# Tsuyoshi Hasegawa

List of Publications by Year
in descending order



| 70 | 5,534 | 159585<br>30 | 106344<br>65 |
|---|---|---|---|
| papers | citations | h-index | g-index |

| 74 | 74 | 74 | 4804 |
|---|---|---|---|
| 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. | 27.5 | 1,480 |
| 2 | Nanoscale cation motion in TaOx, HfOx and TiOx memristive systems. Nature Nanotechnology, 2016, 11, 67-74. | 31.5 | 524 |
| 3 | Atomic Switch: Atom/Ion Movement Controlled Devices for Beyond Vonâ€Neumann Computers. Advanced Materials, 2012, 24, 252-267. | 21.0 | 338 |
| 4 | Learning Abilities Achieved by a Single Solidâ€State Atomic Switch. Advanced Materials, 2010, 22, 1831-1834. | 21.0 | 274 |
| 5 | Effects of Moisture on the Switching Characteristics of Oxideâ€Based, Gaplessâ€Type Atomic Switches. Advanced Functional Materials, 2012, 22, 70-77. | 14.9 | 247 |
| 6 | Electronic transport in Ta2O5 resistive switch. Applied Physics Letters, 2007, 91, . | 3.3 | 213 |
| 7 | Atomically controlled electrochemical nucleation at superionic solid electrolyte surfaces. Nature Materials, 2012, 11, 530-535. | 27.5 | 208 |
| 8 | On-Demand Nanodevice with Electrical and Neuromorphic Multifunction Realized by Local Ion Migration. ACS Nano, 2012, 6, 9515-9521. | 14.6 | 186 |
| 9 | Controlling the Synaptic Plasticity of a Cu<sub>2</sub>S Gapâ€Type Atomic Switch. Advanced Functional Materials, 2012, 22, 3606-3613. | 14.9 | 160 |
| 10 | Conductance quantization and synaptic behavior in a Ta<sub>2</sub>O<sub>5</sub>-based atomic switch. Nanotechnology, 2012, 23, 435705. | 2.6 | 157 |
| 11 | Surface modification of MoS2 using an STM. Applied Surface Science, 1992, 60-61, 643-647. | 6.1 | 154 |
| 12 | Redox Reactions at Cu,Ag/Ta<sub>2</sub>O<sub>5</sub> Interfaces and the Effects of Ta<sub>2</sub>O<sub>5</sub> Film Density on the Forming Process in Atomic Switch Structures. Advanced Functional Materials, 2015, 25, 6374-6381. | 14.9 | 148 |
| 13 | A Polymerâ€Electrolyteâ€Based Atomic Switch. Advanced Functional Materials, 2011, 21, 93-99. | 14.9 | 130 |
| 14 | Diffusivity of Cu Ions in Solid Electrolyte and Its Effect on the Performance of Nanometer-Scale Switch. IEEE Transactions on Electron Devices, 2008, 55, 3283-3287. | 3.0 | 121 |
| 15 | Rate-Limiting Processes Determining the Switching Time in a Ag<sub>2</sub>S Atomic Switch. Journal of Physical Chemistry Letters, 2010, 1, 604-608. | 4.6 | 99 |
| 16 | Structural studies of copper sulfide films: effect of ambient atmosphere. Science and Technology of Advanced Materials, 2008, 9, 035011. | 6.1 | 83 |
| 17 | Temperature effects on the switching kinetics of a Cuâ€“Ta<sub>2</sub>O<sub>5</sub>-based atomic switch. Nanotechnology, 2011, 22, 254013. | 2.6 | 75 |
| 18 | Switching kinetics of a Cu<sub>2</sub>S-based gap-type atomic switch. Nanotechnology, 2011, 22, 235201. | 2.6 | 73 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | Ionic-Electronic Conductor Nanostructures: Template-Confined Growth and Nonlinear Electrical Transport. Small, 2005, 1, 971-975. | 10.0 | 62 |
| 20 | The Atomic Switch. Proceedings of the IEEE, 2010, 98, 2228-2236. | 21.3 | 60 |
| 21 | Nanoarchitectonics for Controlling the Number of Dopant Atoms in Solid Electrolyte Nanodots. Advanced Materials, 2018, 30, 1703261. | 21.0 | 59 |
| 22 | Nanoionics Switching Devices: â€œAtomic Switchesâ€. MRS Bulletin, 2009, 34, 929-934. | 3.5 | 55 |
| 23 | Effect of sulfurization conditions and post-deposition annealing treatment on structural and electrical properties of silver sulfide films. Journal of Applied Physics, 2006, 99, 103501. | 2.5 | 52 |
| 24 | Humidity effects on the redox reactions and ionic transport in a Cu/Ta<sub>2</sub>O<sub>5</sub>/Pt atomic switch structure. Japanese Journal of Applied Physics, 2016, 55, 06GJ09. | 1.5 | 49 |
| 25 | Oxygen migration process in the interfaces during bipolar resistance switching behavior of WO<i>3â^’x</i>-based nanoionics devices. Applied Physics Letters, 2012, 100, . | 3.3 | 46 |
| 26 | Memristive operations demonstrated by gap-type atomic switches. Applied Physics A: Materials Science and Processing, 2011, 102, 811-815. | 2.3 | 43 |
| 27 | Atomic switches: atomic-movement-controlled nanodevices for new types of computing. Science and Technology of Advanced Materials, 2011, 12, 013003. | 6.1 | 39 |
| 28 | 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. | 5.5 | 38 |
| 29 | Photoassisted Formation of an Atomic Switch. Small, 2010, 6, 1745-1748. | 10.0 | 33 |
| 30 | Control of local ion transport to create unique functional nanodevices based on ionic conductors. Science and Technology of Advanced Materials, 2007, 8, 536-542. | 6.1 | 31 |
| 31 | Quantum Conductance in Memristive Devices: Fundamentals, Developments, and Applications. Advanced Materials, 2022, 34, e2201248. | 21.0 | 31 |
| 32 | 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. | 2.0 | 24 |
| 33 | SiO<sub>2</sub>/Ta<sub>2</sub>O<sub>5</sub> heterojunction ECM memristors: physical nature of their low voltage operation with high stability and uniformity. Nanoscale, 2020, 12, 4320-4327. | 5.6 | 24 |
| 34 | Anomalous phase transition and ionic conductivity of AgI nanowire grown using porous alumina template. Journal of Applied Physics, 2007, 102, 124308. | 2.5 | 23 |
| 35 | Position detection and observation of a conducting filament hidden under a top electrode in a Ta<sub>2</sub>O<sub>5</sub>-based atomic switch. Nanotechnology, 2015, 26, 145702. | 2.6 | 19 |
| 36 | Ultraâ€Low Voltage and Ultraâ€Low Power Consumption Nonvolatile Operation of a Threeâ€Terminal Atomic Switch. Advanced Materials, 2015, 27, 6029-6033. | 21.0 | 15 |

