grzywna Z.J., Liebovitch L.S., Siwy Z. (1997): On the Self-Similarity of the Logistic Map, *Cellular and Molecular Biology Letters* **2**, 449-466.
5. Grzywna Z.J., Krasowska M., Siwy Z. (1998): Chaos i Fraktale w Opisie Struktury i Morfologii Polimerów, *Polimery* **43**, 225-231 (in Polish).
6. Grzywna Z.J., Liebovitch L.S., Siwy Z. (1998): A Dual Mode Mechanism of Conductance through Fine Porous Membranes, *Journal of Membrane Science* **3811**, 253-263.
7. Fulinski A., Grzywna Z.J., Mellor I., Siwy Z., Usherwood P.N.R. (1998): On the Non-Markovian Character of Ionic Current Fluctuations in Membrane Channels, *Physical Review E* **58**, (1) 919-924.

8. Grzywna Z.J., Liebovitch L.S., Siwy Z. (1999): Correspondence, *Journal of Membrane Science* **160**, 277-279.
9. Grzywna Z. J., Siwy Z., Fulinski A., Mellor I., Usherwood P.N.R. (1999): Chaos in the Potassium Current through Channels of Locust Muscle Membrane, *Cellular and Molecular Biology Letters* **4**, 37-54.
10. Siwy Z., Grzywna Z.J. (1999): On Ionic Transport through a High Conductance Locust K<sup>+</sup> Channel in Various Voltages, *Cellular and Molecular Biology Letters* **4** (4) 525-536.
11. Wolf A., Siwy Z., Korchev Y.E., Reber N., Spohr R. (1999): Ion Current Fluctuations in Artificial Ion Track Pores – Power Spectrum and Generalized Entropy, *Cellular and Molecular Biology Letters* **4** (4) 553-565.
12. Mercik Sz., Weron K., Siwy Z. (1999): Statistical Analysis of Ionic Current Fluctuations in Membrane Channels, *Physical Review E* **60**, 7343-7348.
13. Mercik Sz., Siwy Z., Weron K. (2000): What Can Be Learned from the Analysis of Short Time Series of Ion Channel Recordings, *Physica A* **276**, 376-390.
14. Siwy Z., Mercik Sz., Weron K. Spohr R., Wolf A., Grzywna Z.J. (2000): Comparison of Single Channel Potassium Current in Biological and Synthetic Systems - Dependence on Voltage, *Acta Physica Polonica B* **31**, 149-166.
15. Mercik Sz., Siwy Z., Spohr R., Weron K. (2001): Characterization of the Asymmetric Action of a Single, Pore in a Track-Etched Membrane, *Acta Physica Polonica B* **32**, 1605-1619.
16. Siwy Z., Mercik Sz., Weron K., Ausloos M. (2001): 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* **297**, 79-96.
17. Apel P., Korchev Y.E., Siwy Z., Spohr R., Yoshida M. (2001): Diode-Like Single Ion-Track Membrane Prepared by Electro-Stopping, *Nuclear Instruments and Methods in Physics Research, Section B* **184**, 337-346.
18. Siwy Z., Ausloos M., Ivanova K. (2002): Correlation Studies of Open and Closed State Fluctuations in an Ion Channel: Analysis of Ion Current through a Large-Conductance Locust Potassium Channel, *Physical Review E* **65**, 031907.
19. Siwy Z., Fulinski A. (2002): Origins of  $1/f^\alpha$  Noise in Membrane Channels Currents, *Physical Review Letters* **89**, 158101.
20. Siwy Z., Fulinski A. (2002): Fabrication of a Synthetic Nanopore Ion-Pump, *Physical Review Letters* **89**, 198103 (featured e.g. in the *Physical Review Focus*, *Wissenschaft on-line*, *Nature Materials*, *Research Technology News*, *The Industrial Physicist*).
21. Siwy Z., Gu Y., Spohr H.A., Baur D., Wolf-Reber A., Spohr R., Apel P., Korchev Y.E. (2002): Rectification and Voltage Gating in Ion Currents in a Nanofabricated Pore, *Europhysics Letters* **60**, 349-355.
22. Siwy Z., Dobrev D., Neumann R., Trautmann, C., Voss K. (2003): Electro-Responsive Asymmetric Nanopores in Polyimide with Stable Ion Current Signal, *Applied Physics A* **76**, 781-785.
