Elisabeth Smela

List of Publications by Year
in descending order

146 papers	7,679 citations	101384 36 h-index	62479 80 g-index
155 all docs	155 docs citations	155 times ranked	6539 citing authors

#	Article	IF	Citations
1	Use of Ionic Liquids for pi -Conjugated Polymer Electrochemical Devices. Science, 2002, 297, 983-987.	6.0	1,155
2	Conjugated Polymer Actuators for Biomedical Applications. Advanced Materials, 2003, 15, 481-494.	11.1	1,121
3	Microfabricating Conjugated Polymer Actuators. , 2000, 290, 1540-1545.		848
4	Controlled Folding of Micrometer-Size Structures. Science, 1995, 268, 1735-1738.	6.0	550
5	Microfabrication of PPy microactuators and other conjugated polymer devices. Journal of Micromechanics and Microengineering, 1999, 9, 1-18.	1.5	298
6	Surprising Volume Change in PPy(DBS): An Atomic Force Microscopy Study. Advanced Materials, 1999, 11, 953-957.	11.1	213
7	Volume Change in Polypyrrole Studied by Atomic Force Microscopy. Journal of Physical Chemistry B, 2001, 105, 9395-9405.	1.2	206
8	Optical filtering technologies for integrated fluorescence sensors. Lab on A Chip, 2007, 7, 955.	3.1	146
9	Electrochemically driven polypyrrole bilayers for moving and positioning bulk micromachined silicon plates. Journal of Microelectromechanical Systems, 1999, 8, 373-383.	1.7	140
10	Polyaniline actuators. Synthetic Metals, 2005, 151, 25-42.	2.1	132
11	Edge Effects Determine the Direction of Bilayer Bending. Nano Letters, 2011, 11, 2280-2285.	4.5	127
12	Elastomers filled with exfoliated graphite as compliant electrodes. Carbon, 2010, 48, 2409-2417.	5.4	126
13	Electrochemical muscles: Micromachining fingers and corkscrews. Advanced Materials, 1993, 5, 630-632.	11.1	120
14	Characterization and modeling of PPy bilayer microactuators. Sensors and Actuators B: Chemical, 2006, 115, 596-609.	4.0	104
15	Development of Solid-in-Hollow Electrochemical Linear Actuators Using Highly Conductive Polyaniline. Chemistry of Materials, 2004, 16, 1615-1621.	3.2	94
16	Polypyrrole micro actuators. Synthetic Metals, 1999, 102, 1309-1310.	2.1	87
17	The effect of pH on polymerization and volume change in PPy(DBS). Electrochimica Acta, 1998, 44, 219-238.	2.6	85
18	Direct Strain Measurement of Polypyrrole Actuators Controlled by the Polymer/Gold Interface. Chemistry of Materials, 2003, 15, 916-922.	3.2	82

