Tohru Tsuruoka

List of Publications by Year
in descending order

86	5,688	117453	74018
papers	citations	34 h-index	75 g-index

91	91	91	4629
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Short-term plasticity and long-term potentiation mimicked in single inorganic synapses. Nature Materials, 2011, 10, 591-595.	13.3	1,480
2	Atomic Switch: Atom/Ion Movement Controlled Devices for Beyond Vonâ€Neumann Computers. Advanced Materials, 2012, 24, 252-267.	11.1	338
3	Learning Abilities Achieved by a Single Solidâ€State Atomic Switch. Advanced Materials, 2010, 22, 1831-1834.	11.1	274
4	Forming and switching mechanisms of a cation-migration-based oxide resistive memory. Nanotechnology, 2010, 21, 425205.	1.3	267
5	Effects of Moisture on the Switching Characteristics of Oxideâ€Based, Gaplessâ€Type Atomic Switches. Advanced Functional Materials, 2012, 22, 70-77.	7.8	247
6	Generic Relevance of Counter Charges for Cation-Based Nanoscale Resistive Switching Memories. ACS Nano, 2013, 7, 6396-6402.	7.3	216
7	Atomically controlled electrochemical nucleation at superionic solid electrolyte surfaces. Nature Materials, 2012, 11, 530-535.	13.3	208
8	On-Demand Nanodevice with Electrical and Neuromorphic Multifunction Realized by Local Ion Migration. ACS Nano, 2012, 6, 9515-9521.	7.3	186
9	Controlling the Synaptic Plasticity of a Cu₂S Gapâ€Type Atomic Switch. Advanced Functional Materials, 2012, 22, 3606-3613.	7.8	160
10	Conductance quantization and synaptic behavior in a Ta₂O₅-based atomic switch. Nanotechnology, 2012, 23, 435705.	1.3	157
11	Redox Reactions at Cu,Ag/Ta₂O₅ Interfaces and the Effects of Ta₂O₅ Film Density on the Forming Process in Atomic Switch Structures. Advanced Functional Materials, 2015, 25, 6374-6381.	7.8	148
12	A Polymerâ€Electrolyteâ€Based Atomic Switch. Advanced Functional Materials, 2011, 21, 93-99.	7.8	130
13	Mechanism for Conducting Filament Growth in Selfâ€Assembled Polymer Thin Films for Redoxâ€Based Atomic Switches. Advanced Materials, 2016, 28, 640-648.	11.1	128
14	Synaptic plasticity and memory functions achieved in a WO_{3â^'x}-based nanoionics device by using the principle of atomic switch operation. Nanotechnology, 2013, 24, 384003.	1.3	117
15	Effects of moisture and redox reactions in VCM and ECM resistive switching memories. Journal Physics D: Applied Physics, 2018, 51, 413001.	1.3	107
16	Rate-Limiting Processes Determining the Switching Time in a Ag₂S Atomic Switch. Journal of Physical Chemistry Letters, 2010, 1, 604-608.	2.1	99
17	Temperature effects on the switching kinetics of a Cuâ€“Ta₂O₅-based atomic switch. Nanotechnology, 2011, 22, 254013.	1.3	75
18	Highly Reproducible and Regulated Conductance Quantization in a Polymerâ€Based Atomic Switch. Advanced Functional Materials, 2017, 27, 1605104.	7.8	66

