

# Toshiya Sakata

## List of Publications by Year in descending order

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111  
papers

1,881  
citations

279798

23  
h-index

289244

40  
g-index

115  
all docs

115  
docs citations

115  
times ranked

1380  
citing authors

#	ARTICLE	IF	CITATIONS
1	DNA Analysis Chip Based on Field-Effect Transistors. Japanese Journal of Applied Physics, 2005, 44, 2854-2859.	1.5	123
2	DNA Sequencing Based on Intrinsic Molecular Charges. Angewandte Chemie - International Edition, 2006, 45, 2225-2228.	13.8	110
3	Immobilization of oligonucleotide probes on Si3N4 surface and its application to genetic field effect transistor. Materials Science and Engineering C, 2004, 24, 827-832.	7.3	93
4	Potentiometric Detection of Single Nucleotide Polymorphism by Using a Genetic Field-effect transistor. ChemBioChem, 2005, 6, 703-710.	2.6	91
5	Detection of DNA recognition events using multi-well field effect devices. Biosensors and Bioelectronics, 2005, 21, 827-832.	10.1	68
6	Stable Immobilization of an Oligonucleotide Probe on a Gold Substrate Using Tripodal Thiol Derivatives. Langmuir, 2007, 23, 2269-2272.	3.5	64
7	Direct transduction of allele-specific primer extension into electrical signal using genetic field effect transistor. Biosensors and Bioelectronics, 2007, 22, 1311-1316.	10.1	62
8	Open Sandwich-Based Immuno-Transistor for Label-Free and Noncompetitive Detection of Low Molecular Weight Antigen. Analytical Chemistry, 2009, 81, 7532-7537.	6.5	62
9	Potential Behavior of Biochemically Modified Gold Electrode for Extended-Gate Field-Effect Transistor. Japanese Journal of Applied Physics, 2005, 44, 2860-2863.	1.5	56
10	Biologically Coupled Gate Field-Effect Transistors Meet <i>in Vitro</i> Diagnostics. ACS Omega, 2019, 4, 11852-11862.	3.5	56
11	Noninvasive Monitoring of Transporter-Substrate Interaction at Cell Membrane. Analytical Chemistry, 2008, 80, 1493-1496.	6.5	55
12	Chemical-to-Electrical Signal Transduction Synchronized with Smart Gel Volume Phase Transition. Advanced Materials, 2009, 21, 4372-4378.	21.0	51
13	Glucose-responsive hydrogel electrode for biocompatible glucose transistor. Science and Technology of Advanced Materials, 2017, 18, 26-33.	6.1	48
14	Well-designed dopamine-imprinted polymer interface for selective and quantitative dopamine detection among catecholamines using a potentiometric biosensor. Biosensors and Bioelectronics, 2018, 117, 810-817.	10.1	45
15	Single Embryo-Coupled Gate Field Effect Transistor for Elective Single Embryo Transfer. Analytical Chemistry, 2013, 85, 6633-6638.	6.5	43
16	Live Monitoring of Microenvironmental pH Based on Extracellular Acidosis around Cancer Cells with Cell-Coupled Gate Ion-Sensitive Field-Effect Transistor. Analytical Chemistry, 2018, 90, 12731-12736.	6.5	41
17	Molecularly Imprinted Artificial Biointerface for an Enzyme-Free Glucose Transistor. ACS Applied Materials & Interfaces, 2018, 10, 34983-34990.	8.0	39
18	Association between tear and blood glucose concentrations: Random intercept model adjusted with confounders in tear samples negative for occult blood. Journal of Diabetes Investigation, 2021, 12, 266-276.	2.4	34