23. Siwy Z., Mycielska M., Djamgoz M.B.A. (2003): Statistical and Fractal Analyses of Rat Prostate Cancer Cell Motility in Direct-Current Electric Field: Comparison of Strongly and Weakly Metastatic Cells, *European Biophysics Journal* **32**, 12-21.
24. Siwy Z., Apel P., Baur D., Dobrev D. D., Korchev Y. E., Neumann R., Spohr R., Trautmann C., Voss K.-O. (2003): Preparation of Synthetic Nanopores with Transport Properties Analogous to Biological Channels, *Surface Science* **532-535**, 1061-1066.
25. Siwy Z., Apel A., Dobrev, D.D., Neumann R., Spohr R., Trautmann C., Voss K. (2003): Ion Transport Through Asymmetric Nanopores Prepared by the Track-Etching Technique, *Nuclear Instruments and Methods in Physics Research, Section B* **208**, 143-148.
26. Enculescu I., Siwy Z., Dobrev D., Trautmann C., Toimil-Molares M.E., Neumann R., Hjort K., Spohr

R. (2003): Copper Nanowires Electrodeposited in Etched Single-Ion Track Templates, *Applied Physics A* **77**, 751-755.

27. Siwy Z., Fulinski A. (2003): Reply: Is Diffusional Model Good Enough for a Nanoscale Channel?  
*Physical Review Letters* **91**, 179802.
28. Siwy Z., Fulinski A. (2003) 1/f Noise in Ion Transport through Nanopores: Origins and Mechanism, AIP Conference Proceedings Vol 665(1) pp. 273-282. May 28.
29. Mara A., Siwy Z., Trautmann C., Wang, J., Kamme F. (2004): An Asymmetric Polymer Nanopore for Single Molecule Detection, *Nano Letters* **4**, 497-501.
30. Siwy Z. and Fulinski A. (2004): A Nanodevice for Rectifying and Pumping ions, *The American Journal of Physics* **72**, 567-574.
31. Ausloos M., Ivanova K., Siwy Z. (2004): Searching for Self-Similarity in Switching Time and Turbulent Cascades in Ion Transport through a Biochannel. A Time Delay Asymmetry, *Physica A* **336**, 319-333.
32. Martin C.R., Siwy, Z. (2004): Molecular Filters, Pores Within Pores, *Nature Materials News & Views* **3**, 284-285.
33. Fulinski A., Kosinska I., Siwy Z. (2004): On Validity of Continuous Modelling of Ion Transport Through Nanochannels, *Europhysics Letters* **67**, 683-689.
34. Siwy Z., Heins E., Harrell C.C., Kohli P., Martin C.R., (2004): Conical-Nanotube Ion-Current Rectifiers: The Role of Surface Charge, *Journal of the American Chemical Society* **126**, 10850-10851.
35. Harrell, C.C., Kohli, P., Siwy Z., Martin C.R. (2004): DNA-Nanotube Artificial Voltage-Gated Ion Channels, *Journal of the American Chemical Society* **126**, 15646-15647.
36. Fulinski, A., Kosinska I.D., Siwy, Z. (2005): Transport Properties of Nanopores in Electrolyte Solutions: the Diffusional Model and Surface Currents, *New Journal of Physics* **7**, 132 (1-18); part of Focus on Brownian Motion and Diffusion in the 21<sup>st</sup> Century.
37. Siwy Z., Kosinska I.D., Fulinski A., Martin C.R. (2005): Asymmetric Diffusion through Asymmetric Nanopores, *Physical Review Letters* **94**, 048102 (1-4).
38. Siwy Z., Trofin, L., Baker, L., Kohli P., Trautmann C., Martin C.R. (2005): Protein Biosensors Based on Biofunctionalized Conical Gold Nanotubes *Journal of the American Chemical Society* **127**, 5000-5001.
39. Schiedt B., Healy K., Morrison A.P., Neumann R., Siwy Z. (2005): Transport of Ions and Biomolecules through Single Asymmetric Nanopores in Polymer Films, *Nuclear Instruments and Methods in Physics Research, Section B* **236**, 109-116.
