

Andreas Hierlemann

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

305
papers

9,516
citations

53
h-index

87
g-index

380
ext. papers

11,401
ext. citations

7.1
avg, IF

6.1
L-index

#	Paper	IF	Citations
305	Smart single-chip gas sensor microsystem. <i>Nature</i> , 2001 , 414, 293-6	50.4	501
304	Impedance characterization and modeling of electrodes for biomedical applications. <i>IEEE Transactions on Biomedical Engineering</i> , 2005 , 52, 1295-302	5	439
303	Higher-order chemical sensing. <i>Chemical Reviews</i> , 2008 , 108, 563-613	68.1	323
302	Reconfigurable microfluidic hanging drop network for multi-tissue interaction and analysis. <i>Nature Communications</i> , 2014 , 5, 4250	17.4	240
301	Complementary metal oxide semiconductor cantilever arrays on a single chip: mass-sensitive detection of volatile organic compounds. <i>Analytical Chemistry</i> , 2002 , 74, 3084-95	7.8	239
300	Structural Distortion of Dendrimers on Gold Surfaces: A Tapping-Mode AFM Investigation. <i>Journal of the American Chemical Society</i> , 1998 , 120, 5323-5324	16.4	184
299	. <i>IEEE Journal of Solid-State Circuits</i> , 2010 , 45, 467-482	5.5	166
298	Microelectronic system for high-resolution mapping of extracellular electric fields applied to brain slices. <i>Biosensors and Bioelectronics</i> , 2009 , 24, 2191-8	11.8	165
297	Tracking axonal action potential propagation on a high-density microelectrode array across hundreds of sites. <i>Nature Communications</i> , 2013 , 4, 2181	17.4	150
296	High-resolution CMOS MEA platform to study neurons at subcellular, cellular, and network levels. <i>Lab on A Chip</i> , 2015 , 15, 2767-80	7.2	141
295	Microfabrication techniques for chemical/biosensors. <i>Proceedings of the IEEE</i> , 2003 , 91, 839-863	14.3	135
294	A 1024-Channel CMOS Microelectrode Array With 26,400 Electrodes for Recording and Stimulation of Electrogenic Cells In Vitro. <i>IEEE Journal of Solid-State Circuits</i> , 2014 , 49, 2705-2719	5.5	130
293	Cell Types of the Human Retina and Its Organoids at Single-Cell Resolution. <i>Cell</i> , 2020 , 182, 1623-1640.e34	36.2	130
292	CMOS microelectrode array for the monitoring of electrogenic cells. <i>Biosensors and Bioelectronics</i> , 2004 , 20, 358-66	11.8	128
291	Micropatterning Layers by Flame Aerosol Deposition-Annealing. <i>Advanced Materials</i> , 2008 , 20, 3005-3010	10.4	120
290	Chiral discrimination using piezoelectric and optical gas sensors. <i>Nature</i> , 1997 , 387, 577-80	50.4	117
289	CMOS single-chip gas detection system comprising capacitive, calorimetric and mass-sensitive microsensors. <i>IEEE Journal of Solid-State Circuits</i> , 2002 , 37, 1867-1878	5.5	105

288	Application-specific sensor systems based on CMOS chemical microsensors. <i>Sensors and Actuators B: Chemical</i> , 2000 , 70, 2-11	8.5	102
287	CMOS-based chemical microsensors. <i>Analyst, The</i> , 2003 , 128, 15-28	5	101
286	Growing Cells Atop Microelectronic Chips: Interfacing Electrogenic Cells In Vitro With CMOS-Based Microelectrode Arrays. <i>Proceedings of the IEEE</i> , 2011 , 99, 252-284	14.3	100
285	Polymer-based sensor arrays and multicomponent analysis for the detection of hazardous organic vapours in the environment. <i>Sensors and Actuators B: Chemical</i> , 1995 , 26, 126-134	8.5	98
284	3D spherical microtissues and microfluidic technology for multi-tissue experiments and analysis. <i>Journal of Biotechnology</i> , 2015 , 205, 24-35	3.7	96
283	A Multi-Functional Microelectrode Array Featuring 59760 Electrodes, 2048 Electrophysiology Channels, Stimulation, Impedance Measurement and Neurotransmitter Detection Channels. <i>IEEE Journal of Solid-State Circuits</i> , 2017 , 52, 1576-1590	5.5	91
282	CMOS microelectrode array for bidirectional interaction with neuronal networks. <i>IEEE Journal of Solid-State Circuits</i> , 2006 , 41, 1620-1629	5.5	90
281	Performances of mass-sensitive devices for gas sensing: thickness shear mode and surface acoustic wave transducers. <i>Analytical Chemistry</i> , 1996 , 68, 2210-8	7.8	90
280	Multi-analyte biosensor interface for real-time monitoring of 3D microtissue spheroids in hanging-drop networks. <i>Microsystems and Nanoengineering</i> , 2016 , 2, 16022	7.7	88
279	A synthetic multifunctional mammalian pH sensor and CO ₂ transgene-control device. <i>Molecular Cell</i> , 2014 , 55, 397-408	17.6	87
278	The potential of microelectrode arrays and microelectronics for biomedical research and diagnostics. <i>Analytical and Bioanalytical Chemistry</i> , 2011 , 399, 2313-29	4.4	86
277	Use of linear solvation energy relationships for modeling responses from polymer-coated acoustic-wave vapor sensors. <i>Analytical Chemistry</i> , 2001 , 73, 3458-66	7.8	82
276	Integrated array sensor for detecting organic solvents. <i>Sensors and Actuators B: Chemical</i> , 1995 , 26, 135-139	8.5	82
275	Characterization of subcellular morphology of single yeast cells using high frequency microfluidic impedance cytometer. <i>Lab on A Chip</i> , 2014 , 14, 369-77	7.2	79
274	High-resolution mapping of single neurons provides insight into neuron structure and LFP generation. <i>BMC Neuroscience</i> , 2011 , 12,	3.2	78
273	Congenital Nystagmus Gene FRMD7 Is Necessary for Establishing a Neuronal Circuit Asymmetry for Direction Selectivity. <i>Neuron</i> , 2016 , 89, 177-93	13.9	77
272	Structures of Neural Correlation and How They Favor Coding. <i>Neuron</i> , 2016 , 89, 409-22	13.9	75
271	Tuning sensitivity and selectivity of complementary metal oxide semiconductor-based capacitive chemical microsensors. <i>Analytical Chemistry</i> , 2004 , 76, 2470-7	7.8	75