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|---|---|---|---|
| 37 | Theoretical investigation of kinetics of a Cu2S-based gap-type atomic switch. Applied Physics Letters, 2011, 98, 233501. | 3.3 | 14 |
| 38 | Timeâ€Dependent Operations in Molecular Gap Atomic Switches. Physica Status Solidi (B): Basic Research, 2019, 256, 1900068. | 1.5 | 14 |
| 39 | In-materio reservoir working at low frequencies in a Ag<sub>2</sub>S-island network. Nanoscale, 2022, 14, 7634-7640. | 5.6 | 14 |
| 40 | Development of a molecular gap-type atomic switch and its stochastic operation. Journal of Applied Physics, 2018, 124, 152114. | 2.5 | 13 |
| 41 | Nonvolatile three-terminal operation based on oxygen vacancy drift in a Pt/Ta<sub>2</sub>O<sub>5â^’x</sub>/Pt, Pt structure. Applied Physics Letters, 2013, 102, 233508. | 3.3 | 12 |
| 42 | Dynamic moderation of an electric field using a SiO<sub>2</sub> switching layer in TaO<i><sub>x</sub></i> â€based ReRAM. Physica Status Solidi - Rapid Research Letters, 2015, 9, 166-170. | 2.4 | 9 |
| 43 | P-type polymer-based Ag<sub>2</sub>S atomic switch for â€œtug of warâ€•operation. Japanese Journal of Applied Physics, 2017, 56, 06GF03. | 1.5 | 8 |
| 44 | Resistivity control by the electrochemical removal of dopant atoms from a nanodot. Faraday Discussions, 2019, 213, 29-40. | 3.2 | 8 |
| 45 | Stable analog resistance change of a molecular-gap atomic switch over a wide range. Japanese Journal of Applied Physics, 2020, 59, SIIF01. | 1.5 | 8 |
| 46 | Atomic switches: atomic-movement-controlled nanodevices for new types of computing. Science and Technology of Advanced Materials, 2011, 12, 013003. | 6.1 | 8 |
| 47 | Resistive Switching Memristor: On the Direct Observation of Physical Nature of Parameter Variability. ACS Applied Materials & Interfaces, 2022, 14, 1557-1567. | 8.0 | 6 |
| 48 | Quantized Conductance and Neuromorphic Behavior of a Gapless-Type Ag-Ta2O5 Atomic Switch. Materials Research Society Symposia Proceedings, 2013, 1562, 1. | 0.1 | 5 |
| 49 | Observation of a Ag protrusion on a Ag 2 S island using a scanning tunneling microscope. Results in Physics, 2015, 5, 182-183. | 4.1 | 4 |
| 50 | Formation and dissolution of conductive channels in an Ag2S-islands network. Japanese Journal of Applied Physics, 2020, 59, SN1011. | 1.5 | 4 |
| 51 | Energy reversible Si-based NEMS Switch for nonvolatile logic systems. , 2013, , . | | 3 |
| 52 | Synaptic plasticity and memristive behavior operated by atomic switches. , 2014, , . | | 3 |
| 53 | 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. | 1.5 | 3 |
| 54 | Development of a metal oxide-based molecular-gap atomic switch for unconventional computing. Japanese Journal of Applied Physics, 2020, 59, 040605. | 1.5 | 3 |