40. Fraser S.P., Diss J.K.J., Chioni A.-M., Mycielska M.E., Pan H., Yamaci, R.F., Pani F., Siwy Z., Krasowska M., Grzywna Z., Brackenbury W.J., Theodorou D., Koyutürk M., Kaya H., Battaloglu E., Tamburo De Bella M., Slade M.J., Tolhurst R., Palmieri C., Jiang J., Latchman D.S., Coombes R.C., Djamgoz, M.B.A. (2005): Voltage-Gated Sodium Channel Expression and Potentiation of Human Breast Cancer Metastasis, *Clinical Cancer Research* **11**, 5381-5389.
41. Heins E., Siwy Z., Baker L., Martin C.R. (2005): Stochastic Sensing of a Porphyrin Molecule in a Conically Shaped Abiotic Nanopore, *Nano Letters* **5**, 1824-1829.
42. Heins E., Baker L., Siwy Z., Mota M., Martin C.R. (2005): The Effect of Crown Ether on Ion Currents through Synthetic Membranes Containing a Single Conically Shaped Nanopore *Journal of Physical Chemistry* **109**, 18400-18407.
43. Harrell, C.C., Siwy, Z., Martin, C.R. (2006): Fabrication of Asymmetric Nanotubes within an Abiotic Platform, *Small* **2**, 194-198.
44. Harrell, C.C., Choi, Y., Horne, L.P., Baker, L.A., Siwy, Z., Martin, C.R. (2006): Resistive-Pulse DNA Detection with a Conical Nanopore Sensor, *Langmuir* **22**, 10837-10843.
45. Siwy, Z. (2006): Ion Current Rectification in Nanopores and Nanotubes with Broken Symmetry – Revisited (feature article), *Advanced Functional Materials*, **16**, 735-746.
46. Siwy, Z., Powell, M., Kalman, E., Astumian, R.D., Eisenberg, R.S. (2006): Negative Incremental Resistance Induced by Calcium in Asymmetric Nanopores, *Nano Letters* **6**, 473-477.

47. Siwy, Z., Powell, M.R., Petrov, A. Kalman, E., Trautmann C, Eisenberg, R.S. (2006): Calcium- Induced Voltage Gating in Single Conical Nanopores, *Nano Letters* **6**, 1729-1734.

48. Siwy, Z., Martin C.R. (2007) Tuning Ion Current Rectification in Synthetic Nanotubes (pp. 349-366), in H. Linke and Alf Månsson (Eds.): *Controlled Nanoscale Motion*, Lecture Notes in Physics Vol. **711**, (Springer, Berlin and Heidelberg).
49. Vlassioug, I., Siwy, Z. (2007): Nanofluidic diode, *Nano Letters* **7**, 552-556 (featured in *Nature Nanotechnology*).
50. Kalman, E., Healy, K., Siwy, Z. (2007): Tuning of Ion Current Rectification in Asymmetric Nanopores by Signal Mixing, *Europhysics Letters* **78**, 28002 (1-6).
51. Martin, C.R., Siwy, Z. (2007): Learning Nature's Way - Biosensing with Synthetic Nanopores, *Science* **317**, 331-332.
52. Constantin, D., Siwy, Z. (2007): Poisson Nernst-Planck Model of Ion Current Rectification through a Nanofluidic Diode, *Physical Review E* **76**, 041202 (1-10).
53. Kalman, E.B., Vlassioug, I., Siwy, Z. (2008): Nanofluidic bipolar transistor, *Advanced Materials* **20**, 293-297.
54. Powell, M.R., Sullivan, M., Vlassioug, I., Constantin, D., Sudre, O., Martens, C.C., Eisenberg, R.S., Siwy, Z. (2008): Nanoprecipitation Assisted Ion Current Oscillations, *Nature Nanotechnology* **3**, 51-57.
55. Gillespie, D., Boda, D., He Y., Apel, P., Siwy, Z.S. (2008): Synthetic Nanopores as a Test Case for Ion Channel Theories: The Anomalous Mole Fraction Effect, *Biophysical Journal* **95**, 609-619.
56. Vlassioug, I., Smirnov, S., Siwy, Z.S. (2008) Ion Selectivity of Single Nanochannels, *Nano Letters* **8**, 1978-1985.
57. Vlassioug, I., Smirnov, S., Siwy, Z.S. (2008): Nanofluidic Ionic Diodes. Comparison of Analytical and Numerical Solutions, *ACS Nano* **2**, 1589-1602.