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19	Enhancement of Signal-to-Noise Ratio for Serotonin Detection with Well-Designed Nanofilter-Coated Potentiometric Electrochemical Biosensor. <i>ACS Applied Materials &amp; Interfaces</i> , 2020, 12, 14761-14769.	8.0	33
20	Potentiometric Adsorption Isotherm Analysis of a Molecularly Imprinted Polymer Interface for Small-Biomolecule Recognition. <i>ACS Omega</i> , 2018, 3, 5382-5389.	3.5	29
21	Polymeric Nanofilter Biointerface for Potentiometric Small-Biomolecule Recognition. <i>ACS Applied Materials &amp; Interfaces</i> , 2019, 11, 5561-5569.	8.0	24
22	Fundamental Properties of Phenylboronic Acid-Coated Gate Field-Effect Transistor for Saccharide Sensing. <i>ChemElectroChem</i> , 2014, 1, 1647-1655.	3.4	23
23	Ion Sensitive Transparent-Gate Transistor for Visible Cell Sensing. <i>Analytical Chemistry</i> , 2017, 89, 3901-3908.	6.5	23
24	Nonoptical Detection of Allergic Response with a Cell-Coupled Gate Field-Effect Transistor. <i>Analytical Chemistry</i> , 2017, 89, 12918-12923.	6.5	23
25	Elucidation of interfacial pH behaviour at the cell/substrate nanogap for <i>in situ</i> monitoring of cellular respiration. <i>Nanoscale</i> , 2018, 10, 10130-10136.	5.6	23
26	Molecularly imprinted polymer-based bioelectrical interfaces with intrinsic molecular charges. <i>RSC Advances</i> , 2020, 10, 16999-17013.	3.6	23
27	Biocompatible Poly(catecholamine)-Film Electrode for Potentiometric Cell Sensing. <i>ACS Sensors</i> , 2018, 3, 476-483.	7.8	22
28	Biocompatible and flexible paper-based metal electrode for potentiometric wearable wireless biosensing. <i>Science and Technology of Advanced Materials</i> , 2020, 21, 379-387.	6.1	21
29	Glucose-sensitive field effect transistor using totally synthetic compounds. <i>Journal of Solid State Electrochemistry</i> , 2009, 13, 165-170.	2.5	20
30	Design and Fabrication of Silicon Nanowire-Based Biosensors with Integration of Critical Factors: Toward Ultrasensitive Specific Detection of Biomolecules. <i>ACS Applied Materials &amp; Interfaces</i> , 2020, 12, 51808-51819.	8.0	19
31	Detection of Molecular Charges at Cell Membrane. <i>Japanese Journal of Applied Physics</i> , 2008, 47, 368-370.	1.5	18
32	Self-Oriented Immobilization of DNA Polymerase Tagged by Titanium-Binding Peptide Motif. <i>Langmuir</i> , 2015, 31, 732-740.	3.5	18
33	Control of Potential Response to Small Biomolecules with Electrochemically Grafted Aryl-Based Monolayer in Field-Effect Transistor-Based Sensors. <i>Langmuir</i> , 2019, 35, 3701-3709.	3.5	18
34	Simultaneous Biosensing with Quartz Crystal Microbalance with a Dissipation Coupled-Gate Semiconductor Device. <i>Analytical Chemistry</i> , 2013, 85, 5796-5800.	6.5	17
35	Chondrocyte spheroids on microfabricated PEG hydrogel surface and their noninvasive functional monitoring. <i>Science and Technology of Advanced Materials</i> , 2012, 13, 064217.	6.1	16
36	Solution-Gated Ultrathin Channel Indium Tin Oxide-Based Field-Effect Transistor Fabricated by a One-Step Procedure that Enables High-Performance Ion Sensing and Biosensing. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 38569-38578.	8.0	16