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19	Visualizing Ion Currents in Conjugated Polymers. Advanced Materials, 2004, 16, 1605-1609.	11.1	82
20	Experimental Studies of Ion Transport in PPy(DBS). Journal of Physical Chemistry C, 2009, 113, 369-381.	1.5	80
21	Patterning PDMS using a combination of wet and dry etching. Journal of Micromechanics and Microengineering, 2009, 19, 047002.	1.5	76
22	Conjugated Polymer Actuators. MRS Bulletin, 2008, 33, 197-204.	1.7	74
23	Color and Volume Change in PPy(DBS). Journal of Physical Chemistry C, 2009, 113, 359-368.	1.5	74
24	Multiple frequency dielectrophoresis. Electrophoresis, 2007, 28, 3145-3155.	1.3	67
25	The effects of varying deposition current density on bending behaviour in PPy(DBS)-actuated bending beams. Sensors and Actuators A: Physical, 2001, 89, 175-184.	2.0	60
26	Packaging commercial CMOS chips for lab on a chip integration. Lab on A Chip, 2014, 14, 1753.	3.1	58
27	Stretchable Electrodes with High Conductivity and Photoâ€Patternability. Advanced Materials, 2007, 19, 2629-2633.	11.1	56
28	Chronoamperometric Study of Conformational Relaxation in PPy(DBS). Journal of Physical Chemistry B, 2009, 113, 1277-1293.	1.2	56
29	Development of a Model for Charge Transport in Conjugated Polymers. Journal of Physical Chemistry C, 2009, 113, 382-401.	1.5	54
30	Polaron-induced conformation change in single polypyrrole chain: An intrinsic actuation mechanism. International Journal of Quantum Chemistry, 2005, 102, 980-985.	1.0	52
31	Effects of monomer and electrolyte concentrations on actuation of PPy(DBS) bilayers. Synthetic Metals, 2005, 155, 18-26.	2.1	50
32	Sensitivity of Polythiophene Planar Light-Emitting Diodes to Oxygen. Advanced Materials, 1998, 10, 765-769.	11.1	48
33	Improving PPy Adhesion by Surface Roughening. Journal of Physical Chemistry C, 2007, 111, 11329-11338.	1.5	47
34	Bending Actuators with Maximum Curvature and Force and Zero Interfacial Stress. Journal of Intelligent Material Systems and Structures, 2007, 18, 181-186.	1.4	45
35	On-chip microelectrodes for electrochemistry with moveable PPy bilayer actuators as working electrodes. Sensors and Actuators B: Chemical, 1999, 56, 73-78.	4.0	44
36	Real-Time Measurements of Cell Proliferation Using a Lab-on-CMOS Capacitance Sensor Array. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 510-520.	2.7	39

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37	Characteristics of polythiophene surface light emitting diodes. Synthetic Metals, 2000, 113, 103-114.	2.1	38
38	Effect of substrate preparation on smectic liquid crystal alignment: A structural study. Journal of Applied Physics, 1993, 73, 3299-3304.	1.1	35
39	Thiol-Modified Pyrrole Monomers:Â 4. Electrochemical Deposition of Polypyrrole over 1-(2-Thioethyl)pyrrole. Langmuir, 1998, 14, 2996-3002.	1.6	32
40	Polyaniline actuators. Synthetic Metals, 2005, 151, 43-48.	2.1	32
41	High-throughput particle separation and concentration using spiral inertial filtration. Biomicrofluidics, 2014, 8, 024105.	1.2	31
42	Benchtop Polymer MEMS. Journal of Microelectromechanical Systems, 2006, 15, 1108-1120.	1.7	30
43	New compliant strain gauges for self-sensing dynamic deformation of flapping wings on miniature air vehicles. Smart Materials and Structures, 2013, 22, 085031.	1.8	30
44	Electroosmotically driven microfluidic actuators. Sensors and Actuators B: Chemical, 2009, 141, 263-269.	4.0	28
45	System-on-Chip Considerations for Heterogeneous Integration of CMOS and Fluidic Bio-Interfaces. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 1129-1142.	2.7	28
46	A General-Purpose Conjugated-Polymer Device Array for Imaging. Advanced Materials, 1998, 10, 233-237.	11.1	27
47	Design of bending multi-layer electroactive polymer actuators. Smart Materials and Structures, 2015, 24, 045032.	1.8	23
48	Parasitic trap cancellation using multiple frequency dielectrophoresis, demonstrated by loading cells into cages. Lab on A Chip, 2008, 8, 550.	3.1	22
49	Thiol-Modified Pyrrole Monomers:Â 1. Synthesis, Characterization, and Polymerization of 1-(2-Thioethyl)pyrrole and 3-(2-Thioethyl)pyrrole. Langmuir, 1998, 14, 2970-2975.	1.6	20
50	Thiol-Modified Pyrrole Monomers:Â 3. Electrochemistry of 1-(2-Thioethyl)pyrrole and 3-(2-Thioethyl)pyrrole Monolayers in Propylene Carbonate. Langmuir, 1998, 14, 2984-2995.	1.6	19
51	Planar microfabricated polymer light-emitting diodes. Semiconductor Science and Technology, 1998, 13, 433-439.	1.0	18
52	Characterization of Conjugated Polymer Actuation under Cerebral Physiological Conditions. Advanced Healthcare Materials, 2014, 3, 1026-1035.	3.9	18
53	Thermal imaging using polymer nanocomposite temperature sensors. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2239-2245.	0.8	18
54	Stretchable touch-sensing skin over padding for co-robots. Smart Materials and Structures, 2016, 25, 055006.	1.8	18