58. He, Y., Gillespie, D, Boda, D., Vlassioug, I., Eisenberg, R.S., Siwy Z.S. (2009): Tuning transport properties of nanofluidic devices with local charge inversion, *Journal of the American Chemical Society* **131**, 5194-5202.
59. Davenport, M., Rodriguez, A., Shea, K.J., Siwy, Z.S. (2009) Squeezing Ionic Liquids through Nanopores, *Nano Letters* **9**, 2125-2128.
60. Kalman, E.B., Sudre, O., Vlassioug, I., Siwy, Z.S. (2009): Control of Ionic Transport through Gated Single Conical Nanopores, *Analytical and Bioanalytical Chemistry* **394**, 413-419.
61. Vlassioug, I, Kozel, T., Siwy, Z.S. (2009): Biosensing with Nanofluidic Diodes. *Journal of the American Chemical Society* **131**, 8211-8220.
62. Vlassioug, I., Apel, P.Yu., Dmitriev, S.N., Healy, K., Siwy, Z.S. (2009): Versatile Ultrathin Nanoporous Silicon Nitride Membranes. *Proceedings of the National Academy of Sciences of U.S.A.* **106**, 21039-21044.
63. Powell, M.R., Vlassioug, I., Martens, C., Siwy, Z.S. (2009): Non-equilibrium 1/f noise in rectifying nanopores. *Physical Review Letters* **103**, 248104 (1-4).
64. Cruz-Chu, E.R., Ritz, T., Siwy, Z.S., Schulten, K. (2009): Molecular control of ionic conduction in polymer nanopores, *Faraday Discussions* **143**, 1-16.
65. Innes, L., Powell, M.R.; Vlassioug, I.; Martens, C.; Siwy, Z.S. (2010): Precipitation Induced Voltage- Dependent Ion Current Fluctuations in Conical Nanopores. *Journal of Physical Chemistry C* **114**, 8126-8134.
66. Wolfram M.-T., Burger, M., Siwy, Z.S. (2010) Mathematical modeling and simulation of nanopore blocking by precipitation. *Journal of Physics: Condensed Matter* **22**, 454101 (1-6).
67. Nguyen, G., Vlassioug, I., Siwy Z.S. (2010): Comparison of bipolar and unipolar ionic diodes. *Nanotechnology* **21**, 265301 (1-8).
68. Powell, M.R., Martens, C., Siwy, Z.S. (2010) Asymmetric Properties of Ion Current 1/f Noise in Conically Shaped Nanopores. *Chemical Physics*, **375**, 529-535.
69. Siwy, Z.S., Davenport, M. (2010) News & Views: Making nanopores from nanotubes. *Nature Nanotechnology*, **5**, 174-175.

70. Siwy, Z.S., Davenport, M. (2010) News & Views: Nanopores: Graphene opens up to DNA. *Nature Nanotechnology* **5**, 697-698.



71. Powell, M.R., Sa, N., Davenport, M., Healy, K., Vlasiouk, I., Letant, S., Baker, L., Siwy, Z. (2011) Noise Properties of Rectifying Nanopores. *Journal of Physical Chemistry C* **115**, 8775-8783.
72. Ali, M., Tahir, M.N., Siwy,Z., Neumann, R., Tremel, W, Ensinger, W. (2011) Hydrogen Peroxide Sensing with Horseradish Peroxidase-Modified Polymer Single Conical Nanochannels, *Analytical Chemistry* **83**, 1673-1680.
73. Ali, M., Ramirez, P., Tahir, M.N., Mafe, S., Siwy, Z., Neumann, R., Tremel, W., Ensinger, W. (2011) Biomolecular conjugation inside synthetic polymer nanopores via glycoprotein-lectin interactions. *Nanoscale* **3**, 1894-1903.
74. Nguyen, G., Howorka, S., Siwy, Z.S. (2011) Attaching DNA Strands inside Single Conical Nanopores tunes Ionic Pore Characteristics and Reveals DNA Biophysics, *Journal of Membrane Biology* **239**, 105-113.
75. Davenport, M., Healy, K., Siwy Z.S. (2011) Ag nanotubes and Ag/AgCl electrodes in nanoporous membranes, *Nanotechnology* **22**, 155301 (1-8).
76. Powell, M.R., Cleary, L., Davenport, M., Shea, K. J., Siwy, Z. S. (2011) Electric field induced wetting and dewetting in single hydrophobic nanopores. *Nature Nanotechnology* **6**, 798-802; featured on the cover of the December issue of the journals and *News and Views* article (*Nature Nanotechnol.* **6**, 759-760).