270	Microfabricated gas sensor systems with sensitive nanocrystalline metal-oxide films. <i>Journal of Nanoparticle Research</i> , 2006 , 8, 823-839	2.3	72
269	Analysis of resonating microcantilevers operating in a viscous liquid environment. <i>Sensors and Actuators A: Physical</i> , 2008 , 141, 43-51	3.9	70
268	Conferring selectivity to chemical sensors via polymer side-chain selection: thermodynamics of vapor sorption by a set of polysiloxanes on thickness-shear mode resonators. <i>Analytical Chemistry</i> , 2000 , 72, 3696-708	7.8	70
267	Single-chip microelectronic system to interface with living cells. <i>Biosensors and Bioelectronics</i> , 2007 , 22, 2546-53	11.8	69
266	Metal oxide-based monolithic complementary metal oxide semiconductor gas sensor microsystem. <i>Analytical Chemistry</i> , 2004 , 76, 4437-45	7.8	66
265	Causal evidence for retina-dependent and -independent visual motion computations in mouse cortex. <i>Nature Neuroscience</i> , 2017 , 20, 960-968	25.5	65
264	High-density microelectrode array recordings and real-time spike sorting for closed-loop experiments: an emerging technology to study neural plasticity. <i>Frontiers in Neural Circuits</i> , 2012 , 6, 105	3.5	64
263	A network comprising short and long noncoding RNAs and RNA helicase controls mouse retina architecture. <i>Nature Communications</i> , 2015 , 6, 7305	17.4	62
262	Chiral discrimination of inhalation anesthetics and methyl propionates by thickness shear mode resonators: new insights into the mechanisms of enantioselectivity by cyclodextrins. <i>Analytical Chemistry</i> , 1997 , 69, 4017-31	7.8	61
261	Liquid-phase chemical and biochemical detection using fully integrated magnetically actuated complementary metal oxide semiconductor resonant cantilever sensor systems. <i>Analytical Chemistry</i> , 2007 , 79, 1646-54	7.8	61
260	Resonance-enhanced microfluidic impedance cytometer for detection of single bacteria. <i>Lab on A Chip</i> , 2014 , 14, 3313-24	7.2	60
259	On-chip electroporation and impedance spectroscopy of single-cells. <i>Sensors and Actuators B: Chemical</i> , 2015 , 210, 82-90	8.5	60
258	CMOS monolithic metal-oxide sensor system comprising a microhotplate and associated circuitry. <i>IEEE Sensors Journal</i> , 2004 , 4, 9-16	4	60
257	Effective use of molecular recognition in gas sensing: results from acoustic wave and in situ FT-IR measurements. <i>Analytical Chemistry</i> , 1999 , 71, 3022-35	7.8	57
256	Massively parallel microwire arrays integrated with CMOS chips for neural recording. <i>Science Advances</i> , 2020 , 6, eaay2789	14.3	56
255	Bayes optimal template matching for spike sorting - combining fisher discriminant analysis with optimal filtering. <i>Journal of Computational Neuroscience</i> , 2015 , 38, 439-59	1.4	55
254	Mitotic cells contract actomyosin cortex and generate pressure to round against or escape epithelial confinement. <i>Nature Communications</i> , 2015 , 6, 8872	17.4	54
253	Microfluidic single-cell cultivation chip with controllable immobilization and selective release of yeast cells. <i>Lab on A Chip</i> , 2012 , 12, 906-15	7.2	54