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|---|---|---|---|
| 55 | Study on a conductive channel of a Pt/NiO/Pt ReRAM by bias application with/without a magnetic field. Japanese Journal of Applied Physics, 2021, 60, SCCF03. | 1.5 | 3 |
| 56 | Reservoir Computing on Atomic Switch Arrays with High Precision and Excellent Memory Characteristics. Journal of Signal Processing, 2021, 25, 123-126. | 0.3 | 3 |
| 57 | Atomic Switch-Nano Device using the Transfer of Atoms(Ions)-. Hyomen Kagaku, 2006, 27, 232-238. | 0.0 | 3 |
| 58 | A nano-mechanical device using a Ag<sub>2</sub>Sâ€“C<sub>60</sub> system. Japanese Journal of Applied Physics, 2019, 58, SDDF02. | 1.5 | 2 |
| 59 | Emulating neural functions utilizing the larger time constants found in the operation of molecular-gap atomic switches. Japanese Journal of Applied Physics, 2021, 60, SCCF01. | 1.5 | 2 |
| 60 | Changes in the temperature dependence of Ag/Ta<sub>2</sub>O<sub>5</sub>/Pt gapless-type atomic switches caused by desorption/adsorption of water molecules from/into the Ta<sub>2</sub>O<sub>5</sub> matrix. Japanese Journal of Applied Physics, 2021, 60, SCCF05. | 1.5 | 2 |
| 61 | 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 |
| 62 | Flexible Polymer Atomic Switches using Ink-Jet Printing Technique. Materials Research Society Symposia Proceedings, 2012, 1430, 106. | 0.1 | 1 |
| 63 | Biomimetics: Controlling the Synaptic Plasticity of a Cu2S Gap-Type Atomic Switch (Adv. Funct. Mater.) Tj ETQq1 1 0.784314 rgBT /Ove | 14.9 | 1 |
| 64 | Influence of Atmosphere on Photo-Assisted Atomic Switch Operations. Key Engineering Materials, 2013, 596, 116-120. | 0.4 | 1 |
| 65 | <i>In Situ</i> Reproducible Sharp Tips for Atomic Force Microscopy. Physical Review Applied, 2021, 15, . | 3.8 | 1 |
| 66 | 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. | 1.5 | 1 |
| 67 | Noise sensitivity of physical reservoir computing in a ring array of atomic switches. Nonlinear Theory and Its Applications IEICE, 2022, 13, 373-378. | 0.6 | 1 |
| 68 | Volatile and nonvolatile selective operation of a two-terminal gap-type atomic switch. , 2014, , . | | 0 |
| 69 | Reliable operation of a molecular-gap atomic switch in a vacuum achieved by covering with an ionic liquid. Japanese Journal of Applied Physics, 2020, 59, SIIF04. | 1.5 | 0 |
| 70 | Behavioral Model of Molecular Gap-Type Atomic Switches and Its SPICE Integration. Circuits and Systems, 2022, 13, 1-12. | 0.1 | 0 |