77. Pevarnik, M., Healy, K., Davenport, M., Yenand, J., Siwy Z.S. (2012) A hydrophobic entrance enhances ion current rectification and induces dewetting in asymmetric nanopores. *Analyst* **137**, 2944-2950.
78. Siwy, Z.S., Howorka, S. (2012) Nanopores as protein sensors. *Nature Biotechnology* **30**, 506-507.
79. Pevarnik, M., Healy, K., Toimil-Molares, M.E., Morrison, A., Letant, S.E., Siwy, Z.S. (2012) Polystyrene particles reveal pore substructure as they translocate. *ACS Nano* **6**, 7295-7302.
80. Velasco, A., Friedman, S.G., Pevarnik, M., Siwy, Z.S., Taborek, P. (2012) Pressure-driven flow through a single nanopore. *Physical Review E, Rapid Comm.* **86**, 025302(R) (1-5).
81. Davenport, M., Healy, K., Pevarnik, M., Teslich, N., Cabrini, S., Morrison, A., Siwy, Z.S., Letant, S.E. (2012) The role of pore geometry in single nanoparticle detection. *ACS Nano* **6**, 8366-8380.
82. Pevarnik, M., Schiel, M., Yoshimatsu, K., Vlasiouk, I., Shea, K.J., Siwy Z.S. (2013) Particle deformation and concentration polarization in electroosmotic transport of hydrogels through pores, *ACS Nano* **7**, 3720-3728.
83. Buchsbaum, S., Mitchell, N., Martin, H. S., Wiggin, M., Marziali, A., Coveney, P. V., Siwy, Z. S., Howorka, S. (2013) Disentangling Steric and Electrostatic Factors in Nanoscale Transport Through Confined Space. *Nano Letters* **13**, 3890-3896.
84. Pietschmann, J.-F., Wolfram, M.-T, Burger, M., Trautmann, C., Nguyen, G., Pevarnik, M., Bayer, V., Siwy, Z.S. (2013) Rectification properties of conically shaped nanopores: consequences of miniaturization. *Physical Chemistry Chemical Physics* **15**, 16917-16926 (2013).
85. Gamble, T., Gillette, E., Lee, S. B., Siwy, Z.S. (2013) Probing Porous Structure of Single Manganese Oxide Mesorods with Ionic Current. *Journal of Physical Chemistry C* **117**, 24836–24842.
86. Menestrina, J., Yang C., Schiel M., Vlasiouk I., Siwy Z.S. (2014) Charged Particles Modulate Local Ionic Concentrations and Cause Formation of Positive Peaks in Resistive-Pulse-Based Detection. *Journal of Physical Chemistry C* **118**, 2391-2398.
87. Gamble T., Decker K., Plett T.S., Pevarnik M., Pietschmann J.F., Vlasiouk I.V., Aksimentiev A., Siwy Z.S. (2014) Rectification of Ion Current in Nanopores Depends on the Type of Monovalent Cations – Experiments and Modeling. *Journal of Physical Chemistry C* **118**, 9809–9819.
88. Buchsbaum S.F., Nguyen G., Howorka S., Siwy Z.S. (2014) DNA-Modified Polymer Pores Allow pH and Voltage-Gated Control of Channel Flux. *Journal of the American Chemical Society (Comm)*. **136**, 9902-9905.
89. Velasco A., Yang C., Siwy Z.S., Toimil-Molares E., Taborek P. (2014) Flow and evaporation in single micrometer and nanometer scale pipes. *Applied Physics Letters* **105**, 033101 (1-4).

90. Schiel M., Siwy Z.S. (2014) Diffusion and Trapping of Single Particles in Pores with Combined Pressure and Dynamic Voltage. *Journal of Physical Chemistry C* **118**, 19214-19223.
91. Innes L., Chen, C.-H., Schiel M., Pevarnik M., Haurais F., Tomil-Molares E., Vlasiouk I.V., Theogarajan L., Siwy, Z.S. (2014) Velocity Profiles in Pores with Undulating Opening Diameter and Their Importance for Resistive-Pulse Experiments. *Analytical Chemistry*, **86**, 10445–10453.