252	A CMOS-based microelectrode array for interaction with neuronal cultures. <i>Journal of Neuroscience Methods</i> , 2007 , 164, 93-106	3	53
251	Recording large extracellular spikes in microchannels along many axonal sites from individual neurons. <i>PLoS ONE</i> , 2015 , 10, e0118514	3.7	52
250	Tissue-transplant fusion and vascularization of myocardial microtissues and macrotissues implanted into chicken embryos and rats. <i>Tissue Engineering</i> , 2006 , 12, 2541-53		51
249	Hotplate-based monolithic CMOS microsystems for gas detection and material characterization for operating temperatures up to 500/spl deg/C. <i>IEEE Journal of Solid-State Circuits</i> , 2004 , 39, 1202-1207	5.5	50
248	Applicability of independent component analysis on high-density microelectrode array recordings. <i>Journal of Neurophysiology</i> , 2012 , 108, 334-48	3.2	49
247	Monolithic Resonant-Cantilever-Based CMOS Microsystem for Biochemical Sensing. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2008 , 55, 2551-2560	3.9	49
246	Autonomous microfluidic multi-channel chip for real-time PCR with integrated liquid handling. <i>Biomedical Microdevices</i> , 2007 , 9, 711-8	3.7	49
245	96-well format-based microfluidic platform for parallel interconnection of multiple multicellular spheroids. <i>Journal of the Association for Laboratory Automation</i> , 2015 , 20, 274-82		48
244	Fully integrated CMOS microsystem for electrochemical measurements on 32 B2 working electrodes at 90 frames per second. <i>Analytical Chemistry</i> , 2014 , 86, 6425-32	7.8	48
243	Evaluation of multitransducer arrays for the determination of organic vapor mixtures. <i>Analytical Chemistry</i> , 2008 , 80, 227-36	7.8	47
242	Recording from defined populations of retinal ganglion cells using a high-density CMOS-integrated microelectrode array with real-time switchable electrode selection. <i>Journal of Neuroscience Methods</i> , 2012 , 211, 103-13	3	44
241	Molecular design and characterization of the neuron-microelectrode array interface. <i>Biomaterials</i> , 2007 , 28, 5246-58	15.6	44
240	Parameters for burst detection. <i>Frontiers in Computational Neuroscience</i> , 2013 , 7, 193	3.5	43
239	Capacitive sensors in CMOS technology with polymer coating. <i>Sensors and Actuators B: Chemical</i> , 1995 , 25, 357-361	8.5	43
238	Electrical Impedance Spectroscopy for Microtissue Spheroid Analysis in Hanging-Drop Networks. <i>ACS Sensors</i> , 2016 , 1, 1028-1035	9.2	43
237	Adding the 'heart' to hanging drop networks for microphysiological multi-tissue experiments. <i>Lab on A Chip</i> , 2015 , 15, 4138-47	7.2	41
236	A synthetic mammalian electro-genetic transcription circuit. <i>Nucleic Acids Research</i> , 2009 , 37, e33	20.1	41
235	Smart Cell Culture Systems: Integration of Sensors and Actuators into Microphysiological Systems. <i>ACS Chemical Biology</i> , 2018 , 13, 1767-1784	4.9	40

234	Wafer-level flame-spray-pyrolysis deposition of gas-sensitive layers on microsensors. <i>Journal of Micromechanics and Microengineering</i> , 2008 , 18, 035040	2	40
233	CMOS Monolithic MetalOxide Gas Sensor Microsystems. <i>IEEE Sensors Journal</i> , 2006 , 6, 276-286	4	40
232	Magnetically actuated complementary metal oxide semiconductor resonant cantilever gas sensor systems. <i>Analytical Chemistry</i> , 2005 , 77, 2690-9	7.8	40
231	Pattern Recognition and Multicomponent Analysis. <i>Sensors Update</i> , 1996 , 2, 119-180		40
230	Optimal Electrode Size for Multi-Scale Extracellular-Potential Recording From Neuronal Assemblies. <i>Frontiers in Neuroscience</i> , 2019 , 13, 385	5.1	39
229	CMOS microhotplate sensor system for operating temperatures up to 500 °C. <i>Sensors and Actuators B: Chemical</i> , 2006 , 117, 346-352	8.5	39
228	Characterization of Single Yeast Cell Phenotypes Using Microfluidic Impedance Cytometry and Optical Imaging. <i>ACS Sensors</i> , 2016 , 1, 1020-1027	9.2	37
227	Combination of High-density Microelectrode Array and Patch Clamp Recordings to Enable Studies of Multisynaptic Integration. <i>Scientific Reports</i> , 2017 , 7, 978	4.9	35
226	Single-chip mechatronic microsystem for surface imaging and force response studies. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004 , 101, 17011-5	11.5	35
225	Application of neural-network systems to the dynamic response of polymer-based sensor arrays. <i>Sensors and Actuators B: Chemical</i> , 1995 , 27, 232-236	8.5	35
224	Automated, Multiplexed Electrical Impedance Spectroscopy Platform for Continuous Monitoring of Microtissue Spheroids. <i>Analytical Chemistry</i> , 2016 , 88, 10876-10883	7.8	35
223	Sub-millisecond closed-loop feedback stimulation between arbitrary sets of individual neurons. <i>Frontiers in Neural Circuits</i> , 2012 , 6, 121	3.5	33
222	Electrical Identification and Selective Microstimulation of Neuronal Compartments Based on Features of Extracellular Action Potentials. <i>Scientific Reports</i> , 2016 , 6, 31332	4.9	32
221	Time-lapse electrical impedance spectroscopy for monitoring the cell cycle of single immobilized <i>S. pombe</i> cells. <i>Scientific Reports</i> , 2015 , 5, 17180	4.9	32
220	Patterned cell adhesion by self-assembled structures for use with a CMOS cell-based biosensor. <i>Biosensors and Bioelectronics</i> , 2007 , 22, 1426-33	11.8	31
219	Monolithic integration of a silicon nanowire field-effect transistors array on a complementary metal-oxide semiconductor chip for biochemical sensor applications. <i>Analytical Chemistry</i> , 2015 , 87, 9982-90	7.8	30
218	3D nonlinear modeling of microhotplates in CMOS technology for use as metal-oxide-based gas sensors. <i>Journal of Micromechanics and Microengineering</i> , 2005 , 15, 190-200	2	30
217	Detection and discrimination capabilities of a multitransducer single-chip gas sensor system. <i>Analytical Chemistry</i> , 2006 , 78, 6910-20	7.8	30