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37	Electrical detection of ovum membrane charges using biotransistor. <i>Microelectronic Engineering</i> , 2008, 85, 1337-1340.	2.4	15
38	Real-time and noninvasive monitoring of respiration activity of fertilized ova using semiconductor-based biosensing devices. <i>European Biophysics Journal</i> , 2011, 40, 699-704.	2.2	15
39	Distinctive Potential Behavior at the Oxidized Surface of a Semiconductor Device in a Concentrated Aqueous Salt Solution. <i>ChemElectroChem</i> , 2014, 1, 1516-1524.	3.4	15
40	<i>In situ</i> electrical monitoring of cancer cells invading vascular endothelial cells with semiconductor-based biosensor. <i>Genes To Cells</i> , 2017, 22, 203-209.	1.2	15
41	Calculation of surface potentials at the silica/water interface using molecular dynamics: Challenges and opportunities. <i>Japanese Journal of Applied Physics</i> , 2018, 57, 04FM02.	1.5	15
42	Effect of double-stranded DNA on electrical double layer structure at oxide/electrolyte interface in classical molecular dynamics simulation. <i>Chemical Physics Letters</i> , 2015, 619, 152-157.	2.6	14
43	Charge Behaviors around Oxide Device/Pseudo-Physiological Solution Interface with Molecular Dynamic Simulations. <i>Japanese Journal of Applied Physics</i> , 2013, 52, 127001.	1.5	13
44	Molecular-Charge-Contact-Based Ion-Sensitive Field-Effect Transistor Sensor in Microfluidic System for Protein Sensing. <i>Sensors</i> , 2019, 19, 3393.	3.8	13
45	In situ measurement of autophagy under nutrient starvation based on interfacial pH sensing. <i>Scientific Reports</i> , 2018, 8, 8282.	3.3	12
46	Understanding the Molecular Structure of the Sialic Acid-Phenylboronic Acid Complex by using a Combined NMR Spectroscopy and DFT Study: Toward Sialic Acid Detection at Cell Membranes. <i>ChemistryOpen</i> , 2018, 7, 513-519.	1.9	12
47	Sperm-Cultured Gate Ion-Sensitive Field-Effect Transistor for Non-Optical and Live Monitoring of Sperm Capacitation. <i>Sensors</i> , 2019, 19, 1784.	3.8	11
48	Estimation of Extracellular Matrix Production Using a Cultured-Chondrocyte-Based Gate Ion-Sensitive Field-Effect Transistor. <i>Analytical Chemistry</i> , 2019, 91, 16017-16022.	6.5	11
49	Fundamental Characteristics of a Glucose Transistor with a Chemically Functional Interface. <i>ChemElectroChem</i> , 2017, 4, 2225-2231.	3.4	10
50	Biocompatible and Na <sup>+</sup> -sensitive thin-film transistor for biological fluid sensing. <i>Science and Technology of Advanced Materials</i> , 2019, 20, 917-926.	6.1	10
51	Aptamer-based nanofilter interface for small-biomarker detection with potentiometric biosensor. <i>Electrochimica Acta</i> , 2021, 368, 137631.	5.2	9
52	Real-Time Monitoring of Potassium Ion Release Due to Apoptosis with Cell-Based Transparent-Gate Transistor. <i>Applied Physics Express</i> , 2012, 5, 017001.	2.4	8
53	Characterization of ion-sensitive extended-gate field effect transistor coated with functional self-assembled monolayer. <i>Japanese Journal of Applied Physics</i> , 2015, 54, 04DL06.	1.5	8
54	Development of molecularly imprinted polymer-based field effect transistor for sugar chain sensing. <i>Japanese Journal of Applied Physics</i> , 2017, 56, 04CM02.	1.5	8

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55	Potentiometric Langmuir Isotherm Analysis of Histamine-Selective Molecularly Imprinted Polymer-Based Field-Effect Transistor. <i>ECS Journal of Solid State Science and Technology</i> , 2018, 7, Q3079-Q3082.	1.8	8
56	Dysregulation of a potassium channel, THIK-1, targeted by caspase-8 accelerates cell shrinkage. <i>Biochimica Et Biophysica Acta - Molecular Cell Research</i> , 2016, 1863, 2766-2783.	4.1	7
57	Dynamic electrical behaviour of a thermoresponsive polymer in well-defined poly(N-isopropylacrylamide)-grafted semiconductor devices. <i>RSC Advances</i> , 2017, 7, 34517-34521.	3.6	7
58	Free-standing conductive hydrogel electrode for potentiometric glucose sensing. <i>RSC Advances</i> , 2022, 12, 5369-5373.	3.6	7
59	Charged nanosphere-coupled biotransistor for highly sensitive genetic analysis. <i>Current Applied Physics</i> , 2009, 9, e210-e213.	2.4	6
60	Continuous Monitoring of Electrical Activity of Pancreatic $\beta$ -Cells Using Semiconductor-Based Biosensing Devices. <i>Japanese Journal of Applied Physics</i> , 2011, 50, 020216.	1.5	6
61	Molecular charge contact biosensing based on the interaction of biologically modified magnetic beads with an ion-sensitive field effect transistor. <i>European Biophysics Journal</i> , 2014, 43, 217-225.	2.2	6
62	Cell Adhesion Characteristics on Tantalum Pentoxide Gate Insulator for Cultured-Cell-Gate Field-Effect Transistor. <i>Langmuir</i> , 2021, 37, 7548-7555.	3.5	6
63	Direct Electrochemical Signaling in Organic Electrochemical Transistors Comprising High-Conductivity Double-Network Hydrogels. <i>ACS Applied Materials &amp; Interfaces</i> , 2022, 14, 24729-24740.	8.0	6
64	Cell adhesion characteristics of chemically modified silicon nitride surfaces. <i>IEEJ Transactions on Electrical and Electronic Engineering</i> , 2007, 2, 295-300.	1.4	5
65	Development of cell/transistor interface for real-time and noninvasive monitoring of potassium ion release based on apoptosis using biologically-coupled field effect transistor. <i>Transactions of the Materials Research Society of Japan</i> , 2010, 35, 255-258.	0.2	5
66	Long-term and real-time monitoring of chondrocyte behavior synthesizing extracellular matrix with biologically coupled field effect transistor. <i>Japanese Journal of Applied Physics</i> , 2017, 56, 04CM03.	1.5	4
67	Effect of Ionic Atmosphere around DNA/Electrolyte Interface on Potentiometric Signal. <i>Journal of the Electrochemical Society</i> , 2017, 164, B548-B552.	2.9	4
68	Review of Egg Cells on a Semiconductor: Potentials in Drug Screening and Clinical Diagnostics. <i>ECS Journal of Solid State Science and Technology</i> , 2018, 7, Q3094-Q3103.	1.8	4
69	Charge-Coupling Extended-Gate Amorphous-InGaZnO-Based Thin-Film Transistor for Use as Ultrasensitive Biosensor. <i>Journal of the Electrochemical Society</i> , 2018, 165, B571-B575.	2.9	4
70	Electropolymerized Poly(toluidine blue O) Film Electrode for Potentiometric Biosensing. <i>Sensors and Materials</i> , 2018, 30, 2333.	0.5	4
71	<i>In Situ</i> Electrical Monitoring of Methylated DNA Based on Its Conformational Change to G-Quadruplex Using a Solution-Gated Field-Effect Transistor. <i>Analytical Chemistry</i> , 2021, 93, 16709-16717.	6.5	4
72	Densification of Diazonium-Based Organic Thin Film as Bioelectrical Interface. <i>Langmuir</i> , 2021, 37, 14369-14379.	3.5	4