92. Innes, L., Gutierrez, D., Mann, W., Buchsbaum, S.F., Siwy, Z.S. (2015) Presence of electrolyte promotes wetting and hydrophobic gating in nanopores with residual surface charges. *The Analyst* **140**, 4804-4812.
93. Qiu, Y., Hinkle, P., Yang, C., Bakker, H.E., Schiel, M., Wang, H., Melnikov, D., Gracheva, M., Tomil-Molares, M.E., Imhof, A., Siwy, Z.S. (2015) Pores with Longitudinal Irregularities Distinguish Objects by Shape. *ACS Nano* **9**, 4390-4397.
94. Hylland, B., Siwy, Z.S., Martens, C. (2015) Nanopore Current Oscillations: Nonlinear Dynamics on the Nanoscale. *Journal of Physical Chemistry Letters* **6**, 1800-1806.
95. Kuo, C.C., Li, Y., Nguyen, D., Buchsbaum, S., Innes, L., Esser-Kahn, A.P., Valdevit, L., Sun, L., Siwy, Z., Dennin, M. (2015) Macroscopic strain controlled ion current in an elastomeric microchannel. *Journal of Applied Physics* **117**, 174904.
96. Plett, T.S., Gamble, T., Gillette, E., Lee, S.B., Siwy, Z.S. (2015) Ionic conductivity of single porous MnO<sub>2</sub> mesorod at controlled oxidation states. *Journal of Materials Chemistry A* **3**, 12858-12863.
97. Qiu, Y., Yang, C., Hinkle, P., Vlasiouk, I.V., Siwy, Z.S. (2015) Anomalous Mobility of Highly Charged Particles in Pores. *Analytical Chemistry* **87**, 8517–8523.
98. Plett, T., Shi, W., Zeng, Y., Mann, W., Vlasiouk, I., Baker, L.A., Siwy, Z.S. (2015) Rectification of nanopores in aprotic solvents – transport properties of nanopores with surface dipoles. *Nanoscale* **7**, 19080-19091.
99. D'Accolti, L., Denora, N., La Piana, G., Marzulli, D., Siwy, Z.S., Fusco, C., Annese, C. (2015) Synthesis and Biological Evaluation of a Valinomycin Analog Bearing a Pentafluorophenyl Active Ester Moiety. *Journal of Organic Chemistry* **80**, 12646–12650.
100. Qiu, Y., Vlasiouk, I., Hinkle, P., Tomil-Molares, M.E., Levine, A.J., Siwy, Z.S. (2016) Role of Particle Focusing in Resistive-Pulse Technique: Direction-Dependent Velocity in Micropores. *ACS Nano* **10**, 3509–3517.
101. Pham, T.A., Golam Mortuza, S.M., Wood, B.C., Lau, E.Y., Ogitsu, T., Buchsbaum, S.F., Siwy, Z.S., Fornasiero, F., Schwegler, E. (2016) Salt Solutions in Carbon Nanotubes: The Role of Cation- $\pi$  Interactions. *Journal of Physical Chemistry C* **120**, 7332–7338.
102. Qiu, Y., Vlasiouk, V., Chen, Y., Siwy, Z.S. (2016) Direction Dependence of Resistive-Pulse Amplitude in Conically Shaped Mesopores. *Analytical Chemistry* **88**, 4917–4925.
103. Ramirez, P., Gomez, V., Cervera, J., Nasir, S., Ali, M., Ensinger, W., Siwy, Z., Mafe, S. (2016) Voltage-controlled current loops with nanofluidic diodes electrically coupled to solid state capacitors. *RSC Advances* **6**, 54742-54746.
104. Qiu, Y., Lin, C.Y., Hinkle, P., Plett, T.S., Yang, C., Chacko, J.V., Digman, M.A., Yeh, L.H., Hsu, J.P., Siwy, Z.S. (2016) Highly Charged Particles Cause a Larger Current Blockage in Micropores Compared to Neutral Particles. *ACS Nano* **10**, 8413–8422.
105. Yang, C., Hinkle, P., Menestrina, J., Vlasiouk, I.V., Siwy, Z.S. (2016) Polarization of Gold in Nanopores Leads to Ion Current Rectification. *Journal of Physical Chemistry Letters* **7**, 4152–4158.
106. Howorka, S., Siwy, Z.S. (2016) Nanopores and Nanochannels: From Gene Sequencing to Genome Mapping. *ACS Nano* **10**, 9768–9771.
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