216	Microfluidic Multitissue Platform for Advanced Embryotoxicity Testing In Vitro. <i>Advanced Science</i> , 2019 , 6, 1900294	13.6	29
215	How Diverse Retinal Functions Arise from Feedback at the First Visual Synapse. <i>Neuron</i> , 2018 , 99, 117-134	14.9	29
214	CMOS Single-chip Gas Detection Systems: Part II. <i>Sensors Update</i> , 2003 , 12, 51-120		29
213	Characterization of magnetically actuated resonant cantilevers in viscous fluids. <i>Applied Physics Letters</i> , 2005 , 87, 162510	3.4	29
212	22.8 Multi-Functional Microelectrode Array System Featuring 59,760 Electrodes, 2048 Electrophysiology Channels, Impedance and Neurotransmitter Measurement Units.. <i>Digest of Technical Papers - IEEE International Solid-State Circuits Conference</i> , 2016 , 2016, 394-396	4	29
211	Tracking individual action potentials throughout mammalian axonal arbors. <i>ELife</i> , 2017 , 6,	8.9	28
210	Real-time monitoring of immobilized single yeast cells through multifrequency electrical impedance spectroscopy. <i>Analytical and Bioanalytical Chemistry</i> , 2014 , 406, 7015-25	4.4	28
209	Monolithic CMOS multi-transducer gas sensor microsystem for organic and inorganic analytes. <i>Sensors and Actuators B: Chemical</i> , 2007 , 126, 431-440	8.5	28
208	Transient signal analysis using complementary metal oxide semiconductor capacitive chemical microsensors. <i>Analytical Chemistry</i> , 2006 , 78, 279-90	7.8	28
207	A Smart Single-Chip Micro-Hotplate-Based Gas Sensor System in CMOS-Technology. <i>Analog Integrated Circuits and Signal Processing</i> , 2004 , 39, 275-287	1.2	28
206	Chiral discrimination in the gas phase using different transducers: thickness shear mode resonators and reflectometric interference spectroscopy. <i>Analytical Chemistry</i> , 1997 , 69, 3058-68	7.8	27
205	Cell-based CMOS sensor and actuator arrays. <i>IEEE Journal of Solid-State Circuits</i> , 2004 , 39, 2431-2437	5.5	27
204	Dynamic calibration of QMB polymer-coated sensors by Wiener kernel estimation. <i>Sensors and Actuators B: Chemical</i> , 1995 , 27, 275-285	8.5	27
203	Different strategies for the identification of gas sensing systems. <i>Sensors and Actuators B: Chemical</i> , 1996 , 34, 213-223	8.5	27
202	Adaptive microsensor systems. <i>Annual Review of Analytical Chemistry</i> , 2010 , 3, 255-76	12.5	26
201	2008 ,		26
200	A Digital CMOS Architecture for a Micro-Hotplate Array. <i>IEEE Journal of Solid-State Circuits</i> , 2007 , 42, 441-450	5.5	26
199	Visual coding with a population of direction-selective neurons. <i>Journal of Neurophysiology</i> , 2015 , 114, 2485-99	3.2	25

198	CMOS Single Chip Gas Detection Systems [Part I. <i>Sensors Update</i> , 2002 , 11, 101-155		25
197	Microfluidics-based single-step preparation of injection-ready polymeric nanosystems for medical imaging and drug delivery. <i>Nanoscale</i> , 2015 , 7, 16983-93	7.7	24
196	In Vitro Platform for Studying Human Insulin Release Dynamics of Single Pancreatic Islet Microtissues at High Resolution. <i>Advanced Biology</i> , 2020 , 4, e1900291	3.5	24
195	Versatile, simple-to-use microfluidic cell-culturing chip for long-term, high-resolution, time-lapse imaging. <i>Analytical Chemistry</i> , 2015 , 87, 4144-51	7.8	23
194	Single-Cell Electrical Stimulation Using CMOS-Based High-Density Microelectrode Arrays. <i>Frontiers in Neuroscience</i> , 2019 , 13, 208	5.1	23
193	Micro hot plate-based sensor array system for the detection of environmentally relevant gases. <i>Analytical Chemistry</i> , 2006 , 78, 6801-8	7.8	23
192	Modified polymers for reliable detection of organic solvents: Thermodynamically controlled selectivities and sensitivities. <i>Sensors and Actuators B: Chemical</i> , 1994 , 19, 448-452	8.5	23
191	Impedance Spectroscopy and Electrophysiological Imaging of Cells With a High-Density CMOS Microelectrode Array System. <i>IEEE Transactions on Biomedical Circuits and Systems</i> , 2018 , 12, 1356-1368	5.1	23
190	Single-cell lysis for visual analysis by electron microscopy. <i>Journal of Structural Biology</i> , 2013 , 183, 467-473	3.4	22
189	Connecting Fluidics to electron microscopy. <i>Journal of Structural Biology</i> , 2012 , 177, 128-34	3.4	22
188	Neurons differentiate magnitude and location of mechanical stimuli. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020 , 117, 848-856	11.5	22
187	Seamless Combination of Fluorescence-Activated Cell Sorting and Hanging-Drop Networks for Individual Handling and Culturing of Stem Cells and Microtissue Spheroids. <i>Analytical Chemistry</i> , 2016 , 88, 1222-9	7.8	21
186	An 11k-Electrode 126-Channel High-Density Microelectrode Array to Interact with Electrogenic Cells. <i>Digest of Technical Papers - IEEE International Solid-State Circuits Conference</i> , 2007 ,	4	21
185	CMOS MEMS - present and future		21
184	Compact voltage and current stimulation buffer for high-density microelectrode arrays. <i>IEEE Transactions on Biomedical Circuits and Systems</i> , 2010 , 4, 372-8	5.1	20
183	Multi-target electrochemical biosensing enabled by integrated CMOS electronics. <i>Journal of Micromechanics and Microengineering</i> , 2011 , 21, 054010	2	20
182	Characterization of a microfluidic dispensing system for localised stimulation of cellular networks. <i>Lab on A Chip</i> , 2006 , 6, 218-29	7.2	20
181	A composed neural network for the recognition of gas mixtures. <i>Sensors and Actuators B: Chemical</i> , 1995 , 25, 808-812	8.5	20