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55	In situ electrochemical control of electroactive polymer films on a CMOS chip. Sensors and Actuators B: Chemical, 2008, 129, 699-704.	4.0	17
56	High resolution monitoring of chemotherapeutic agent potency in cancer cells using a CMOS capacitance biosensor. Biosensors and Bioelectronics, 2019, 142, 111501.	5.3	17
57	Conjugated Polymer Actuators: Fundamentals. , 0, , 193-227.		16
58	Effect of substrate preparation on smectic liquid crystal alignment. II. Further results and modeling. Journal of Applied Physics, 1995, 77, 1923-1929.	1.1	15
59	A novel surface modification technique for forming porous polymer monoliths in poly(dimethylsiloxane). Biomicrofluidics, 2012, 6, 016506.	1.2	14
60	Olfaction on a chip. Sensors and Actuators B: Chemical, 2016, 235, 74-78.	4.0	14
61	A versatile twisted optical fiber sensor. Sensors and Actuators, 1988, 13, 117-129.	1.8	13
62	Design of compliant meanders for applications in MEMS, actuators, and flexible electronics. Smart Materials and Structures, 2012, 21, 075033.	1.8	13
63	Lab-on-CMOS capacitance sensor array for real-time cell viability measurements with I2C readout. , 2016, , .		13
64	X-ray study of substrate-induced alignment of a smectic A liquid crystal. Liquid Crystals, 1993, 14, 1877-1883.	0.9	11
65	Cell-lab on a chip: a CMOS-based microsystem for culturing and monitoring cells. , 2004, 2004, 2534-7.		11
66	Microbumpers maintain superhydrophobicity of nanostructured surfaces upon touch. Applied Surface Science, 2015, 349, 705-714.	3.1	11
67	LTCC Packaged Ring Oscillator Based Sensor for Evaluation of Cell Proliferation. Sensors, 2018, 18, 3346.	2.1	11
68	Compliant multi-layer tactile sensing for enhanced identification of human touch. Smart Materials and Structures, 2018, 27, 125009.	1.8	11
69	Gas-sensing characteristics of ZnO-NiO junction structures with intervening ultrathin SiO2 layer. Sensors and Actuators B: Chemical, 1993, 14, 598-599.	4.0	10
70	Effect of substrate preparation on smectic liquidâ€crystal alignment. III. The significance of thermal history. Journal of Applied Physics, 1995, 77, 1930-1933.	1.1	10
71	Compliant electrodes based on platinum salt reduction in a urethane matrix. Smart Materials and Structures, 2007, 16, S272-S279.	1.8	10
72	Post-CMOS packaging methods for integrated biosensors. , 2009, , .		10