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73	Potentiometric Detection of DNA Molecules Hybridization Using Gate Field Effect Transistor and Intercalator. Materials Research Society Symposia Proceedings, 2003, 782, 1.	0.1	3
74	Surface Characteristics and Formation of Polysarotinin Thin Films for Bioelectrical and Biocompatible Interfaces. Langmuir, 2022, 38, 8633-8642.	3.5	3
75	Concurrent design for NiAl-based ( $\beta/\beta'$ ) two-phase alloys by controlling microstructure and texture. Science and Technology of Advanced Materials, 2002, 3, 157-164.	6.1	2
76	Real-time monitoring of voltage shift based on enzymatically released pyrophosphate using phenylboronic acid-immobilized gate field-effect transistor. Japanese Journal of Applied Physics, 2014, 53, 04EL04.	1.5	2
77	Elucidation of Semiconductor/Bio-Interface Structure with Massive Classical Molecular Dynamics Simulation. Hyomen Cijutsu/Journal of the Surface Finishing Society of Japan, 2014, 65, 251-256.	0.2	2
78	Monitoring of hydroxyapatite crystal formation using field-effect transistor. Japanese Journal of Applied Physics, 2016, 55, 04EM09.	1.5	2
79	Interfacial pH Behavior at a Cell/Gate Insulator Nanogap Induced by Allergic Responses. ACS Omega, 2019, 4, 14255-14260.	3.5	2
80	Capacitance-Voltage Measurement of Transporting Function at Cell Membrane. IEEJ Transactions on Sensors and Micromachines, 2009, 129, 242-244.	0.1	2
81	Semiconductor-based Biosensing Technology for <i>in vitro</i> Diagnostic Device. IEEJ Transactions on Sensors and Micromachines, 2017, 137, 296-300.	0.1	2
82	Hydrogel-Coated Gate Field-Effect Transistor for Real-Time and Label-Free Monitoring of $\beta$ -Amyloid Aggregation and Its Inhibition. Analytical Chemistry, 2022, , .	6.5	2
83	Self-oscillating chemolectrical interface of solution-gated ion-sensitive field-effect transistor based on Belousov-Zhabotinsky reaction. Scientific Reports, 2022, 12, 2949.	3.3	2
84	Technical Perspectives on Applications of Biologically Coupled Gate Field-Effect Transistors. Sensors, 2022, 22, 4991.	3.8	2
85	Development of Microstructure and Texture in Rapidly Solidified and Annealed Ni-Al Alloys. Materials Transactions, 2001, 42, 2382-2385.	1.2	1
86	Distinctive Potential Behavior at Oxidized Surface of Semiconductor Device in Concentrated Aqueous Salt Solution. ChemElectroChem, 2014, 1, 1427-1427.	3.4	1
87	Real-time Monitoring of Cell Activities by Diamond Solution-gated Field Effect Transistors. Procedia Engineering, 2016, 168, 469-472.	1.2	1
88	Molecularly imprinted polymer-based FET biosensor for oligosaccharides sensing to target cancer cells. , 2016, , .		1
89	Development of paper-gate transistor toward direct detection from microbiological fluids. Japanese Journal of Applied Physics, 2017, 56, 04CM07.	1.5	1
90	<i>In Vitro</i> Diagnostic Device with a Bio-Coupled Gate Field Effect Transistor. International Journal of Automation Technology, 2018, 12, 45-51.	1.0	1