180	Gravimetric, dielectric and calorimetric methods for the detection of organic solvent vapours using poly(ether urethane) coatings. <i>Sensors and Actuators B: Chemical</i> , 1996 , 34, 356-360	8.5	20
179	The Axon Initial Segment is the Dominant Contributor to the Neuron's Extracellular Electrical Potential Landscape. <i>Advanced Biology</i> , 2019 , 3, e1800308	3.5	20
178	Scalable Microfluidic Platform for Flexible Configuration of and Experiments with Microtissue Multiorgan Models. <i>SLAS Technology</i> , 2019 , 24, 79-95	3	20
177	Integrating impedance-based growth-rate monitoring into a microfluidic cell culture platform for live-cell microscopy. <i>Microsystems and Nanoengineering</i> , 2018 , 4, 8	7.7	20
176	Microarray-based MALDI-TOF mass spectrometry enables monitoring of monoclonal antibody production in batch and perfusion cell cultures. <i>Methods</i> , 2016 , 104, 33-40	4.6	19
175	Mass-sensitive detection of gas-phase volatile organics using disk microresonators. <i>Analytical Chemistry</i> , 2011 , 83, 3305-11	7.8	19
174	New method of vaporising volatile organics for gas tests. <i>Sensors and Actuators B: Chemical</i> , 1997 , 45, 259-264	8.5	19
173	Modulation of cardiomyocyte electrical properties using regulated bone morphogenetic protein-2 expression. <i>Tissue Engineering - Part A</i> , 2008 , 14, 1969-88	3.9	19
172	Configurable electrodes for capacitive-type sensors and chemical sensors. <i>IEEE Sensors Journal</i> , 2006 , 6, 3-10	4	19
171	A single-chip CMOS micro-hotplate array for hazardous-gas detection and material characterization		19
170	Selective detection of nitrogen and oxygen containing volatile organic compounds: use of metal-modified polysiloxanes as sensor coatings. <i>Analytica Chimica Acta</i> , 1997 , 346, 327-339	6.6	18
169	Development of neural population activity toward self-organized criticality. <i>Neuroscience</i> , 2017 , 343, 55-65	3.9	17
168	Complexity optimization and high-throughput low-latency hardware implementation of a multi-electrode spike-sorting algorithm. <i>IEEE Transactions on Neural Systems and Rehabilitation Engineering</i> , 2015 , 23, 149-58	4.8	17
167	Automatic spike sorting for high-density microelectrode arrays. <i>Journal of Neurophysiology</i> , 2018 , 120, 3155-3171	3.2	17
166	Nanochemical surface analyzer in CMOS technology. <i>Ultramicroscopy</i> , 2002 , 91, 21-7	3.1	16
165	A smart single-chip micro-hotplate-based chemical sensor system in CMOS-technology		16
164	Detection of organic solvents with reliable chemical sensors based on cellulose derivatives. <i>Sensors and Actuators B: Chemical</i> , 1995 , 25, 443-447	8.5	16
163	Versatile live-cell activity analysis platform for characterization of neuronal dynamics at single-cell and network level. <i>Nature Communications</i> , 2020 , 11, 4854	17.4	16