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73	Challenges in the microfabrication of dielectric elastomer actuators. Proceedings of SPIE, 2010, , .	0.8	10
74	Fabrication of a Miniature Paper-Based Electroosmotic Actuator. Polymers, 2016, 8, 400.	2.0	10
75	Thioethylpyrrole Monolayers on Gold. A Spectroscopic Study in Ultrahigh Vacuum. Journal of Physical Chemistry B, 1998, 102, 6529-6538.	1.2	9
76	Thiol-Modified Pyrrole Monomers:Â 2. As-Deposited Monolayers of 1-(2-Thioethyl)pyrrole and 3-(2-Thioethyl)pyrrole. Langmuir, 1998, 14, 2976-2983.	1.6	9
77	Integrating conjugated polymer microactuators with CMOS sensing circuitry for studying living cells. , 2005, , .		9
78	Active Microcatheter and Biomedical Soft Devices Based on IPMC Actuators. , 0, , 121-136.		9
79	Correlation of Capacitance and Microscopy Measurements Using Image Processing for a Lab-on-CMOS Microsystem. IEEE Transactions on Biomedical Circuits and Systems, 2019, 13, 1214-1225.	2.7	9
80	Integrated Fluorescence Sensing for Lab-on-a-chip Devices. , 2006, , .		8
81	System Integration of IC chips for Lab-on-CMOS Applications. , 2018, , .		8
82	The design of dielectrophoretic flow-through sorters using a figure of merit. Journal of Micromechanics and Microengineering, 2008, 18, 015001.	1.5	7
83	Actuated Pins for Braille Displays. , 0, , 265-277.		7
84	PDMS/graphite stretchable electrodes for dielectric elastomer actuators. Proceedings of SPIE, 2010, , .	0.8	7
85	Characterization of a compliant multi-layer system for tactile sensing with enhanced sensitivity and range. Smart Materials and Structures, 2018, 27, 065005.	1.8	7
86	Dynamic Splint-Like Hand Orthosis for Finger Rehabilitation. , 0, , 443-461.		6
87	MRI Compatible Device for Robotic Assisted Interventions to Prostate Cancer. , 0, , 411-425.		6
88	A Braille Display System for the Visually Disabled Using a Polymer Based Soft Actuator. , 0, , 427-442.		6
89	Low Temperature Co-fired Ceramic Package for Lab-on-CMOS Applied in Cell Viability Monitoring. Procedia Engineering, 2015, 120, 1079-1082.	1.2	6
90	Targeted Feature Recognition Using Mechanical Spatial Filtering with a Low-Cost Compliant Strain Sensor. Scientific Reports, 2017, 7, 5118.	1.6	6

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91	<title>Applications of polypyrrole microactuators</title>. , 1999, 3669, 377.		5
92	Novel compliant electrodes based on platinum salt reduction. , 2006, 6168, 474.		5
93	Integrated cell-based sensors and cell clinics utilizing conjugated polymer actuators. , 2007, , .		5
94	2D-PCR: a method of mapping DNA in tissue sections. Lab on A Chip, 2009, 9, 3526.	3.1	5
95	Polymer filters for ultraviolet-excited integrated fluorescence sensing. Journal of Micromechanics and Microengineering, 2012, 22, 095018.	1.5	5
96	Cycling conjugated polymers with different cations. , 2006, , .		4
97	Modeling the performance of a long-period Bragg grating ambient-index sensor. Smart Materials and Structures, 2006, 15, 821-828.	1.8	4
98	Microfabricated Conjugated Polymer Actuators for Microvalves, Cell Biology, and Microrobotics. , 0, , 249-264.		4
99	Bio-Responsive Hydrogels for Biomedical Applications. , 0, , 43-59.		4
100	Stable electroosmotically driven actuators. Proceedings of SPIE, 2013, , .	0.8	4
101	Bubbleâ€free electrokinetic flow with propylene carbonate. Electrophoresis, 2015, 36, 2622-2629.	1.3	4
102	An Imaging Platform for Real-Time In Vitro Microscopic Imaging for Lab-on-CMOS Systems. , 2019, , .		4
103	Electrochemical actuation of gilded polyaniline bilayers in aqueous acid solutions. , 2001, , .		3
104	Improving adhesion of polypyrrole to gold for long-term actuation. , 2005, , .		3
105	Fast switching of conjugated polymer films. , 2006, , .		3
106	Modeling charge transport in conjugated polymers. , 2006, , .		3
107	A new EAP based on electroosmotic flow: nastic actuators. , 2009, , .		3
108	IPMC Based Tactile Displays for Pressure and Texture Presentation on a Human Finger. , 0, , 161-174.		3

