Urs Frey

List of Publications by Year
in descending order

67	2,854	279487	253896
papers	citations	23 h-index	43 g-index

75	75	75	2975
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Revealing neuronal function through microelectrode array recordings. Frontiers in Neuroscience, 2014, 8, 423.	1.4	493
2	High-resolution CMOS MEA platform to study neurons at subcellular, cellular, and network levels. Lab on A Chip, 2015, 15, 2767-2780.	3.1	253
3	Switch-Matrix-Based High-Density Microelectrode Array in CMOS Technology. IEEE Journal of Solid-State Circuits, 2010, 45, 467-482.	3.5	228
4	Tracking axonal action potential propagation on a high-density microelectrode array across hundreds of sites. Nature Communications, 2013, 4, 2181.	5.8	207
5	Microelectronic system for high-resolution mapping of extracellular electric fields applied to brain slices. Biosensors and Bioelectronics, 2009, 24, 2191-2198.	5.3	196
6	A 1024-Channel CMOS Microelectrode Array With 26,400 Electrodes for Recording and Stimulation of Electrogenic Cells In Vitro. IEEE Journal of Solid-State Circuits, 2014, 49, 2705-2719.	3.5	196
7	Growing Cells Atop Microelectronic Chips: Interfacing Electrogenic Cells In Vitro With CMOS-Based Microelectrode Arrays. Proceedings of the IEEE, 2011, 99, 252-284.	16.4	126
8	Optimal Electrode Size for Multi-Scale Extracellular-Potential Recording From Neuronal Assemblies. Frontiers in Neuroscience, 2019, 13, 385.	1.4	85
9	Single-chip microelectronic system to interface with living cells. Biosensors and Bioelectronics, 2007, 22, 2546-2553.	5.3	78
10	Parameters for burst detection. Frontiers in Computational Neuroscience, 2013, 7, 193.	1.2	77
11	A CMOS-based microelectrode array for interaction with neuronal cultures. Journal of Neuroscience Methods, 2007, 164, 93-106.	1.3	63
12	Applicability of independent component analysis on high-density microelectrode array recordings. Journal of Neurophysiology, 2012, 108, 334-348.	0.9	57
13	Versatile live-cell activity analysis platform for characterization of neuronal dynamics at single-cell and network level. Nature Communications, 2020, 11, 4854.	5.8	56
14	Single-Cell Electrical Stimulation Using CMOS-Based High-Density Microelectrode Arrays. Frontiers in Neuroscience, 2019, 13, 208.	1.4	53
15	Combination of High-density Microelectrode Array and Patch Clamp Recordings to Enable Studies of Multisynaptic Integration. Scientific Reports, 2017, 7, 978.	1.6	52
16	Recording from defined populations of retinal ganglion cells using a high-density CMOS-integrated microelectrode array with real-time switchable electrode selection. Journal of Neuroscience Methods, 2012, 211, 103-113.	1.3	51
17	A synthetic mammalian electro-genetic transcription circuit. Nucleic Acids Research, 2008, 37, e33-e33.	6.5	49
18	The Axon Initial Segment is the Dominant Contributor to the Neuron's Extracellular Electrical Potential Landscape. Advanced Biology, 2019, 3, e1800308.	3.0	48

#	ARTICLE	IF	CITATIONS
19	Device, circuit and system-level analysis of noise in multi-bit phase-change memory. , 2010, , .		45
20	A Digital CMOS Architecture for a Micro-Hotplate Array. IEEE Journal of Solid-State Circuits, 2007, 42, 441-450.	3.5	35
21	Micro Hot Plate-Based Sensor Array System for the Detection of Environmentally Relevant Gases. Analytical Chemistry, 2006, 78, 6801-6808.	3.2	30
22	A 256-Mcell Phase-Change Memory Chip Operating at <formula formulatype="inline"> <tex Notation="TeX">$2{+}$</tex> </formula> Bit/Cell. IEEE Transactions on Circuits and Systems I: Regular Papers, 2013, 60, 1521-1533.	3.5	29
23	An 11k-Electrode 126-Channel High-Density Microelectrode Array to Interact with Electrogenic Cells. Digest of Technical Papers - IEEE International Solid-State Circuits Conference, 2007, , .	0.0	24
24	Compact Voltage and Current Stimulation Buffer for High-Density Microelectrode Arrays. IEEE Transactions on Biomedical Circuits and Systems, 2010, 4, 372-378.	2.7	23
25	Extracellular Recording of Entire Neural Networks Using a Dual-Mode Microelectrode Array With 19 584 Electrodes and High SNR. IEEE Journal of Solid-State Circuits, 2021, 56, 2466-2475.	3.5	22
26	Modulation of Cardiomyocyte Electrical Properties Using Regulated Bone Morphogenetic Protein-2 Expression. Tissue Engineering - Part A, 2008, 14, 1969-1988.	1.6	20
27	Dielectrophoresisâ€Assisted Integration of 1024 Carbon Nanotube Sensors into a CMOS Microsystem. Advanced Materials, 2017, 29, 1606852.	11.1	20
28	A transportable, inexpensive electroporator for in utero electroporation. Development Growth and Differentiation, 2015, 57, 369-377.	0.6	19
29	Large-Scale Mapping of Axonal Arbors Using High-Density Microelectrode Arrays. Frontiers in Cellular Neuroscience, 2019, 13, 404.	1.8	18
30	Carbon-Nanotube-Based Monolithic CMOS Platform for Electrochemical Detection of Neurotransmitter Glutamate. Sensors, 2019, 19, 3080.	2.1	17
31	Accurate signal-source localization in brain slices by means of high-density microelectrode arrays. Scientific Reports, 2019, 9, 788.	1.6	17
32	Dual-mode Microelectrode Array Featuring 20k Electrodes and High SNR for Extracellular Recording of Neural Networks. , 2018, 2018, .		14
33	Cell Recordings with a CMOS High-density Microelectrode Array. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 167-70.	0.5	13
34	Extracellularly Recorded Somatic and Neuritic Signal Shapes and Classification Algorithms for High-Density Microelectrode Array Electrophysiology. Frontiers in Neuroscience, 2016, 10, 421.	1.4	13
35	A perforated CMOS microchip for immobilization and activity monitoring of electrogenic cells. Journal of Micromechanics and Microengineering, 2007, 17, 462-471.	1.5	12
36	Monolithic CMOS sensor platform featuring an array of 9â€™216 carbon-nanotube-sensor elements and low-noise, wide-bandwidth and wide-dynamic-range readout circuitry. Sensors and Actuators B: Chemical, 2019, 279, 255-266.	4.0	11