162	A CMOS-based integrated-system architecture for a static cantilever array. <i>Sensors and Actuators B: Chemical</i> , 2008 , 131, 254-264	8.5	15
161	Polymer Coated Capacitive Microintegrated Gas Sensor		15
160	Impedance-Based Microfluidic Assay for Automated Antischistosomal Drug Screening. <i>ACS Sensors</i> , 2018 , 3, 2613-2620	9.2	15
159	Accurate signal-source localization in brain slices by means of high-density microelectrode arrays. <i>Scientific Reports</i> , 2019 , 9, 788	4.9	13
158	Sensor system including silicon nanowire ion sensitive FET arrays and CMOS readout. <i>Sensors and Actuators B: Chemical</i> , 2014 , 204, 568-577	8.5	13
157	CMOS monolithic microelectrode array for stimulation and recording of natural neural networks		13
156	Dielectrophoresis-Assisted Integration of 1024 Carbon Nanotube Sensors into a CMOS Microsystem. <i>Advanced Materials</i> , 2017 , 29, 1606852	24	12
155	CMOS-Based Monolithic Controllers for Smart Sensors Comprising Micromembranes and Microcantilevers. <i>IEEE Transactions on Circuits and Systems Part 1: Regular Papers</i> , 2007 , 54, 141-152		12
154	Connecting heat transfer macromodels for array MEMS structures. <i>Journal of Micromechanics and Microengineering</i> , 2005 , 15, 1205-1214	2	12
153	Cortical Axons, Isolated in Channels, Display Activity-Dependent Signal Modulation as a Result of Targeted Stimulation. <i>Frontiers in Neuroscience</i> , 2016 , 10, 83	5.1	12
152	Transistor heater for microhotplate-based metal-oxide microsensors. <i>IEEE Electron Device Letters</i> , 2005 , 26, 295-297	4.4	11
151	Multiple Single-Unit Long-Term Tracking on Organotypic Hippocampal Slices Using High-Density Microelectrode Arrays. <i>Frontiers in Neuroscience</i> , 2016 , 10, 537	5.1	11
150	Tubing-Free Microfluidic Microtissue Culture System Featuring Gradual, -Like Substance Exposure Profiles. <i>Frontiers in Bioengineering and Biotechnology</i> , 2019 , 7, 72	5.8	10
149	Technologies to Study Action Potential Propagation With a Focus on HD-MEAs. <i>Frontiers in Cellular Neuroscience</i> , 2019 , 13, 159	6.1	10
148	A Verilog-A model for silicon nanowire biosensors: From theory to verification. <i>Sensors and Actuators B: Chemical</i> , 2013 , 179, 293-300	8.5	10
147	A method for electrophysiological characterization of hamster retinal ganglion cells using a high-density CMOS microelectrode array. <i>Frontiers in Neuroscience</i> , 2015 , 9, 360	5.1	10
146	On-chip lysis of mammalian cells through a handheld corona device. <i>Lab on A Chip</i> , 2015 , 15, 2990-7	7.2	10
145	Chiral sensing using a complementary metal-oxide semiconductor-integrated three-transducer microsensor system. <i>Analytical Chemistry</i> , 2009 , 81, 9353-64	7.8	10

144	Opposite signs of capacitive microsensor signals upon exposure to the enantiomers of methyl propionate compounds. <i>Angewandte Chemie - International Edition</i> , 2008 , 47, 913-6	16.4	10
143	A perforated CMOS microchip for immobilization and activity monitoring of electrogenic cells. <i>Journal of Micromechanics and Microengineering</i> , 2007 , 17, 462-471	2	10
142	Cell recordings with a CMOS high-density microelectrode array. <i>Annual International Conference of the IEEE Engineering in Medicine and Biology Society</i> , 2007 , 2007, 167-70		10
141	CMOS monolithic mechatronic microsystem for surface imaging and force response studies. <i>IEEE Journal of Solid-State Circuits</i> , 2005 , 40, 951-959	5.5	10
140	Microfluidics/CMOS orthogonal capabilities for cell biology. <i>Biomedical Microdevices</i> , 2006 , 8, 159-66	3.7	10
139	Reflectance Infrared Spectroscopy on Operating Surface Acoustic Wave Chemical Sensors during Exposure to Gas-Phase Analytes. <i>Analytical Chemistry</i> , 1999 , 71, 3615-3621	7.8	10
138	Cell types of the human retina and its organoids at single-cell resolution: developmental convergence, transcriptomic identity, and disease map		10
137	Microfluidic Hydrogel Hanging-Drop Network for Long-Term Culturing of 3D Microtissues and Simultaneous High-Resolution Imaging. <i>Advanced Biology</i> , 2018 , 2, 1800054	3.5	10
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133	The fibrotic response of primary liver spheroids recapitulates in vivo hepatic stellate cell activation. <i>Biomaterials</i> , 2020 , 261, 120335	15.6	9
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125	Massively Parallel Microwire Arrays Integrated with CMOS chips for Neural Recording		7
124	Predicting Metabolism-Related Drug-Drug Interactions Using a Microphysiological Multitissue System. <i>Advanced Biology</i> , 2020 , 4, e2000079	3.5	7
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122	Stimulation and Artifact-Suppression Techniques for In Vitro High-Density Microelectrode Array Systems. <i>IEEE Transactions on Biomedical Engineering</i> , 2019 , 66, 2481-2490	5	7
121	Parallelized Wireless Sensing System for Continuous Monitoring of Microtissue Spheroids. <i>ACS Sensors</i> , 2020 , 5, 2036-2043	9.2	6
120	Characterization of a long-term mouse primary liver 3D tissue model recapitulating innate-immune responses and drug-induced liver toxicity. <i>PLoS ONE</i> , 2020 , 15, e0235745	3.7	6
119	Fabrication and Operation of Microfluidic Hanging-Drop Networks. <i>Methods in Molecular Biology</i> , 2018 , 1771, 183-202	1.4	6
118	2012 ,		6
117	CMOS microelectrode array for bidirectional interaction with neuronal networks		6
116	A digital CMOS micro-hotplate array for analysis of environmentally relevant gases		6
115	N-well based CMOS calorimetric chemical sensors		6
114	Electrophysiological Phenotype Characterization of Human iPSC-Derived Neuronal Cell Lines by Means of High-Density Microelectrode Arrays. <i>Advanced Biology</i> , 2021 , 5, e2000223		6
113	Dual-mode Microelectrode Array Featuring 20k Electrodes and High SNR for Extracellular Recording of Neural Networks 2019 , 2018,		6
112	26th Annual Computational Neuroscience Meeting (CNS*2017): Part 2. <i>BMC Neuroscience</i> , 2017 , 18,	3.2	5
111	Real-time In-situ Lactate Monitoring in 3D Multi-cellular Spheroid Cultures by Using Enzyme-based Biosensors in Hanging Drop Networks. <i>Procedia Engineering</i> , 2014 , 87, 96-99		5
110	Compact voltage and current stimulation buffer for high-density microelectrode arrays 2010 ,		5
109	CMOS-Based Bio/Chemosensor and Bioelectronic Microsystems. <i>Procedia Chemistry</i> , 2009 , 1, 5-8		5