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109	Biomedical Applications of Dielectric Elastomer Actuators. , 0, , 395-410.		3
110	Quantifying mRNA levels across tissue sections with 2D-RT-qPCR. Analytical and Bioanalytical Chemistry, 2011, 400, 3383-3393.	1.9	3
111	An active micro-electrode array with spike detection and asynchronous readout. , 2014, , .		3
112	Piezoelectric and Electrostrictive Polymer Actuators: Fundamentals. , 0, , 317-334.		3
113	New Devices Made from Combining Silicon Microfabrication and Conducting Polymers. , 1996, , 189-213.		3
114	<title>Structure of liquid crystals in a confined geometry</title>. , 1994, , .		2
115	<title>In-situ measurement of conducting polymers on evaporated and electrochemically deposited Au surfaces</title>. , 2002, , .		2
116	Fabrication of folding microstructures actuated by polypyrrole/gold bilayer. , 0, , .		2
117	Understanding ion transport in conjugated polymers. , 2005, 5759, 414.		2
118	Polypyrrole/gold bilayer characterization. , 2005, , .		2
119	Nanostructured Conducting Polymer Biomaterials and their Applications in Controlled Drug Delivery. , 0, , 279-299.		2
120	Navigating conjugated polymer actuated neural probes in a brain phantom. , 2012, , .		2
121	System-on-chip considerations for CMOS fluidic and biointerface applications. , 2014, , .		2
122	Electroactuators: from understanding to micro-robotics and energy conversion: general discussion. Faraday Discussions, 2017, 199, 525-545.	1.6	2
123	Electrotunable wetting, and micro- and nanofluidics: general discussion. Faraday Discussions, 2017, 199, 195-237.	1.6	2
124	Adaptive Tracking Control of Soft Robots Using Integrated Sensing Skins and Recurrent Neural Networks. , 2021, , .		2
125	X-Ray Study of Liquid Crystal Alignment: Evidence for an Alternate Mesophase at the Free Surface?. Molecular Crystals and Liquid Crystals, 1991, 203, 1-8.	0.7	1
126	BioLabs-On-A-Chip: Monitoring Cells using CMOS Biosensors. , 2006, , .		1

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127	Thermally Driven Hydrogel Actuator for Controllable Flow Rate Pump in Long-Term Drug Delivery. , 0, , 89-99.		1
128	IPMC Assisted Infusion Micropumps. , 0, , 175-191.		1
129	Miniature High Frequency Focused Ultrasonic Transducers for Minimally Invasive Imaging Procedures. , 0, , 335-356.		1
130	Piezoelectric Poly(Vinylidene) Fluoride (PVDF) in Biomedical Ultrasound Exposimetry. , 0, , 369-383.		1
131	Dielectric Elastomer Actuators: Fundamentals. , 0, , 385-393.		1
132	Mechanical characterization of conducting polymer actuated neural probes under physiological settings. , 2010, , .		1
133	Mechanics of Multifunctional Skin Structures. Conference Proceedings of the Society for Experimental Mechanics, 2013, , 107-114.	0.3	1
134	Multiplex Quantitative Measurement of mRNAs From Fixed Tissue Microarray Sections. Applied Immunohistochemistry and Molecular Morphology, 2014, 22, 323-330.	0.6	1
135	Challenges in realizing a self-contained hydraulically-driven contractile fiber actuator. Faraday Discussions, 2017, 199, 465-485.	1.6	1
136	A New Multiscale Bioinspired Compliant Sensor. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 163-169.	0.3	1
137	Characterization of an active micro-electrode array with spike detection and asynchronous readout. , 2017, , .		1
138	Recognizing Hemiparetic Ankle Deficits Using Wearable Pressure Sensors. IEEE Journal of Translational Engineering in Health and Medicine, 2019, 7, 1-3.	2.2	1
139	IPMC Actuators: Fundamentals. , 0, , 101-119.		1
140	Mechanics of Compliant Multifunctional Robotic Structures. Conference Proceedings of the Society for Experimental Mechanics, 2015, , 59-66.	0.3	1
141	Cell Clinics Technology Platform for Cell-Based Sensing. , 2006, , .		0
142	Polypyrrole/gold bilayer microactuators: response time and temperature effects. , 2006, , .		0
143	Stimuli-Responsive andâ€˜Activeâ€™ Polymers in Drug Delivery. , 0, , 61-88.		0
144	Catheters for Thrombosis Sample Exfoliation in Blood Vessels Using Piezoelectric Polymer Fibers. , 0, , 357-368.		0

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145	System on a Chip for Automated Cell Assays using a Lab-on-CMOS Platform. , 2019, , .		0
146	Abstract 2999: Assessment of microRNA expression in two-dimensional histopathological fields of breast cancer. , 2010, , .		0