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19	Sensory and short-term memory formations observed in a Ag2S gap-type atomic switch. Applied Physics Letters, 2011, 99, .	1.5	63
20	Alcohol-induced decomposition of Olmstead's crystalline Ag(<scp>i</scp>)â€“fullerene heteronanostructure yields â€˜bucky cubesâ€™. Journal of Materials Chemistry C, 2013, 1, 1174-1181.	2.7	61
21	Mesoporous fullerene C₇₀ cubes with highly crystalline frameworks and unusually enhanced photoluminescence properties. Materials Horizons, 2018, 5, 285-290.	6.4	59
22	Nanoarchitectonics for Controlling the Number of Dopant Atoms in Solid Electrolyte Nanodots. Advanced Materials, 2018, 30, 1703261.	11.1	59
23	AgI/Ag Heterojunction Nanowires: Facile Electrochemical Synthesis, Photoluminescence, and Enhanced Ionic Conductivity. Advanced Functional Materials, 2007, 17, 1466-1472.	7.8	49
24	Humidity effects on the redox reactions and ionic transport in a Cu/Ta₂O₅/Pt atomic switch structure. Japanese Journal of Applied Physics, 2016, 55, 06GJ09.	0.8	49
25	Oxygen migration process in the interfaces during bipolar resistance switching behavior of WO3â^’x-based nanoionics devices. Applied Physics Letters, 2012, 100, .	1.5	46
26	Surfactant-Triggered Nanoarchitectonics of Fullerene C₆₀ Crystals at a Liquidâ€“Liquid Interface. Langmuir, 2016, 32, 12511-12519.	1.6	46
27	Memristive operations demonstrated by gap-type atomic switches. Applied Physics A: Materials Science and Processing, 2011, 102, 811-815.	1.1	43
28	Rate-limiting processes in the fast SET operation of a gapless-type Cu-Ta2O5 atomic switch. AIP Advances, 2013, 3, .	0.6	43
29	Volatile/Nonvolatile Dual-Functional Atom Transistor. Applied Physics Express, 2011, 4, 015204.	1.1	42
30	Kinetic factors determining conducting filament formation in solid polymer electrolyte based planar devices. Nanoscale, 2016, 8, 13976-13984.	2.8	42
31	Atomic switches: atomic-movement-controlled nanodevices for new types of computing. Science and Technology of Advanced Materials, 2011, 12, 013003.	2.8	39
32	Effects of temperature and ambient pressure on the resistive switching behaviour of polymer-based atomic switches. Journal of Materials Chemistry C, 2015, 3, 5715-5720.	2.7	38
33	Laser Patterning of Optically Reconfigurable Transistor Channels in a Photochromic Diarylethene Layer. Nano Letters, 2016, 16, 7474-7480.	4.5	38
34	In Situ and Nonvolatile Photoluminescence Tuning and Nanodomain Writing Demonstrated by All-Solid-State Devices Based on Graphene Oxide. ACS Nano, 2015, 9, 2102-2110.	7.3	36
35	Atomic Layer Deposition of a Magnesium Phosphate Solid Electrolyte. Chemistry of Materials, 2019, 31, 5566-5575.	3.2	30
36	Flexible resistive switching memory using inkjet printing of a solid polymer electrolyte. AIP Advances, 2012, 2, .	0.6	29