108	Multi-Chip High-Density Microelectrode System for Electrogenic-Cell Recording and Stimulation 2007,		5
107	Hotplate-based conductometric monolithic CMOS gas sensor system		5
106	What is the future of electrical impedance spectroscopy in flow cytometry?. <i>Biomicrofluidics</i> , 2021, 15, 061302	3.2	5
105	CHIME: CMOS-hosted in-vivo microelectrodes for massively scalable neuronal recordings		5
104	A microelectrode array with 8,640 electrodes enabling simultaneous full-frame readout at 6.5 kfps and 112-channel switch-matrix readout at 20 kS/s 2016,		5
103	A Frequency-Domain Analysis of Latch Comparator Offset due to Load Capacitor Mismatch.. <i>IEEE Transactions on Circuits and Systems II: Express Briefs</i> , 2015, 62, 527-532	3.5	4
102	High-Density Mapping of Brain Slices using a Large Multi-Functional High-Density CMOS Microelectrode Array System 2017, 2017, 135-138		4
101	Acquisition of Bioelectrical Signals with Small Electrodes 2018, 2017, 1-4		4
100	Impedance-based detection of larvae viability for drug screening 2017, 2017,		4
99	Robust Functionalization of Large Microelectrode Arrays by Using Pulsed Potentiostatic Deposition. <i>Sensors</i> , 2016, 17,	3.8	4
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96	CMOS Bidirectional Electrode Array for Electrogenic Cells		4
95	Towards a versatile DRIE: silicon pit structures combined with electrochemical etch stop. <i>Journal of Microelectromechanical Systems</i> , 2006, 15, 840-848	2.5	4
94	Explosive vaporization in microenclosures. <i>Experimental Thermal and Fluid Science</i> , 2006, 30, 829-836	3	4
93	Smart single-chip CMOS microhotplate array for metal-oxide-based gas sensors		4
92	Magnetically actuated CMOS resonant cantilever gas sensor for volatile organic compounds		4
91	A gas detection system on a single CMOS chip comprising capacitive, calorimetric, and mass-sensitive microsensors		4

90	Hand-Held and Palm-Top Chemical Microsensor Systems for Gas Analysis	201-229		4
89	A Microfluidic Hanging-Drop-Based Islet Perfusion System for Studying Glucose-Stimulated Insulin Secretion From Multiple Individual Pancreatic Islets. <i>Frontiers in Bioengineering and Biotechnology</i> , 2021 , 9, 674431		5.8	4
88	Microfluidic Co-Culture Platform to Recapitulate the Maternal-Placental-Embryonic Axis. <i>Advanced Biology</i> , 2021 , 5, e2100609			4
87	Monolithic CMOS sensor platform featuring an array of 9'216 carbon-nanotube-sensor elements and low-noise, wide-bandwidth and wide-dynamic-range readout circuitry. <i>Sensors and Actuators B: Chemical</i> , 2019 , 279, 255-266		8.5	4
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84	Conferring flexibility and reconfigurability to a 26,400 microelectrode CMOS array for high throughput neural recordings 2013 ,			3
83	Factors affecting blind localization of a glass micropipette using a high-density microelectrode array 2013 ,			3
82	Silicon nanowire ion-sensitive field-effect transistor array integrated with a CMOS-based readout chip 2013 ,			3
81	Bandwidth Compensation for High Resolution Impedance Spectroscopy. <i>Procedia Engineering</i> , 2011 , 25, 1209-1212			3
80	Integrated chemical microsensor systems in CMOS-technology			3
79	A micro-hotplate-based monolithic CMOS gas sensor array			3
78	CMOS-based Chemical Sensors. <i>Advanced Micro & Nanosystems</i> , 2005 , 335-390			3
77	Fully integrated CMOS resonant cantilever sensor for biochemical detection in liquid environments			3
76	Single-chip CMOS capacitive gas sensor for detection of volatile organic compounds			3
75	A single-chip CMOS resonant beam gas sensor			3
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71	Human brain organoid networks		3
70	Long-Term High-Density Extracellular Recordings Enable Studies of Muscle Cell Physiology. <i>Frontiers in Physiology</i> , 2018 , 9, 1424	4.6	3
69	A microfluidic single-cell array for in situ laminar-flow-based comparative culturing of budding yeast cells. <i>Talanta</i> , 2021 , 231, 122401	6.2	3
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67	Real-time multi-analyte online monitoring of 3d cell cultures by integrated enzyme-based biosensors in hanging drop networks 2015 ,		2
66	Wide-band Electrical Impedance Spectroscopy (EIS) Measures <i>S. pombe</i> Cell Growth in vivo. <i>Methods in Molecular Biology</i> , 2018 , 1721, 135-153	1.4	2
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63	A Tubing-Free, Microfluidic Platform for the Realization of Physiologically Relevant Dosing Curves on Cellular Models. <i>Proceedings (mdpi)</i> , 2017 , 1, 497	0.3	2
62	Dynamic and static impedance spectroscopy for single particle characterization in microfluidic chips 2012 ,		2
61	Gas and liquid phase sensing of volatile organics with disk microresonator 2008 ,		2
60			2
59	Digital MOS-transistor-based microhotplate array for simultaneous detection of environmentally relevant gases		2
58	A micro-hotplate-based monolithic CMOS thermal analysis system		2
57	CMOS single-chip multisensor gas detection system		2
56	CMOS-based chemical microsensors: components of a micronose system 1999 ,		2
55	Comparison Of Mass-sensitive Devices For Gas Sensing: Bulk Acoustic Wave (baw)- And Surface Acoustic Wave (saw) Transducers		2