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91	Effect of Electrochemically Grafted Aryl-Based Monolayer on Nonspecific Electrical Signal of Field-Effect-Transistor-Based Biosensor. ECS Transactions, 2019, 89, 17-24.	0.5	1
92	Functionalization of Polymeric Nanofilter Biointerface for Small Biomarker Sensing. ECS Transactions, 2020, 97, 9-14.	0.5	1
93	Ion sensitivity from current hysteresis in InAs nanowire field-effect transistors functionalized with ionophore-doped fluorosilicone membranes. Sensors and Actuators B: Chemical, 2021, 336, 129704.	7.8	1
94	Slow-phase-transition Behavior of Thermoresponsive Polymer Brushes Constrained at Substrate Observed by <i>In Situ</i> Electrical Monitoring Using Poly( <i>N</i> -isopropylacrylamide)-grafted Gate Field-effect Transistor. Chemistry Letters, 2021, 50, 1852-1855.	1.3	1
95	Detection sensitivity of genetic field effect transistor combined with charged nanoparticle-DNA conjugate. , 2006, , .		0
96	Genetic field effect devices for DNA analysis. , 2006, , .		0
97	Drug transport measurement for transporter variants using oocyte-based field effect transistor. , 2007, , .		0
98	Control of Texture in Intermetallic Compounds by Thermomechanical Processing. Solid State Phenomena, 2007, 127, 9-14.	0.3	0
99	Cell adhesion characteristics of chemically modified silicon nitride surfaces. IEEJ Transactions on Electrical and Electronic Engineering, 2007, 2, xiii-xiv.	1.4	0
100	Label-Free and Noninvasive Monitoring of Cell Differentiation on Spheroid Microarray. IEICE Transactions on Electronics, 2013, E96.C, 353-357.	0.6	0
101	Cell adhesion monitoring of human induced pluripotent stem cell based on intrinsic molecular charges. Japanese Journal of Applied Physics, 2014, 53, 05FS02.	1.5	0
102	In vitro bio-circuit sensing based on cell-semiconductor interaction. , 2015, , .		0
103	(Invited) Semiconductor-Based Biosensing Technology for Clinical Diagnosis. ECS Transactions, 2017, 77, 3-9.	0.5	0
104	Bioanalytical Method Based on Extended-Gate Field-Effect Transistor Modified by Self-Assembled Monolayer. International Journal of Automation Technology, 2018, 12, 52-63.	1.0	0
105	Preface—JSS Focus Issue on Semiconductor-Based Sensors for Application to Vapors, Chemicals, Biological Species, and Medical Diagnosis. ECS Journal of Solid State Science and Technology, 2018, 7, Y5-Y5.	1.8	0
106	Electrical Detection of Bio-molecular Recognition Using Insulated Gate Field Effect Transistors. Hyomen Kagaku, 2006, 27, 13-20.	0.0	0
107	Review Paper on "In vitro Biosensing based on Semiconductor Devices". IEEJ Transactions on Sensors and Micromachines, 2011, 131, 409-413.	0.1	0
108	Sensing of Biomolecules and Cells by Semiconductor Device. , 2015, , 323-362.		0

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109	Fabrication of Holder-type Piezoresistive Cantilever for Embryo Mass Measurement. Sensors and Materials, 2018, 30, 2369.	0.5	0
110	Biological sensing technology based on intrinsic molecular charges. , 2019, , .		0
111	Functionalization of Polymeric Nanofilter Biointerface for Small Biomarker Sensing. ECS Meeting Abstracts, 2020, MA2020-01, 1399-1399.	0.0	0