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37	Ionic decision-maker created as novel, solid-state devices. Science Advances, 2018, 4, eaau2057.	4.7	28
38	Identification and roles of nonstoichiometric oxygen in amorphous Ta2O5 thin films deposited by electron beam and sputtering processes. Applied Surface Science, 2016, 385, 426-435.	3.1	27
39	Thermally stable resistive switching of a polyvinyl alcohol-based atomic switch. Journal of Materials Chemistry C, 2018, 6, 6460-6464.	2.7	26
40	Volatile and nonvolatile selective switching of a photo-assisted initialized atomic switch. Nanotechnology, 2013, 24, 384006.	1.3	24
41	Operating mechanism and resistive switching characteristics of two- and three-terminal atomic switches using a thin metal oxide layer. Journal of Electroceramics, 2017, 39, 143-156.	0.8	24
42	Decision maker based on atomic switches. AIMS Materials Science, 2016, 3, 245-259.	0.7	22
43	A Variety of Functional Devices Realized by Ionic Nanoarchitectonics, Complementing Electronics Components. Advanced Electronic Materials, 2022, 8, 2100645.	2.6	22
44	Approach for measuring complex refractive index of molten Sb2Te3 by spectroscopic ellipsometry. Applied Physics Letters, 2012, 100, .	1.5	21
45	Position detection and observation of a conducting filament hidden under a top electrode in a Ta₂O₅-based atomic switch. Nanotechnology, 2015, 26, 145702.	1.3	19
46	Composition of thin Ta2O5films deposited by different methods and the effect of humidity on their resistive switching behavior. Japanese Journal of Applied Physics, 2016, 55, 06GG08.	0.8	17
47	Quantized conductance operation near a single-atom point contact in a polymer-based atomic switch. Japanese Journal of Applied Physics, 2017, 56, 06GF02.	0.8	17
48	Ultraâ€Low Voltage and Ultraâ€Low Power Consumption Nonvolatile Operation of a Threeâ€Terminal Atomic Switch. Advanced Materials, 2015, 27, 6029-6033.	11.1	15
49	Significant roles of the polymer matrix in the resistive switching behavior of polymer-based atomic switches. Journal Physics D: Applied Physics, 2019, 52, 445301.	1.3	15
50	Theoretical investigation of kinetics of a Cu2S-based gap-type atomic switch. Applied Physics Letters, 2011, 98, 233501.	1.5	14
51	Timeâ€Dependent Operations in Molecular Gap Atomic Switches. Physica Status Solidi (B): Basic Research, 2019, 256, 1900068.	0.7	14
52	Neuromorphic System for Edge Information Encoding: Emulating Retinal Center-Surround Antagonism by Li-Ion-Mediated Highly Interactive Devices. Nano Letters, 2021, 21, 7938-7945.	4.5	14
53	Electron transport in the barriers of AlGaAs/GaAs quantum well structures observed by scanning-tunneling-microscope light-emission spectroscopy. Applied Physics Letters, 2002, 80, 3748-3750.	1.5	13
54	Development of a molecular gap-type atomic switch and its stochastic operation. Journal of Applied Physics, 2018, 124, 152114.	1.1	13

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55	Nonvolatile three-terminal operation based on oxygen vacancy drift in a Pt/Ta₂O_{5â"x}/Pt, Pt structure. Applied Physics Letters, 2013, 102, 233508.	1.5	12
56	Direct observation of anodic dissolution and filament growth behavior in polyethylene-oxide-based atomic switch structures. Japanese Journal of Applied Physics, 2016, 55, 06GK02.	0.8	11
57	Dynamic moderation of an electric field using a SiO₂ switching layer in TaO_x â€based ReRAM. Physica Status Solidi - Rapid Research Letters, 2015, 9, 166-170.	1.2	9
58	Investigation of Ag and Cu Filament Formation Inside the Metal Sulfide Layer of an Atomic Switch Based on Point-Contact Spectroscopy. ACS Applied Materials & Interfaces, 2019, 11, 27178-27182.	4.0	9
59	Resistivity control by the electrochemical removal of dopant atoms from a nanodot. Faraday Discussions, 2019, 213, 29-40.	1.6	8
60	Atomic switches: atomic-movement-controlled nanodevices for new types of computing. Science and Technology of Advanced Materials, 2011, 12, 013003.	2.8	8
61	A Voltage-Controlled Oscillator Using Variable Capacitors with a Thin Dielectric Electrolyte Film. ACS Applied Electronic Materials, 2020, 2, 2788-2797.	2.0	7
62	Impact of moisture absorption on the resistive switching characteristics of a polyethylene oxide-based atomic switch. Journal of Materials Chemistry C, 2021, 9, 11198-11206.	2.7	6
63	Solid state ionics for the development of artificial intelligence components. Japanese Journal of Applied Physics, 2022, 61, SM0803.	0.8	6
64	Diffusion process of electrons injected from STM tip into AlGaAs/GaAs quantum wells. Applied Surface Science, 2002, 190, 275-278.	3.1	5
65	Quantized Conductance and Neuromorphic Behavior of a Gapless-Type Ag-Ta2O5 Atomic Switch. Materials Research Society Symposia Proceedings, 2013, 1562, 1.	0.1	5
66	Fabrication of a magnesium-ion-conducting magnesium phosphate electrolyte film using atomic layer deposition. Japanese Journal of Applied Physics, 2020, 59, SIIG08.	0.8	5
67	Real-space observation of electron transport in AlGaAs/GaAs quantum wells using a scanning tunneling microscope. Thin Solid Films, 2004, 464-465, 469-472.	0.8	4
68	A mesoporous SiO₂ thin films-based ionic decision-maker for solving multi-armed bandit problems. Japanese Journal of Applied Physics, 2020, 59, SIIG01.	0.8	4
69	Synaptic plasticity and memristive behavior operated by atomic switches. , 2014, , .		3
70	Nanosecond Fast Switching Processes Observed in Gapless-Type, Ta2O5â€"Based Atomic Switches. Materials Research Society Symposia Proceedings, 2015, 1729, 35-40.	0.1	3
71	The rate limiting process and its activation energy in the forming process of a Cu/Ta2O5/Pt gapless-type atomic switch. Japanese Journal of Applied Physics, 2018, 57, 035202.	0.8	3
72	Oxygen vacancy drift controlled three-terminal ReRAM with a reduction in operating gate bias and gate leakage current. Solid State Ionics, 2018, 328, 30-34.	1.3	3