54	Different Strategies For The Dynamical Calibration Of Gas Sensors		2
53	An Immunocompetent Microphysiological System to Simultaneously Investigate Effects of Anti-Tumor Natural Killer Cells on Tumor and Cardiac Microtissues.. <i>Frontiers in Immunology</i> , 2021 , 12, 781337	8.4	2
52	The axon initial segment drives the neuron's extracellular action potential		2
51	CHIME: CMOS-Hosted Microelectrodes for Massively Scalable Neuronal Recordings. <i>Frontiers in Neuroscience</i> , 2020 , 14, 834	5.1	2
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41	Development of a Microfluidic GHz Impedance Cytometer. <i>TM Technisches Messen</i> , 2013 , 80, 411-420	0.7	1
40	Recording of neural activity of mouse retinal ganglion cells by means of an integrated high-density microelectrode array 2011 ,		1
39	Subcellular-resolution recording of electrical activity using a CMOS-microelectrode system 2009 ,		1
38	Exploring the resolution of different disk-type chemical sensors 2009 ,		1
37	Differential impedance spectrometer and vision system for analysis of single cells 2009 ,		1

36	A CMOS-based Microelectrode Array for Information Processing with Natural Neurons 2007 ,		1
35	Using microelectronics technology to communicate with living cells. <i>Annual International Conference of the IEEE Engineering in Medicine and Biology Society</i> , 2007 , 2007, 6082-5		1
34	11000 Electrode-, 126 channel-CMOS microelectrode array for electrogenic cells 2007 ,		1
33	Monolithic CMOS multi-transducer gas sensor microsystem		1
32	Towards a versatile DRIE: silicon pit structures combined with electrochemical etch stop		1
31	Monitoring of environmentally monolithic metal-oxide relevant gases by a digital microsensor array		1
30	CMOS microelectrode array for extracellular stimulation and recording of electrogenic cells		1
29	Precise cell placement by pneumatic anchoring		1
28	Advanced chemical microsensor systems in CMOS technology [gas sensors]		1
27	A monolithic fully-differential CMOS gas sensor microsystem for microhotplate temperatures up to 450/spl deg/C		1
26	Multi-transducer recordings from a single-chip gas sensor system coated with different polymers		1
25	A CMOS-based sensor array system for chemical and biochemical applications		1
24	Deciphering the pathogenic role of a variant with uncertain significance for short QT and Brugada syndromes using gene-edited human-induced pluripotent stem cell-derived cardiomyocytes and preclinical drug screening.. <i>Clinical and Translational Medicine</i> , 2021 , 11, e646	5.7	1
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21	Semiconductor-Based Chemical Microsensors 2006 , 567-666		1
20	Versatile live-cell activity analysis platform for characterization of neuronal dynamics at single-cell and network level		1
19	Miniature Fluidic Microtissue Culturing Device for Rapid Biological Detection. <i>Integrated Analytical Systems</i> , 2018 , 207-225	0.4	1

18	Electrophysiological Phenotype Characterization of Human iPSC-Derived Neuronal Cell Lines by Means of High-Density Microelectrode Arrays		1
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9	Highly integrated CMOS microsystems to interface with neurons at subcellular resolution 2015 , 2015, 13.2.1-13.2.4		
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7	Multisite monitoring of choline using biosensor microprobe arrays in combination with CMOS circuitry. <i>Biomedizinische Technik</i> , 2014 , 59, 305-14	1.3	
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4	Tissue-Transplant Fusion and Vascularization of Myocardial Microtissues and Macrotissues Implanted into Chicken Embryos and Rats. <i>Tissue Engineering</i> , 2006 , 060913044658024		
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