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37	Depth recording capabilities of planar high-density microelectrode arrays. , 2009, , .		10
38	Acquisition of bioelectrical signals with small electrodes. , 2017, 2017, 1-4.		9
39	Digital systems architecture to accommodate wide range resistance changes of metal-oxide sensors. , 2008, , .		8
40	Multi-Chip High-Density Microelectrode System for Electrogenic-Cell Recording and Stimulation. , 2007, , .		7
41	Neural Autopoiesis: Organizing Self-Boundaries by Stimulus Avoidance in Biological and Artificial Neural Networks. Artificial Life, 2020, 26, 130-151.	1.0	7
42	Multisite Dopamine Sensing With Femtomolar Resolution Using a CMOS Enabled Aptasensor Chip. Frontiers in Neuroscience, 2022, 16, .	1.4	7
43	Compact voltage and current stimulation buffer for high-density microelectrode arrays. , 2010, , .		6
44	CMOS-Based High-Density Microelectrode Arrays: Technology and Applications. Series in Bioengineering, 2017, , 3-39.	0.3	6
45	Large-Scale, High-Resolution Microelectrode Arrays for Interrogation of Neurons and Networks. Advances in Neurobiology, 2019, 22, 83-123.	1.3	6
46	Conferring flexibility and reconfigurability to a 26,400 microelectrode CMOS array for high throughput neural recordings. , 2013, , .		5
47	Analysis of neuronal cells of dissociated primary culture on high-density CMOS electrode array. , 2013, 2013, 1045-8.		4
48	Classification of Inhibitory and Excitatory Neurons of Dissociated Cultures Based on Action Potential Waveforms on High-density CMOS Microelectrode Arrays. IEEJ Transactions on Electronics, Information and Systems, 2019, 139, 615-624.	0.1	4
49	Factors affecting blind localization of a glass micropipette using a high-density microelectrode array. , 2013, , .		3
50	A CMOS-based Microelectrode Array for Information Processing with Natural Neurons. , 2007, , .		2
51	Blind source separation for spike sorting of high density microelectrode array recordings. , 2011, , .		2
52	Automated navigation of a glass micropipette on a high-density microelectrode array. , 2015, 2015, 881-4.		2
53	Interfacing with Neurons at High Spatiotemporal Resolution. , 2007, , .		1
54	Using microelectronics technology to communicate with living cells. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 6082-5.	0.5	1

#	ARTICLE	IF	CITATIONS
55	Subcellular-resolution recording of electrical activity using a CMOS-microelectroode system. , 2009, , .		1
56	Recording of neural activity of mouse retinal ganglion cells by means of an integrated high-density microelectrode array. , 2011, , .		1
57	High-density microelectrode array system and optimal filtering for closed-loop experiments. , 2011, , .		1
58	An inverter-based neural amplifier for neural spike detection. , 2013, , .		1
59	Local and Global Activities of Izhikevich Neuron Model in Networks. , 2021, , .		1
60	Nonlinear Time Series Analysis of Spike Data of Izhikevich Neuron Model. , 2020, , .		1
61	Bio-Microelectronic Information Processing Device Consisting of Natural Neurons on a CMOS Microsystem. , 2007, , .		0
62	High-density microelectrode array in CMOS technology applied to acute brain slice recordings and to gene-function studies. , 2009, , .		0
63	1SDA-05 Revealing Neuronal Dynamics through Advanced Electrophysiology and Chemical Sensing using CMOS Technology(1SDA Measurement and control of neurodynamics,Symposium,The 52nd) Tj ETQq1 1 0.784314 rgBT /Overlock		0
64	Chronic Coâ€Variation of Neural Network Configuration and Activity in Mature Dissociated Cultures. Electronics and Communications in Japan, 2015, 98, 34-42.	0.3	0
65	Switch-matrix-based Monolithic CMOS Platform Featuring a Large Array of Carbon Nanotube Sensor Elements and a 96-channel Readout Circuitry. Procedia Engineering, 2016, 168, 916-919.	1.2	0
66	Visualization of Neuron Data using Nonlinear Technic. , 2019, , .		0
67	Chronic Co-variation of Neural Network Configuration and Activity in Mature Dissociated Cultures. IEEJ Transactions on Electronics, Information and Systems, 2014, 134, 338-344.	0.1	0