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73	Atomic scale switches based on solid state ionics. Advances in Physics: X, 2022, 7, .	1.5	3
74	Changes in the temperature dependence of Ag/Ta₂O₅/Pt gapless-type atomic switches caused by desorption/adsorption of water molecules from/into the Ta₂O₅ matrix. Japanese Journal of Applied Physics, 2021, 60, SCCF05.	0.8	2
75	Impacts of Temperature and Moisture on the Resistive Switching Characteristics of a Cu-Ta2O5-Based Atomic Switch. Materials Research Society Symposia Proceedings, 2012, 1430, 25.	0.1	1
76	Flexible Polymer Atomic Switches using Ink-Jet Printing Technique. Materials Research Society Symposia Proceedings, 2012, 1430, 106.	0.1	1
77	Biomimetics: Controlling the Synaptic Plasticity of a Cu2S Gap-Type Atomic Switch (Adv. Funct. Mater.) Tj ETQq1 1 0.784314 rgBT /O	7.8	1
78	Influence of Atmosphere on Photo-Assisted Atomic Switch Operations. Key Engineering Materials, 2013, 596, 116-120.	0.4	1
79	Current progress of solid state ionics on information and communication device technology. , 2017, , .		1
80	Effects of water adsorption on conductive filaments of a Ta2O5 atomic switch investigated by nondestructive electrical measurements. Applied Physics Letters, 2020, 117, .	1.5	1
81	Measurement of changes in resistance of a Ag2+Î´S nano-island on removal of dopant Î´-Ag atoms. Japanese Journal of Applied Physics, 2021, 60, SE1001.	0.8	1
82	Operating Mechanism and Resistive Switching Characteristics of Two- and Three-Terminal Atomic Switches Using a Thin Metal Oxide Layer. Kluwer International Series in Electronic Materials: Science and Technology, 2022, , 209-234.	0.3	1
83	Artificial Synapses Realized by Atomic Switch Technology. Advances in Atom and Single Molecule Machines, 2020, , 175-199.	0.0	1
84	Volatile and nonvolatile selective operation of a two-terminal gap-type atomic switch. , 2014, , .		0
85	Solid-Polymer-Electrolyte-Based Atomic Switches. Advances in Atom and Single Molecule Machines, 2020, , 139-159.	0.0	0
86	Development of Three-Terminal Atomic Switches and Related Topics. Advances in Atom and Single Molecule Machines, 2020, , 127-137.	0.0	0